Versiclad BAL–40 Roof System.

Versiclad

Structural Insulated Panels

BAL–40 Roof System.

Ensuring compliance to AS3959 when building in a BAL–40 Zone

When undertaking a new construction or renovation project in Australia, its compulsory to include a Bushfire Attacked Level (BAL) assessment in order to comply with state and national regulations. The result of the BAL assessment will determine the construction methods that must be used if the location of the land is deemed to be in a BAL affected area.

A bushfire attack level (BAL) is a measurement of the severity of a buildings potential exposure to ember attack, radiant heat and direct flame contact. The Australian standard that governs the BAL assessment and construction method is AS3959:2018.

All complying development and construction certificates must comply to AS3959:2018.

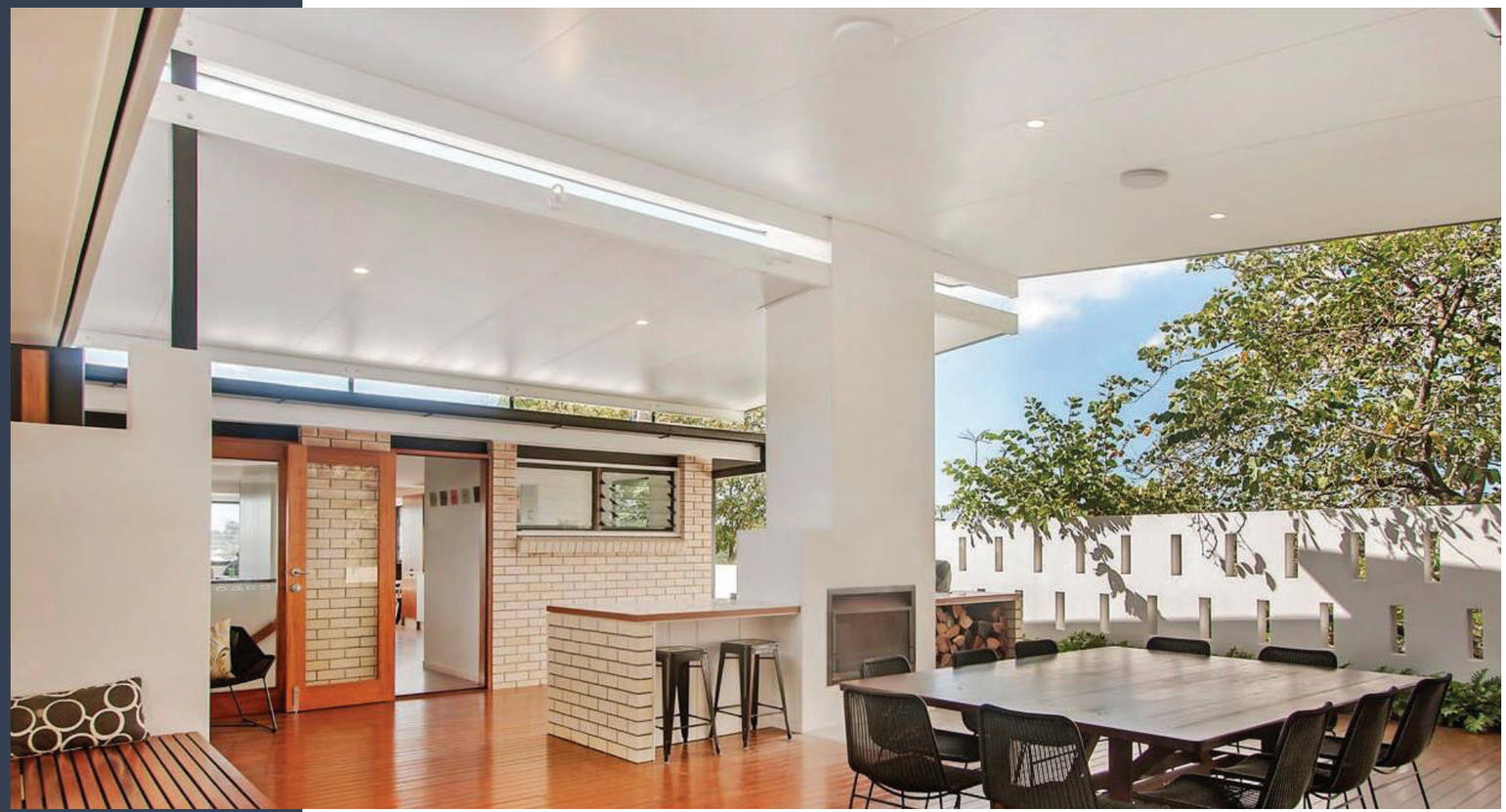
The BAL assessment will give consideration to a variety of factors including the volume and type of surrounding vegetation type and distance from property, as well as the slope of the land.

What do BAL zones mean

AS3959 identifies 6 BAL zones that range from BAL–Low to FZ – these are:

Bushfire Attack Level (BAL)	Explanation
BAL–LOW	There is insufficient risk to warrant any specific construction requirements but there is still some risk
BAL–12.5	There is risk of ember attack. The construction elements are expected to be exposed to a heat flux not greater than 12.5kW/m^2
BAL–19	There is risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 19kW/m^2
BAL–29	There is an increased risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to an increased level of radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 29kW/m^2
BAL–40	There is a much increased risk of ember attack and burning debris ignited by wind borne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux not greater than 40kW/m^2
BAL–FZ	There is an extremely high risk of ember attack and burning debris ignited by wind borne embers, and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux not greater than 40kW/m^2

Table 1: BAL rating tables as per AS3959:2018



Construction in a BAL–40 zone

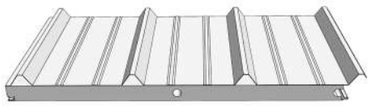
Versiclad has engaged the services of leading fire engineer to undertake an assessment on the use of Versiclad Bushfire roof system in areas rated up to BAL–40. The products specified in this roof system are Versiclad Fire Flashings, End Caps and Z Flashing when installed with Versiclad Spacemaker, Corrolink or Versalink roof panel products.

The outcome of this assessment deemed that Versiclad Spacemaker, Versalink and Corrolink panels satisfied the requirements of AS3959 up to BAL–40 for roof and wall applications when installed in accordance with specific installation instructions and Fire Flashings.

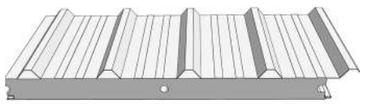
This design guide has been designed to assist builders when constructing a pergola, patio or other type of outdoor roof structure in an area deemed as BAL–40 using the Versiclad bushfire roof system. The following specific instructions must be followed in order to ensure compliance to AS3959.

Roof Panel and Fire Flashings suitable for BAL–40:

Corrolink
765mm & 1000mm



Spacemaker



Versalink
765mm & 1000mm

Our BAL–40 System.

Versiclad BAL–40 Roofing System

The Versiclad BAL–40 Compliant construction method includes 5 key areas that are different to standard construction.

These are:

1) Installation of Fire Protection Flashing at gutter end
2) Side Barge trimming and fastening specifications (Side End Cap)
3) Installation of Fire Protection Flashing at non-gutter end
4) Roof panel overlap stitching specifications
5) Checking for gaps greater than 2mm in the fully assembled roof system

A key requirement is the elimination of gaps greater than 2mm that would allow ember access to the core of the panel.

1. Installation of Fire Protection Flashing at gutter end of roof panels

- Fire Flashings that are matched to the roofing profile must be installed in between the Z Flashing and the top skin of the roofing panel. Fig. A.
- Once the Z Flashing has been fastened to the underside of the roof panel, beginning from one side of the roof installation, insert and fasten (300mm spacing) the Fire Flashing so the bottom face of the Fire Flashing sits on top of the top face of the Z Flashing, and any gaps between the Fire Flashing and the underside of the top skin are less than 2mm. Fig B.
- Remember to ensure that there will NOT be a gap of more than 2mm between the end of the Z Flashing and Fire Flashing and the inside vertical face of the Side Barge Flashings. You may need to test fit the Side Barge as you align the Fire Flashings to do this.

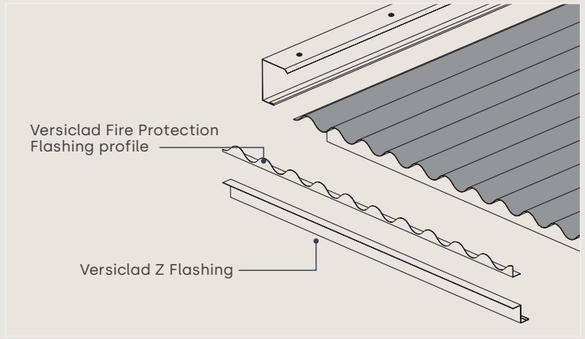


Figure A

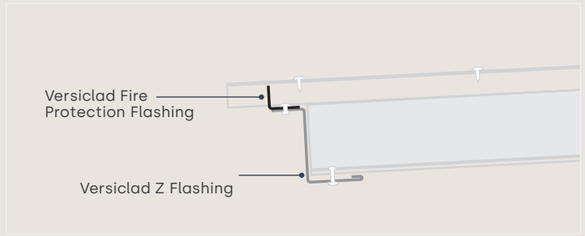


Figure B

2. Side Barge trimming and fastening specifications (Side End Cap)

- Trim the end of the Side Barge Flashing so that there will be no gaps greater than 2mm between the end of the Barge Flashing and where it meets at the vertical face of the receiver channel. Fig. C.

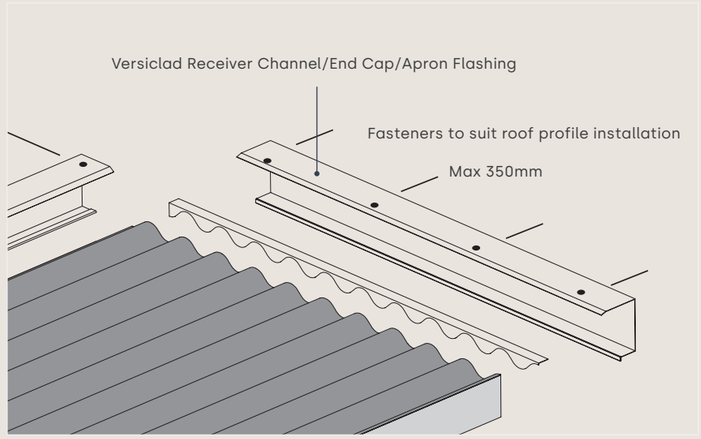


Figure C

- Once the Side Barge Flashings have been fixed to the roof panels, ensure that the top side of the flashings are screw fixed to the roof panels so that no gaps greater than 2mm exist between the underside of the Barge Flashing and top skin of the roof panel. Use 10-16x16 Hex head screws spaced no more than 100mm from the ends of the Barge Flashing, and at no more than 350mm centres along the length of the Barge Flashing. Fig. D.

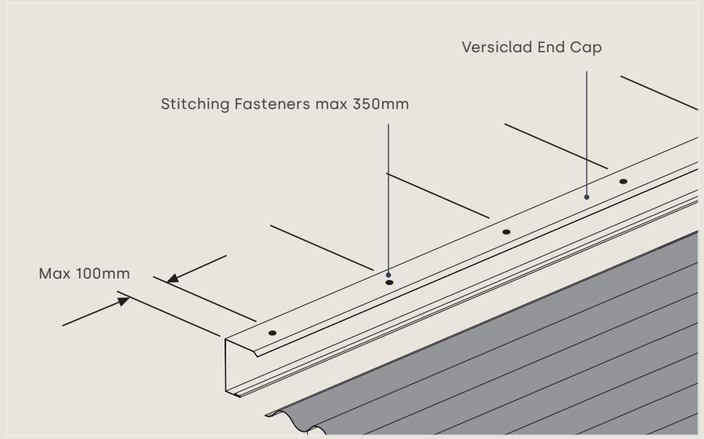


Figure D

3. Installation of Fire Protection Flashing at non-gutter end

If using a folded steel Receiver Channel:

- Starting at one end of the roof, slide the Fire Flashing under the receiver channel and Side Barge, positioning the top face of the Fire Flashing so it's entirely under the Receiver Channel, and any gaps between the Fire Flashing and the top skin of the roof panel are less than 2mm.
- Fix through the top of the receiver channel, through the Fire Flashing and into the roof panel crests at the appropriate spacing to suit the roof panel. This fastener spacing should be no more than 350mm. Fig E.

If using the Versiclad 2 Piece Receiver channel assembly:

- Starting at one end of the roof, slide the top section of the Receiver Channel in place, and slide the first Fire Flashing under the Receiver Channel, positioning the top face of the Fire Flashing so it's entirely under the Receiver Channel lid, and any gaps between the Fire Flashing and the top skin of the roof panel are less than 2mm.
- Fix through the top of the Receiver Channel, through the Fire Flashing and into the roof panel crests at the appropriate spacing to suit the roof panel. This fastener spacing should be no more than 350mm.
- Continue along the roof installing the top section of the Receiver Channel, joiner and Fire Flashings as you go, until reaching the end. Fig F.
- Maximum fastener spacing using either Receiver Channel should not exceed 350mm. Depending on the roof panel being used, fastener spacing may be less than 350mm due to differences in crest space. Use the following guide for fasteners:
  - Spacemaker – fix at every crest (330mm spacing)
  - Versalink – fix at every crest (250mm spacing)
  - Corrolink – fix at every second crest.

Folded Receiver Fire Flashing Assembly

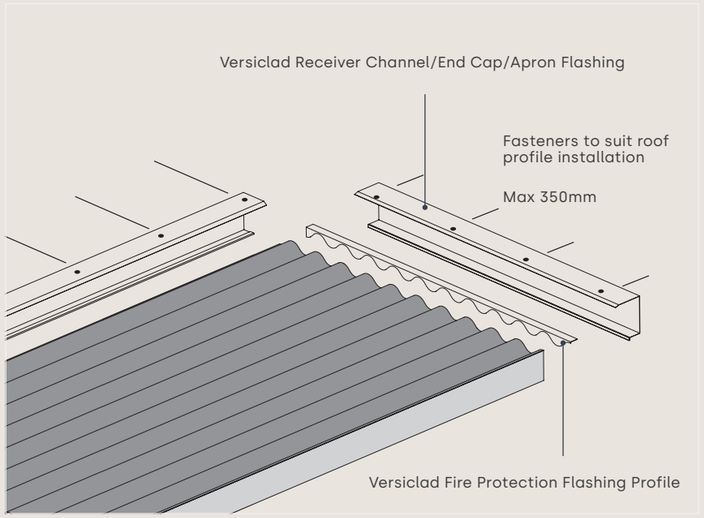


Figure E

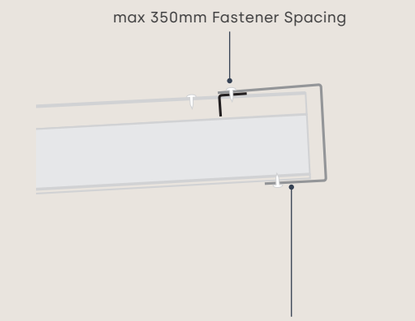


Figure E

Two Piece Receiver Channel Fire Flashing assembly

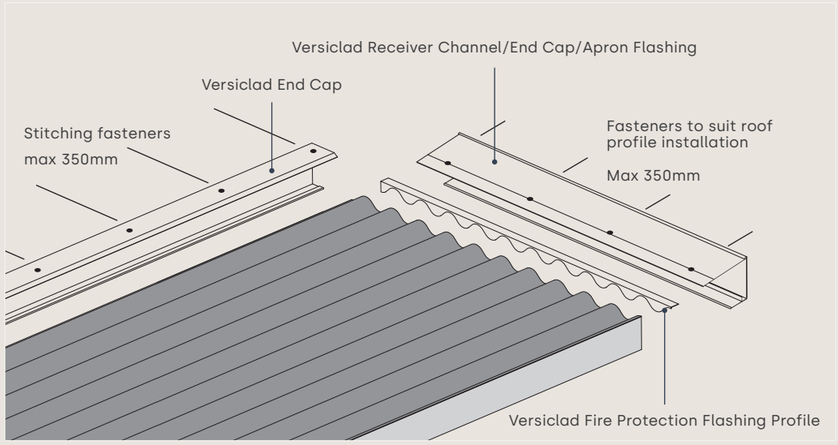


Figure F

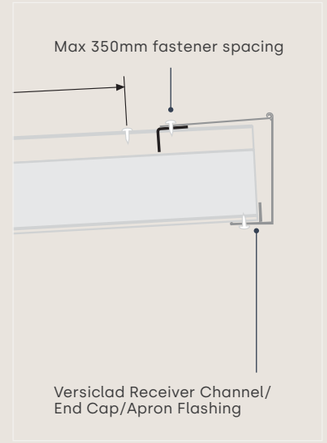


Figure F

4. Roof panel overlap stitching

- Using 10-16x16 Hex head screws, the overlaps of the roof panels must be fastened at maximum 350mm centres, and at no more than 100mm from the end of the roof panels. Larger screws used to fasten the roof panels to the supporting structural beams can be counted as stitching screws, when working out spacings. Fig G.

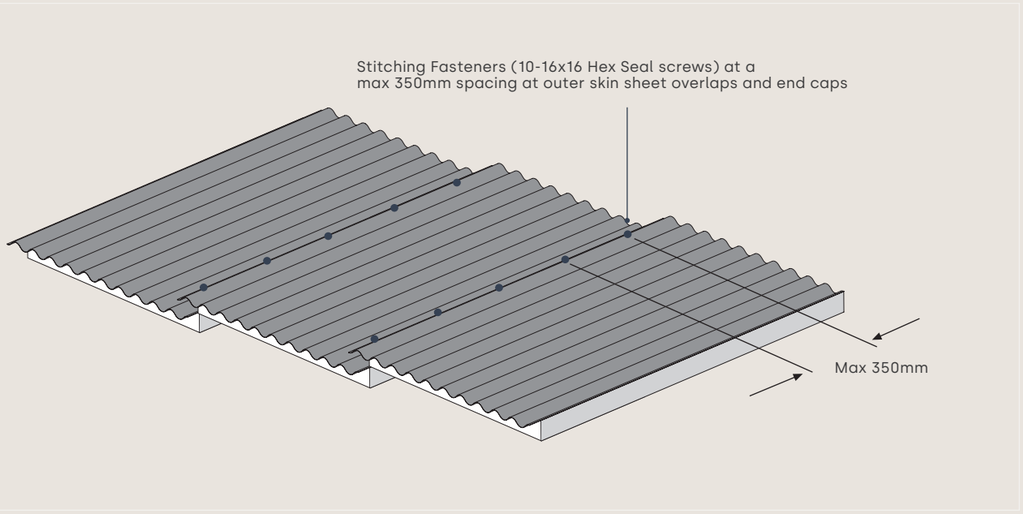


Figure G

5. Checking for gaps greater than 2mm in the fully assembled roof system

- Do a final check for gaps that are greater than 2mm in the installed roofing system that could provide a path for embers to reach the core of the roof panels. Any gaps can be sealed with a fire grade mastic sealant (readily available in Hardware stores).

Beautifully engineered for life.

For more information, please contact
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