BAL Ratings Guide

BAL or Bushfire Attack Level is a method for rating the intensity (kW/m^2) of a structure's potential exposure to a bushfire. The BAL rating determines the construction and building requirements to protect the structure in bushfire prone areas.

There are six levels of BAL ratings according to AS3959:2018.

BAL Zones

BAL	Heat Flux Threshold (kW/m^2)	Predicted Bushfire Attack Level of Exposure
BAL Low		Insufficient risk
BAL 12.5	<12.5	Significant ember attack, burning debris, radiant heat up to a level 12.5 kW/m^2
BAL 19	12.5 – 19	Increasing ember attack, burning debris, radiant heat up to a level of 19 kW/m^2
BAL 29	19-29	Increasing ember attack, burning debris, radiant heat up to a level of 29 kW/m^2
BAL 40	29-40	Increasing ember attack, burning debris, radiant heat up to 40 kW/m^2, flames may occasionally contact the structure
BAL FZ	>40	Increasing ember attack, burning debris, radiant heat up to 40kW/m^2, flames are likely to engulf part of or the entire structure

Metal Roof Requirements According to AS3959:2018

BAL	Roof Requirement
BAL Low	No requirements
12.5	Non-combustible materials and coverings, wall and roof junctions sealed, penetrations/openings to have non-combustible ember guards, roof to be fully sealed with Flammability Index <5
19	Non-combustible materials and coverings, wall and roof junctions sealed, penetrations/openings to have non-combustible ember guards, roof to be fully sealed with Flammability Index <5
29	Non-combustible materials and coverings, wall and roof junctions sealed, penetrations/openings to have non-combustible ember guards, roof to be fully sealed with Flammability Index <5
40	Non-combustible materials and coverings, wall and roof junctions sealed, penetrations/openings installed with non-combustible ember guards, roof to be fully sealed with Flammability Index <5, no roof installed evap. coolers
FZ	Roof to have 30/30/30 and/or tested to AS1530.8.2 Bushfire Resistance, wall and roof junctions sealed, penetrations/openings installed with non-combustible ember guards, no roof installed evap. coolers

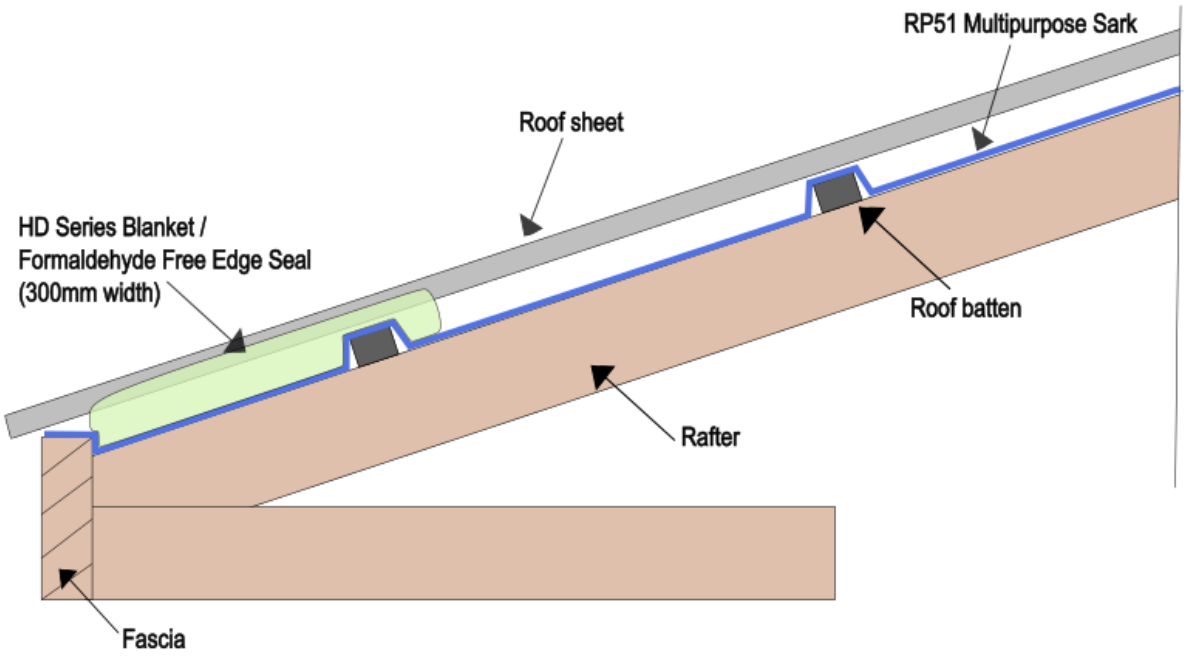
Suitable Thermacon Insulation Products for BAL Roof Construction BAL 12.5 – BAL 40

- RP51 Multipurpose Heavy Duty 60m x 1.350m
- HD Series Blanket 300mm width
- Formaldehyde Free Edge Seal 300mm width
- R1.3 55mm Thermacon Building Blanket Foil Faced
- R1.3 55mm Formaldehyde Free Roofing Blanket Foil Faced

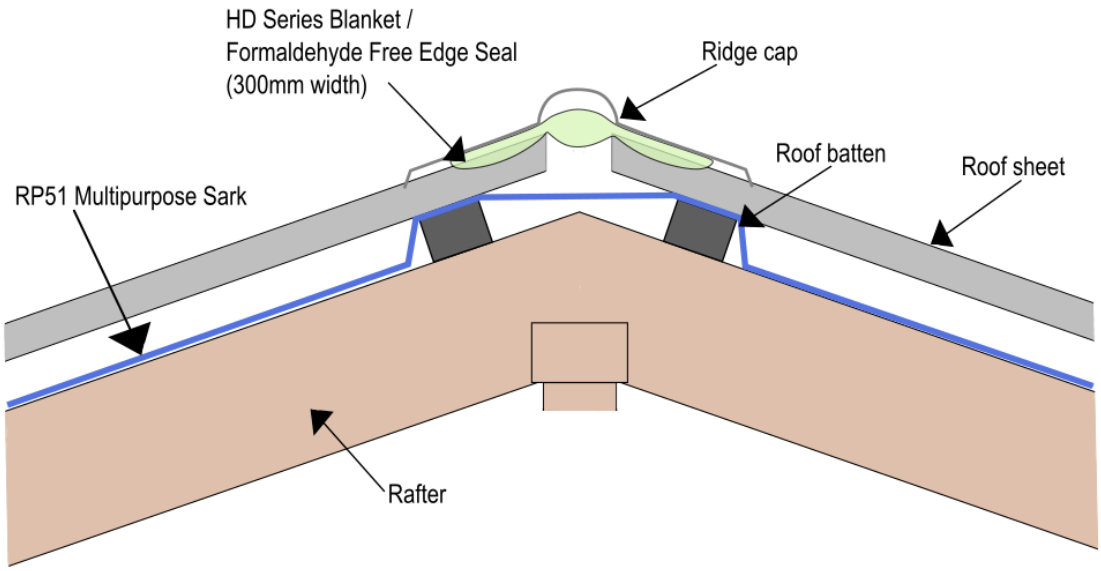
Install Guidelines for Metal/Sheet Roof System for BAL 12.5 – BAL 40

Minimum Requirements

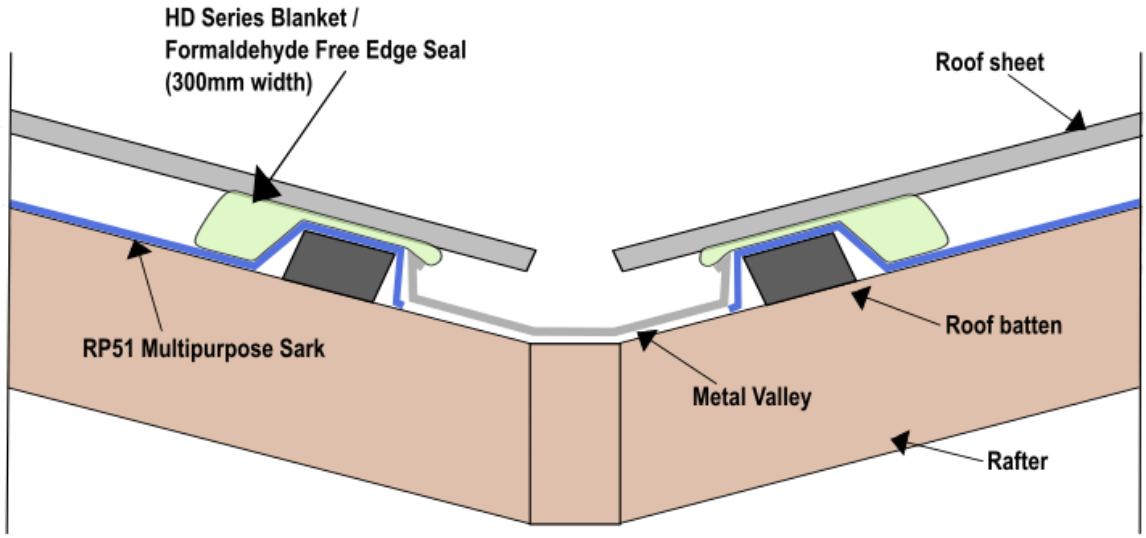
A) Fully sark roof to entire area using RP51 Multipurpose Foil, installing over the top of roof battens. Fill any gaps greater than 3mm using HD Series Blanket/Formaldehyde Free Edge Seal, sealing at the wall line/fascia, hips, ridges and valleys. Above fascia, install HD Series Blanket/Formaldehyde Free Edge Seal extending up the roof 300mm and over first roof batten. Roof sheet to compress and seal as described. RP51 Multipurpose foil must be overlapped by 150mm.


RP51 Multipurpose Sark
Roof sheet
HD Series Blanket /
Formaldehyde Free Edge Seal
(300mm width)
Roof batten
Rafter
Fascia

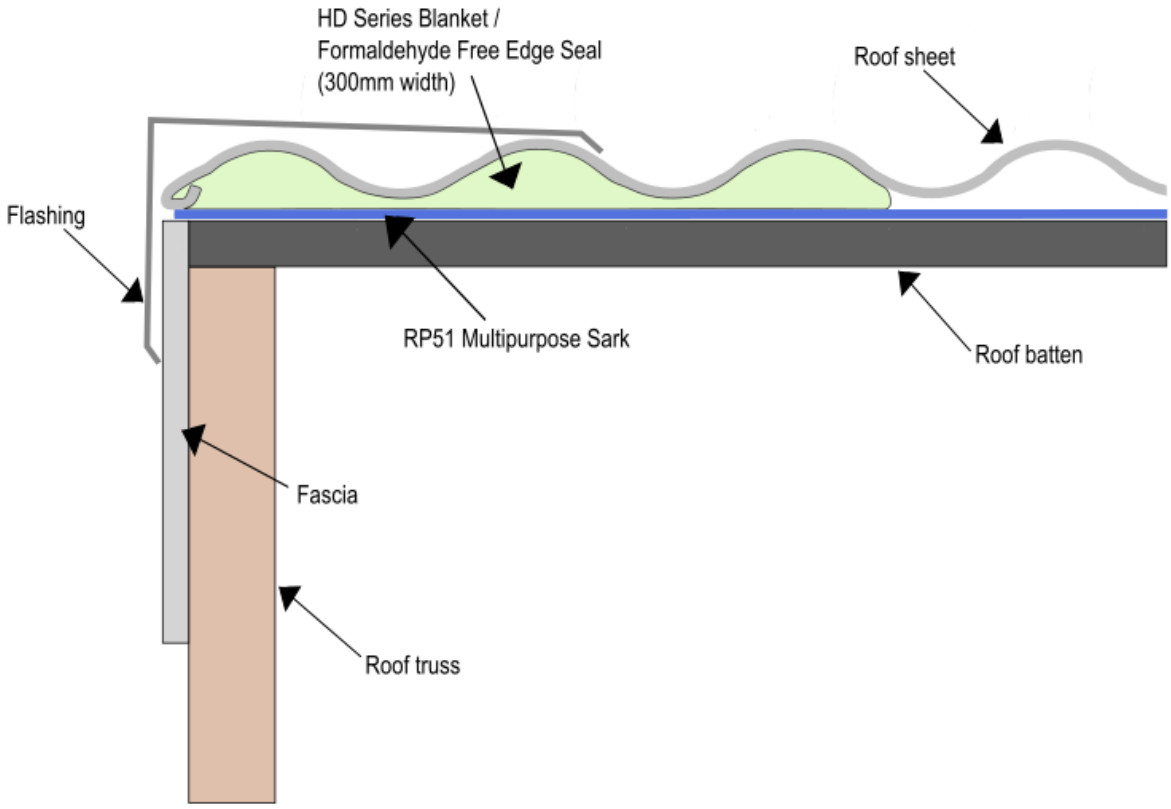
Hip/Ridge


HD Series Blanket /
Formaldehyde Free Edge Seal
(300mm width)
Ridge cap
Roof batten
Roof sheet
RP51 Multipurpose Sark
Rafter

Valley



Barge

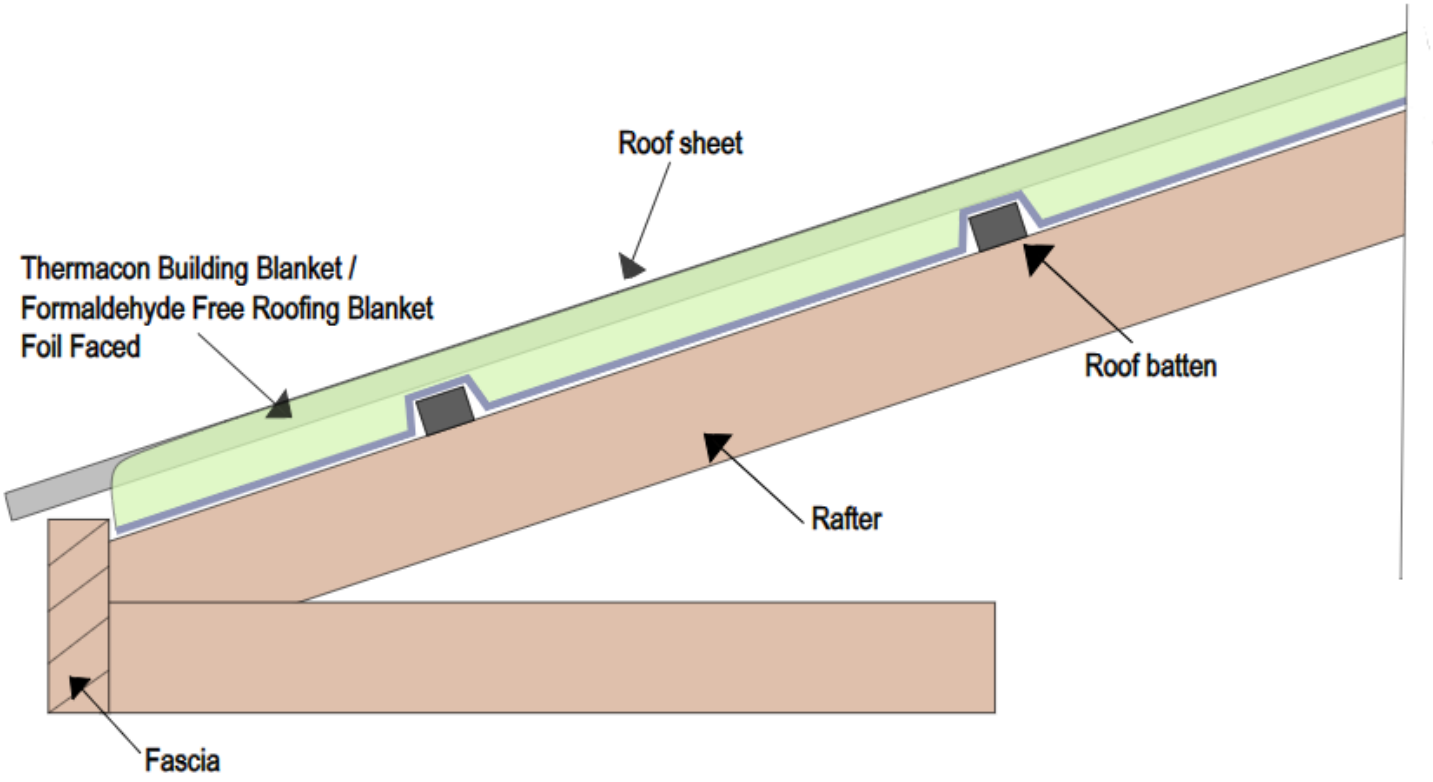


Recommended Method

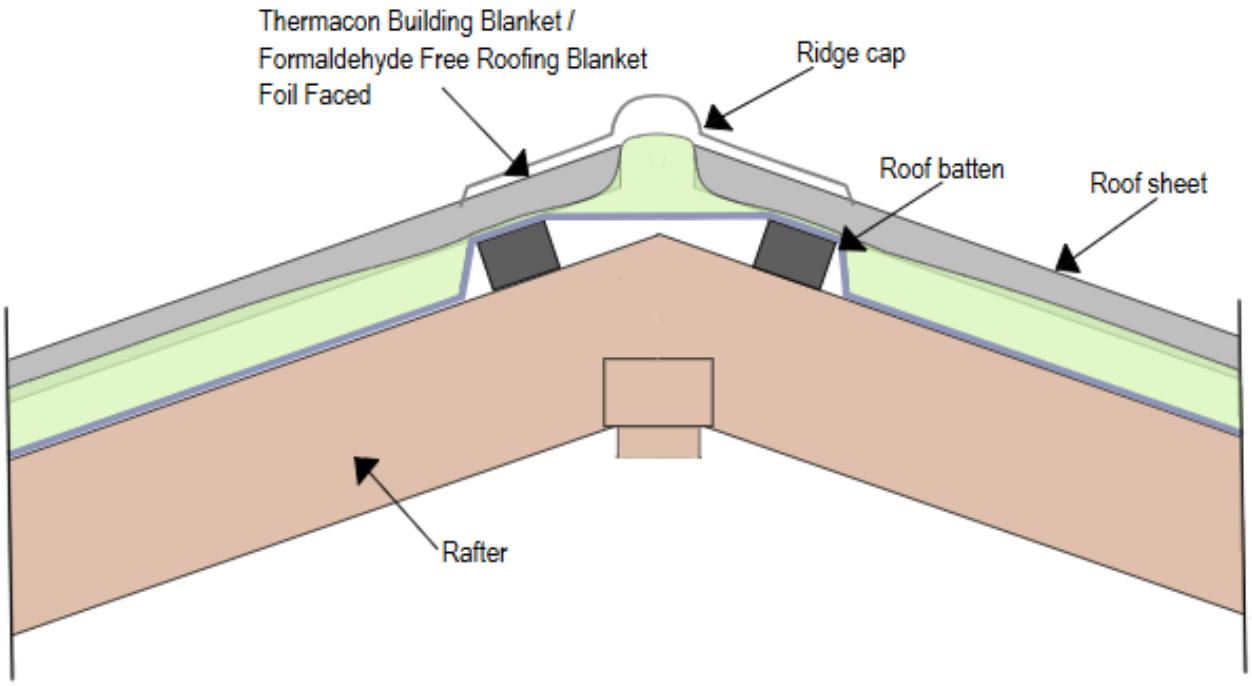
B) Install R1.3 Thermacon Building Blanket/Formaldehyde Free Roofing Blanket to entire roof, installing on top of the roof battens. Along the gutter line, install Thermacon Building Blanket/Formaldehyde Free Roofing Blanket sealed to the Fascia line by either placing into the back of the Fascia or finishing flush on top of the rebated Fascia, ensuring there are no gaps greater than 3mm into the roof space. Care should be taken that the Glasswool or sarking is not overhanging the into the gutter to prevent water absorption to the Glasswool.

For the ridge lines and hips, install the R1.3 Thermacon Building Blanket/Formaldehyde Free Roofing Blanket up and over the roof face to the other side of the roof and then install Thermacon Building Blanket/Formaldehyde Free Roofing Blanket on the other side of the roof, overlapping to the centre of the ridge line (approx. 150mm overlap), ensuring there are no gaps greater than 3mm into the roof space.

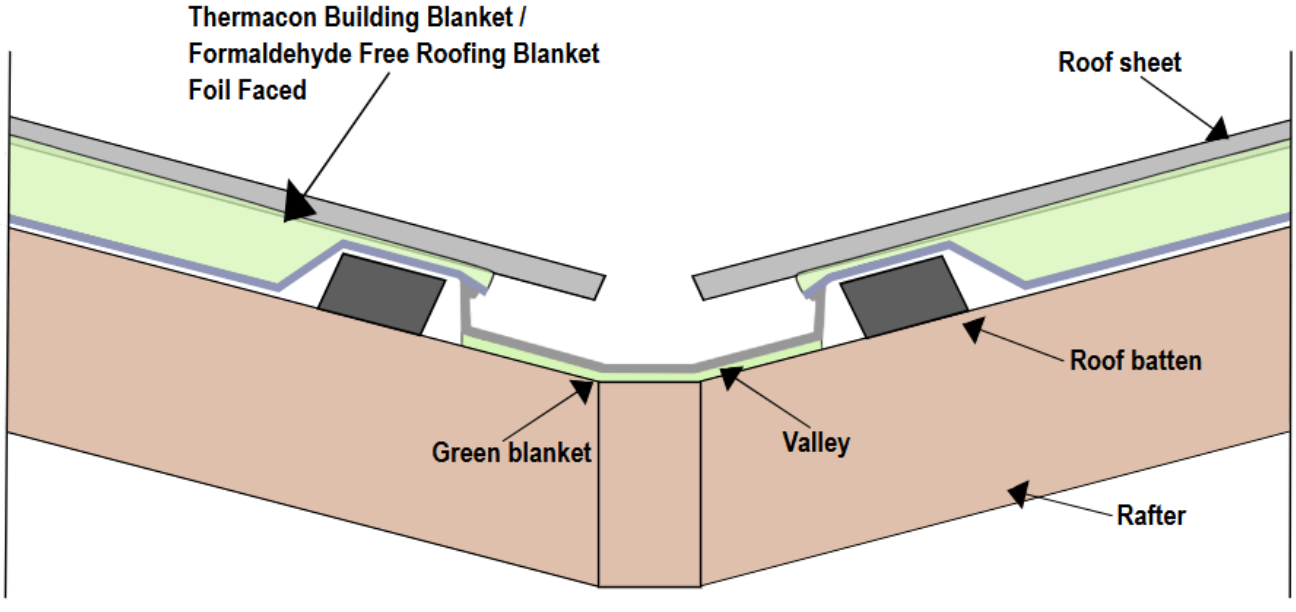
For the valleys, install Thermacon Building Blanket/Formaldehyde Free Roofing Blanket sealed to the valley tray either by running underneath the valley tray or finishing flush with the valley tray edge, compressing the Thermacon Building Blanket/Formaldehyde Free Roofing Blanket ensuring there are no gaps greater than 3mm into the roof space. Care should be taken that the Glasswool or sarking is not overhanging into the valley tray to prevent water absorption to the Glasswool.



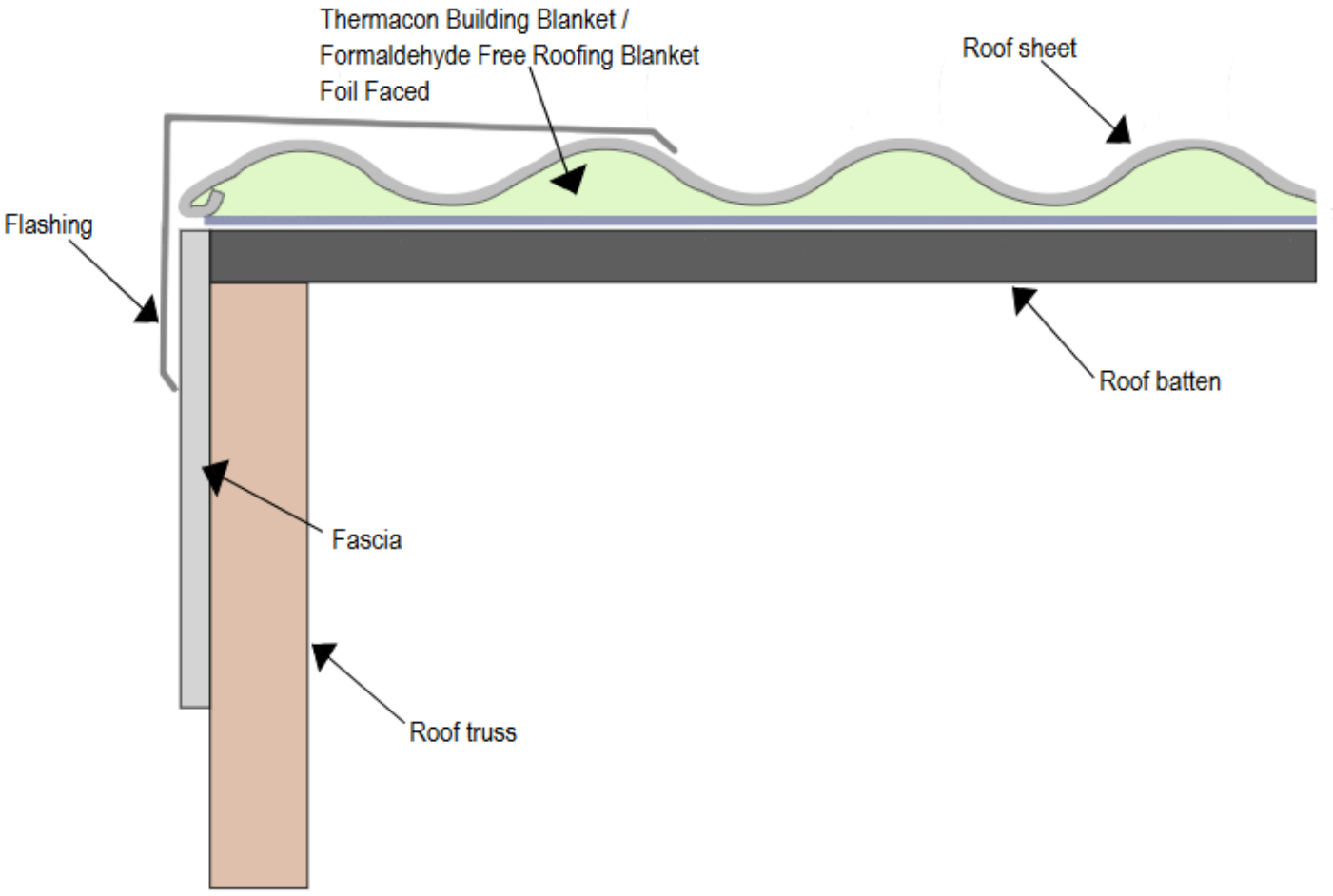
Hip/Ridge



Valley



Barge



**Please note that this reference for method of installation is not an exhaustive list of all the requirements of AS3959:2018 and should be read in conjunction with AS3959:2018.

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