

Bushfire Roofing Systems

Design Guide

NCC - 2019



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Introduction

Every new home built or renovated must undergo a BAL (Bushfire Attack Level) assessment as part of the application for a building permit. The site BAL assessment determines the construction methods that must be used to better protect properties from the threat of bushfires. The BAL assessment takes into consideration a number of factors including the Fire Danger Index, the slope of the land, types of surrounding vegetation and its proximity to any building.

A building surveyor will use AS3959 to check compliance with the construction requirements of the standard.

The following BAL 12.5-40 construction system details have been developed by CSR Bradford based on our interpretation of AS3959. Full compliance with AS3959 is confirmed by the relevant Fire Authority (CFA, RFS etc) of the applicable local council.

For FZ tile roofs, details provided set out the construction requirements for tile roofs as tested by Exova Warrington Fire; Fire Testing Report RIR 23987-04.

For Metal roofs in BAL-FZ areas, there are 2 methods for Deemed-To-Satisfy compliance; AS 3959 Construction of buildings in bushfire – prone areas, and NASH Standard for Steel Framed Construction in Bushfire Areas. Details provided in the BAL FZ Metal Roof section set out the construction requirements for metal roofs.

All drawings are for illustration purposes only and is not intended to be an install guide. Not all components are fully drawn and/or labeled.

For further information, contact your Bradford representative, call 1300 850 305 or visit our website:

www.bradfordinsulation.com.au

What do these BAL zones mean?

| BUSHFIRE ATTACK LEVEL (BAL) | DESCRIPTION OF PREDICTED BUSHFIRE ATTACK AND LEVELS OF EXPOSURE |
|-----------------------------|--|
| 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/m². |
| 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/m². |
| 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/m². |
| 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/m². |
| 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/m². |

Roofing systems requirements

A rigorous process of independent research and testing has resulted in a range of compliant roofing systems designed to withstand the threats in each BAL. The following table outlines roofing requirements incorporated into the standard for each BAL zone.

| BAL ZONE | ROOFING REQUIREMENTS |
|------------|--|
| BAL – Low | No special requirements |
| BAL – 12.5 | Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked |
| BAL – 19 | Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked |
| BAL – 29 | Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked |
| BAL – 40 | Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked or insulated with foil backed insulation |
| BAL – FZ | Roof with FRL of 30/30/30 or tested bushfire resistance to AS1530.8.2. Roof/wall junction sealed. Openings fitted with non-combustible materials. |



Roof system selection

To select the compliant roofing system for your project you need to first identify the BAL classification for your site and determine whether your roof will be tiled or metal clad. Please note that the following is a guide and CSR Bradford recommends that you work closely with your building surveyor/private certifier, fire engineering consultant and insurance provider early in the design phase of your building to ensure compliance where appropriate to your specific building type and project requirements. The system drawings provided are not drawn to scale and are not intended to be an installation guide, for further fixing details contact CSR technical support.

4.1 BAL-12.5 – BAL-40 Tiled Roof

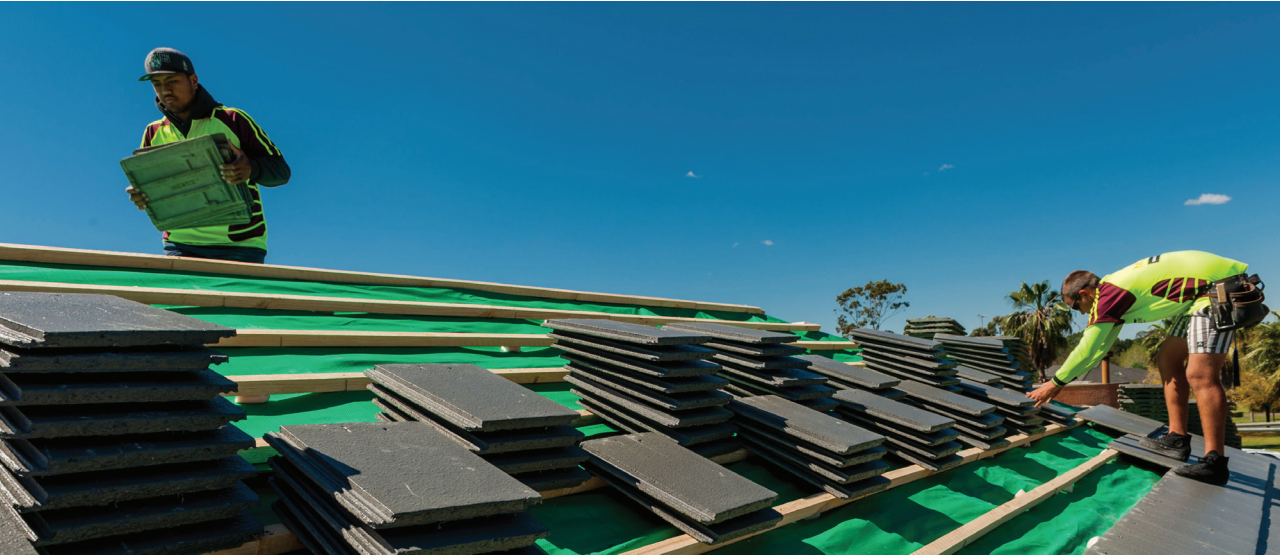
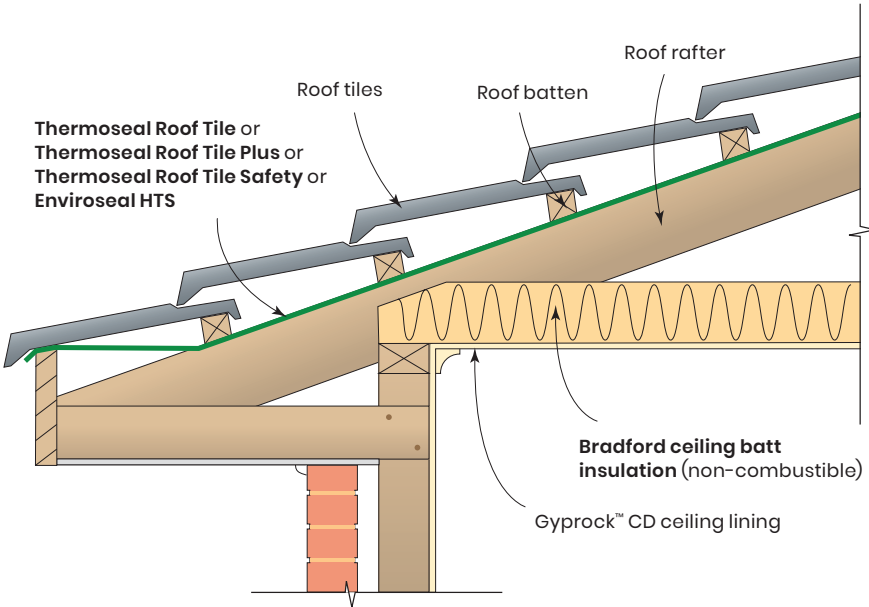
For compliance in BAL-12.5 to BAL-40 areas, tiled roofs shall be fully sarked. The sarking shall:

- (a) Be located on top of the roof framing, except that the roof battens may be fixed above the sarking
- (b) Cover the entire roof area including ridges and hips; and
- (c) Extend into gutters and valleys.

| RAFTER SPACING | PRODUCT |
|---------------------------|--|
| Up to and including 600mm | Thermoseal™ Roof Tile, Thermoseal Roof Tile Plus or Enviroseal HTS |
| Over 600m | Thermoseal Roof Tile Safety |

Figure 4.1. Tiled Roofs

- Install Thermoseal Roof Tile or Enviroseal HTS sarking on top of the roof framing and below the roof battens.



4.2 BAL-12.5 – BAL-40 Metal Roof

For compliance in BAL-12.5 to BAL-40 areas, metal sheet roofs shall:

- (i) Be fully sarked, except that foil-backed insulation blankets may be installed over the battens; (Use Anticon™ or Enviroseal HTS, refer to Figure 4.2.1.a and 4.2.1.b) or
- (ii) Have any gaps (such as under corrugations or ribs of sheet roofing and between roof components) sealed at the fascia or wall line and at valleys, hips and ridges using Bradford Multitel™ BAL12.5 – 40. Refer to Figure 4.2.1.c.

| APPLICATION | PRODUCT |
|-------------------------------|---|
| Sarking | Enviroseal HTS |
| Foil faced insulation blanket | Bradford Anticon |
| Gap seal | Bradford Multitel BAL 12.5 – 40 Blanket |

Figure 4.2.1.a Fascia Detail – Metal Roof (BAL12.5 – 40)

- Install Anticon to the entire roof area over the top of the battens.
- Compress with the roof sheet.
- This system provides condensation control, as well as thermal and acoustic benefits.

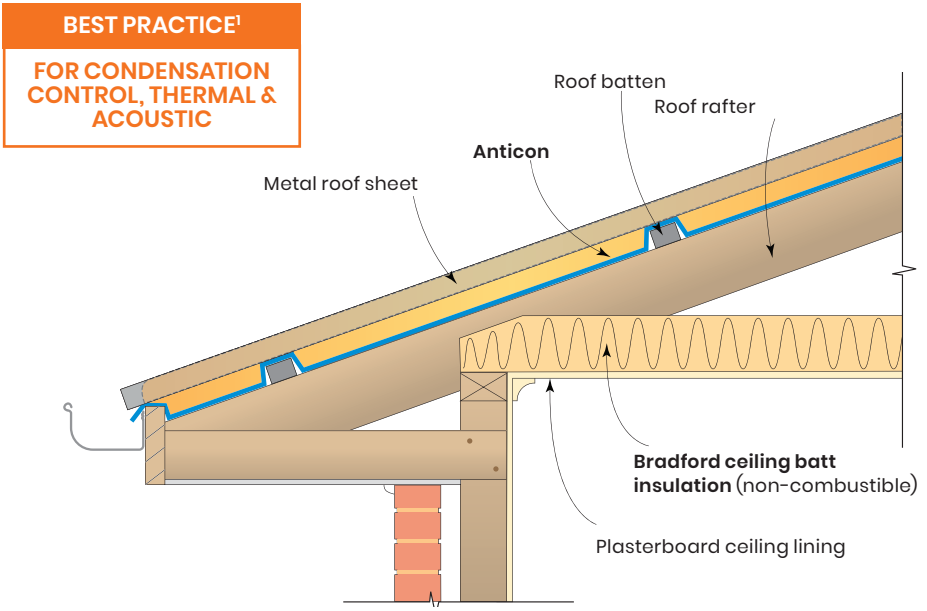
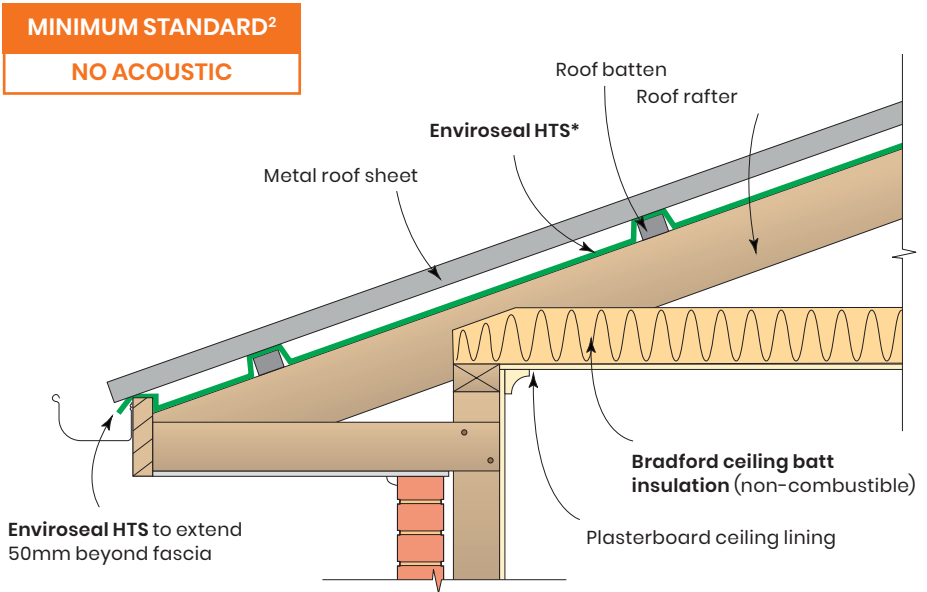


Figure 4.2.1.b Fascia Detail – Metal Roof (BAL12.5 – 40)

- Install Enviroseal HTS to the entire roof area over the top of the battens.
- This system does provide condensation control, but no acoustic benefits.



*For NCC climate zone 1, use Thermoseal 753 Heavy Duty sarking

1. Best practice: Recommended for colder climates and where condensation can be a concern, especially NCC climate zones 7 & 8. (See notes on page 9 for further detail).
2. Minimum standard: Suitable in warmer climates and where condensation is not considered a problem.

Figure 4.2.1.c
Fascia Detail – Metal Roof
(BAL12.5 – 40)

- Immediately above the fascia install Multitel BAL12.5 – 40 Blanket extending up the roof and over the first batten. Compress with the roof sheet.
- This system does not provide condensation control, nor thermal and acoustic benefits.

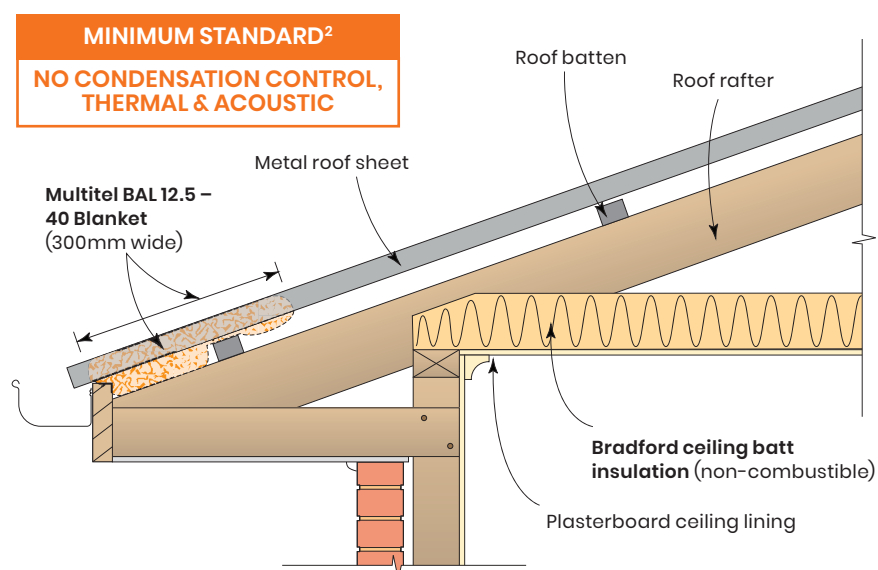


Figure 4.2.2.a
Valley Detail – Steel Roof
(BAL-12.5 – BAL-40)

- Install Anticon to the entire roof area over the top of the battens.
- Compress with roof sheet.
- This system provides condensation control, and thermal and acoustic benefits.

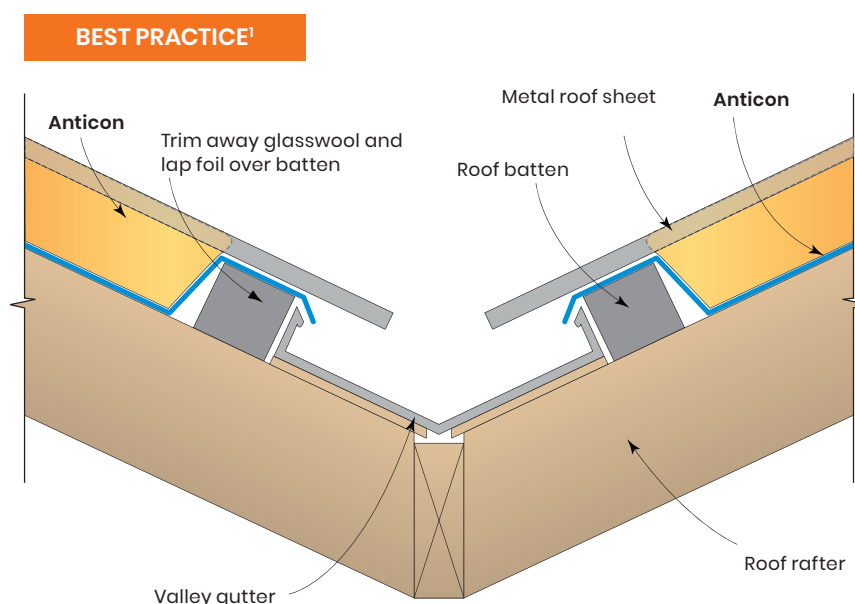
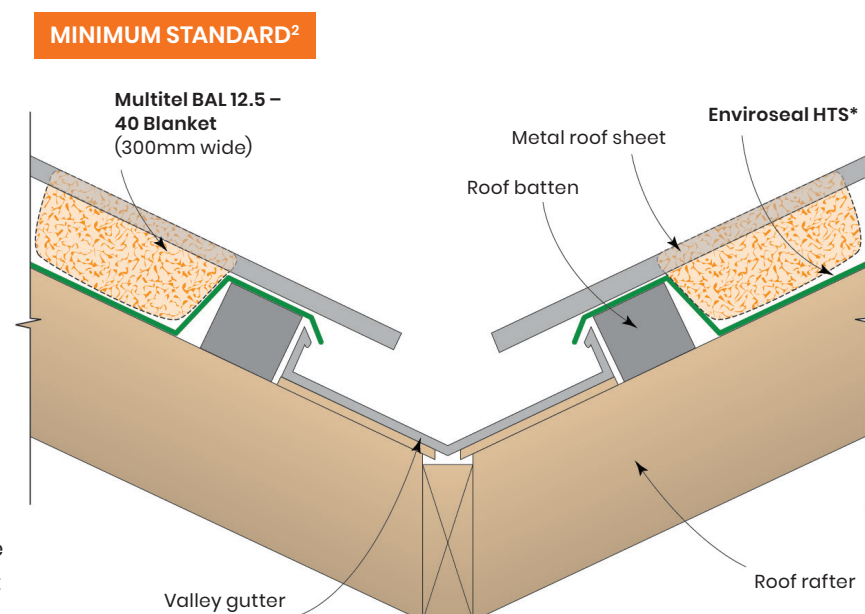


Figure 4.2.2.b
Valley Detail – Steel Roof
(BAL-12.5 – BAL-40)

- Install Enviroseal HTS to the entire roof area over the top of the battens.
- Multitel BAL12.5 – 40 Blanket to be laid over the top of the sarking extending into the outer edge of the valley gutter. Compress with roof sheet.

Alternative: Install sarking only as per above, OR Install Multitel BAL12.5–40 Blanket over the first batten, compressed to seal any gaps within the cladding profile. Ensure that the blanket does not wick into the valley gutter.



2. Minimum standard: Suitable in warmer climates and where condensation is not considered a problem.
1. Best practice: Recommended for colder climates and where condensation can be a concern, especially NCC climate zones 7 & 8. (See notes on page 9 for further detail).

*For NCC climate zone 1, use Thermoseal 753 Heavy Duty sarking

Figure 4.2.3.a
Barge Detail – Steel Roof
(BAL-12.5 – BAL-40)

- Install Anticon to the entire roof area over the top of the battens.
- Compress with roof sheet.
- This system provides condensation control, and thermal and acoustic benefits.

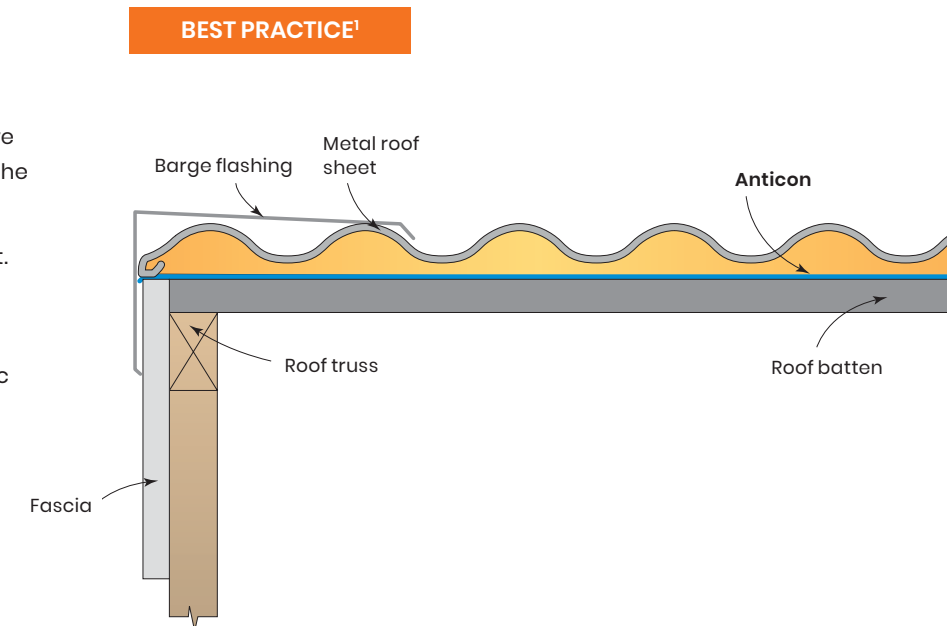
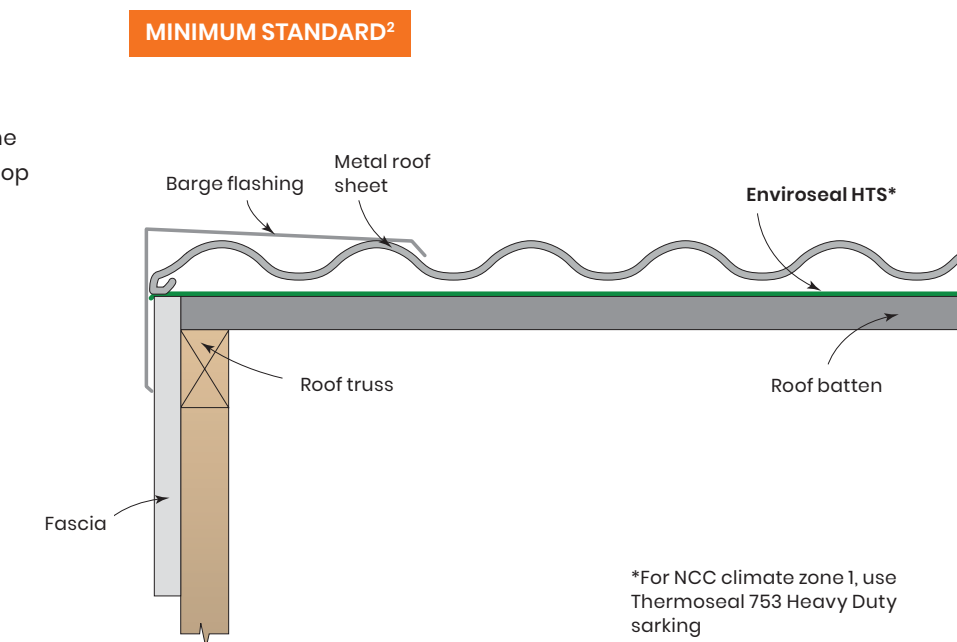


Figure 4.2.3.b
Barge Detail – Steel Roof
(BAL-12.5 – BAL-40)

- Install Enviroseal HTS to the entire roof area over the top of the battens.



*For NCC climate zone 1, use Thermoseal 753 Heavy Duty sarking

1. Best practice: Recommended for colder climates and where condensation can be a concern, especially NCC climate zones 7 & 8. (See notes on page 9 for further detail).
2. Minimum standard: Suitable in warmer climates and where condensation is not considered a problem.

Figure 4.2.4.a
Hip/Ridge Detail – Steel Roof
(BAL-12.5 – BAL-40)

- Install Anticon to the entire roof area over the top of the battens.
- Install the ridge capping to the roof profile.
- This system provides condensation control, and thermal and acoustic benefits.

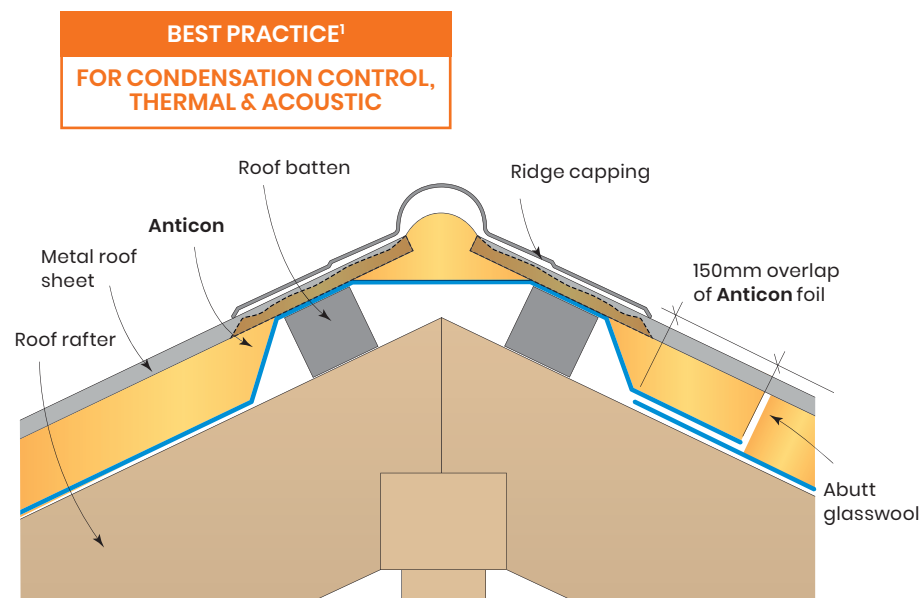
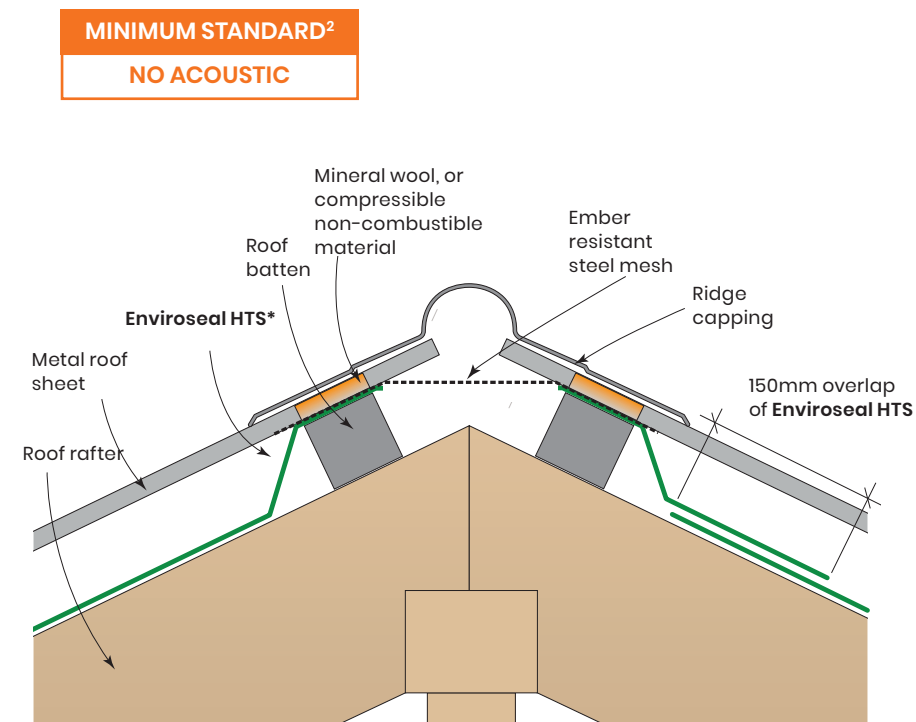


Figure 4.2.4.b
Hip/Ridge Detail – Steel Roof
(BAL-12.5 – BAL-40)

- Install Enviroseal HTS to the entire roof area over the top of the battens.
- At the ridge/hip lay ember resistant steel mesh³, over the top of the battens on either side of the ridge/hip.
- Above the battens and ember resistant mesh, on either side of the ridge/hip, install either mineral wool, or a compressible non-combustible material, & compress. Install ridge capping over roof sheet.
- This system allows for ventilation in the roof space, which will provide condensation control. This system does not provide thermal nor acoustic benefits⁴.



*For NCC climate zone 1, use Thermoseal 753 Heavy Duty sarking

1. Best practice: Recommended for colder climates and where condensation can be a concern, especially NCC climate zones 7 & 8. (See notes on page 9 for further detail).

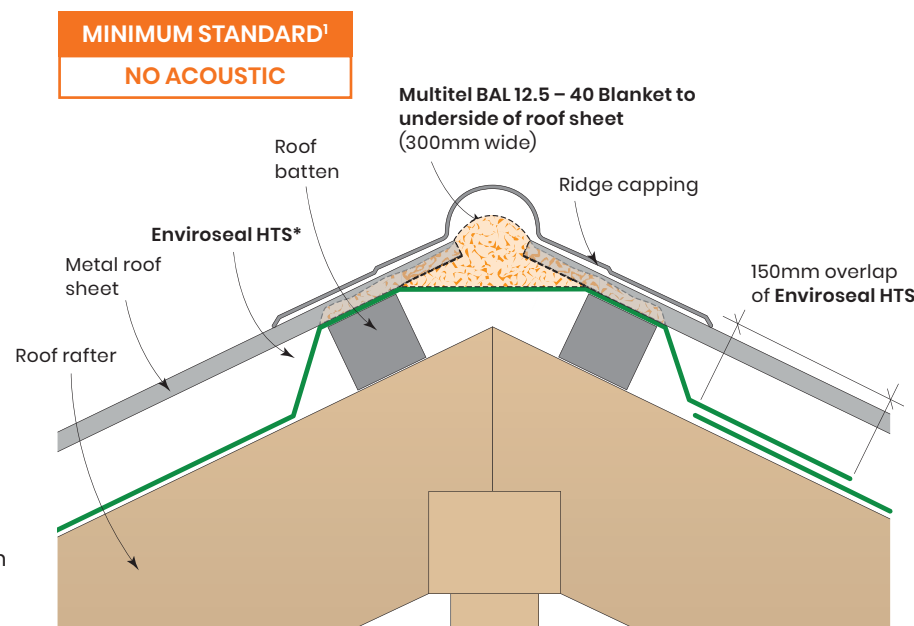
2. Minimum standard: Suitable in warmer climates and where condensation is not considered a problem.

3. Ember resistant steel mesh or perforated sheet with a maximum aperture of 2mm made from corrosion resistant steel, bronze or aluminium (as per AS3959).

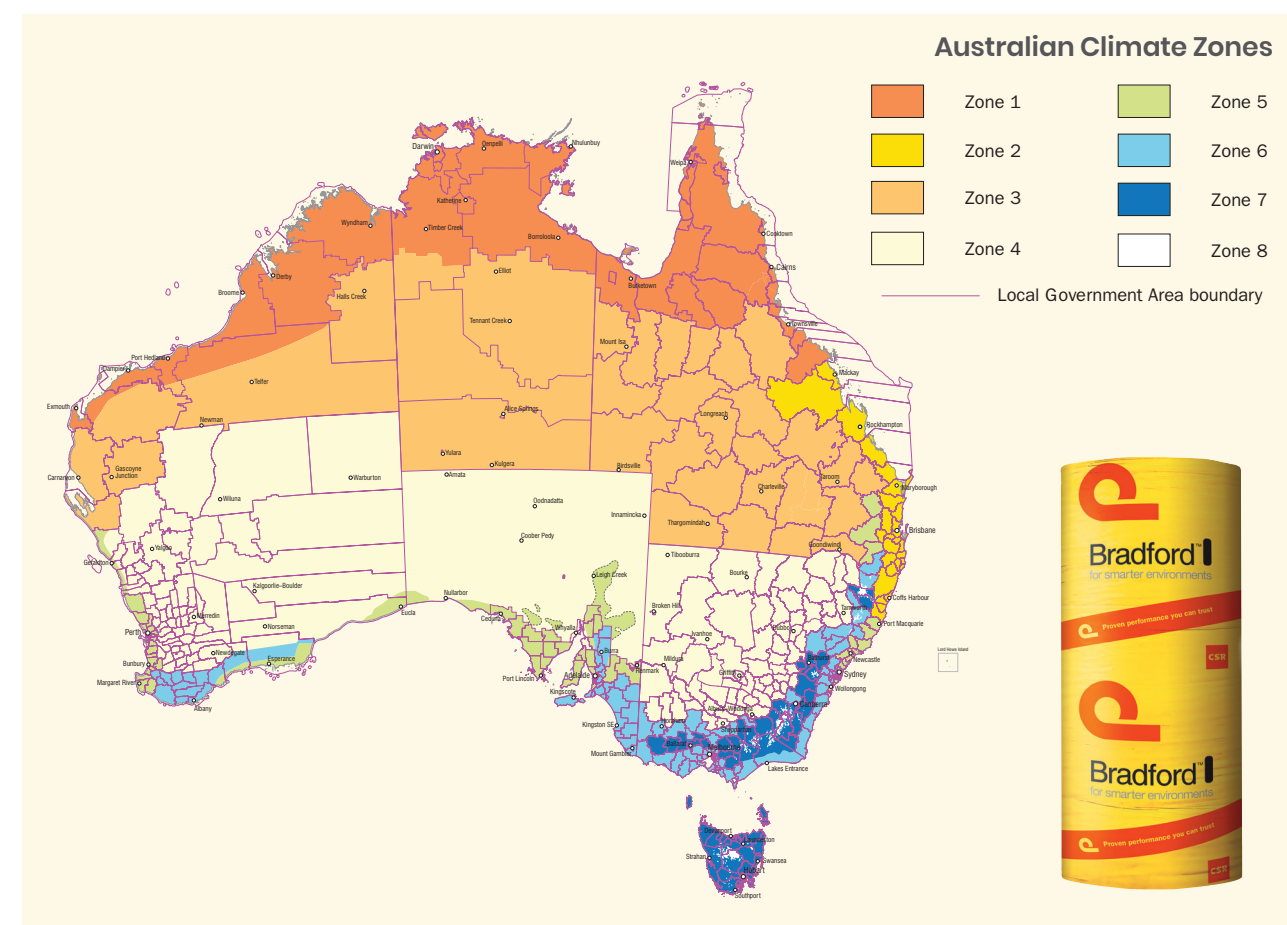
4. For more details, refer to "Condensation in Buildings – Tasmanian Designers' Guide – Version 2", which can be downloaded from the TAS Consumer, Building and Occupational Services website www.cbos.tas.gov.au, search Condensation in Buildings – Tasmanian Designers' Guide.

Figure 4.2.4.c
Hip/Ridge Detail – Steel Roof
(BAL-12.5 – BAL-40)

- Install Enviroseal HTS to the entire roof area over the top of the battens.
- At the ridge/hip lay Multitel BAL12.5 – 40 Blanket between the batten and roof sheet & compress. Install ridge capping over roof sheet.
- Alternative: Install sarking only as per above, OR Install Multitel BAL12.5-40 Blanket across the hip/ridge between the batten and roof sheet & compress as per above.



*For NCC climate zone 1, use Thermoseal 753 Heavy Duty sarking



Note: Extra precautions may still need to be applied where condensation is deemed to be a concern. Condensation occurs when warm moist air hits a surface below the dew point. Any of the following can contribute to the incidence of condensation:

- Where bathroom exhaust fans are vented into the attic (and not ducted to the outside)
 - Where kitchen range hoods are not ducted to the outside
 - Where high levels of ceiling insulation are installed (e.g. R5.0, R6.0 or R7.0)
 - Where the behaviours of occupants within the home generate excessive amounts of warm, moist air (such as exercise classes).
- In these cases, we recommend the installation of Maestro BAL along with eave vents to ensure any warm, moist air that enters the attic space can be expelled before it condenses. Maestro BAL features a motor that is hard wired so that air from the attic space can be expelled even when there is no breeze. Maestro BAL is very economical to run and is the only BAL rated vent on the market.

1. Minimum standard: Suitable in warmer climates and where condensation is not considered a problem.

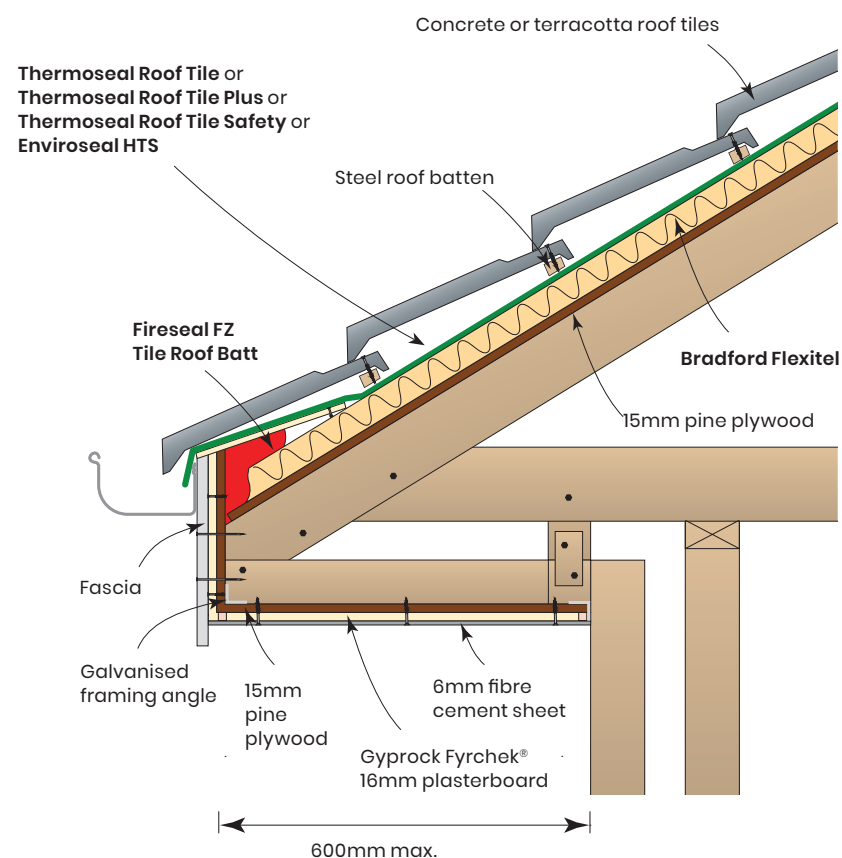
4.3 BAL FZ Tiled Roofs

For BAL-FZ areas, much more stringent fire protection measures apply. In these areas the roofing system must comply with AS 1530.8.2 when tested from the outside. The roofing systems detailed in this section have been assessed by a registered testing authority as being likely to achieve bushfire attack level BAL-FZ if tested in accordance with AS1530.8.2.

The following pages set out the construction requirements for tile roofs in BAL-FZ as tested by Exova Warringtonfire, Fire Testing Report RIR 23987-04.

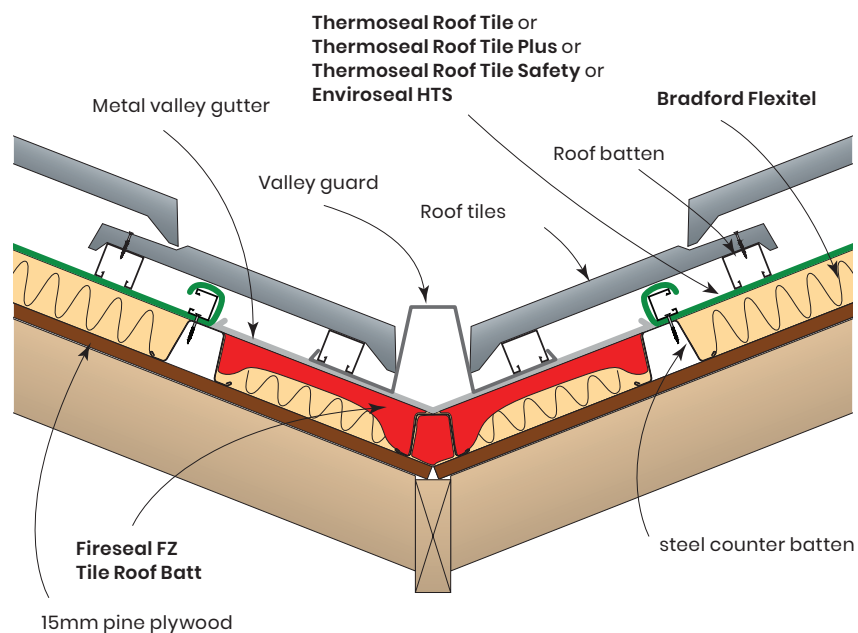
**Figure 4.3.1
Fascia Detail**

- Pine 15mm pine plywood to be fixed above rafter.
- Cover plywood with 38mm Bradford Flexitel™ Blanket.
- Steel counter battens (not shown) to be fixed over the Flexitel blanket.
- Install Bradford Thermoseal Roof Tile or Enviroseal HTS sarking to entire roof area underneath the tile battens.
- Fill gap underneath ponding board and between Flexitel with Fireseal™ FZ Tile Roof batts.



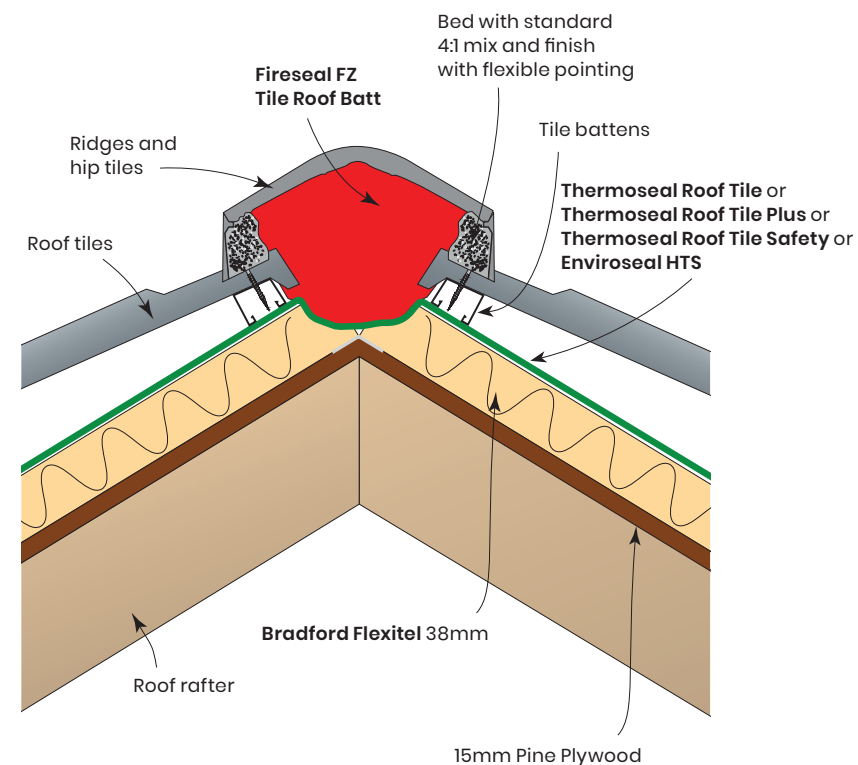
**Figure 4.3.2
Valley Detail**

- Pine 15mm pine plywood to be fixed above rafter.
- Cover plywood with 38mm Bradford Flexitel Blanket.
- Install Bradford Thermoseal Roof Tile or Enviroseal HTS sarking to entire roof area underneath the tile battens.
- The junction of the valley iron and fascia requires Fireseal FZ Tile Roof batts to be installed underneath the valley to eliminate the gap created by the change in pitch.



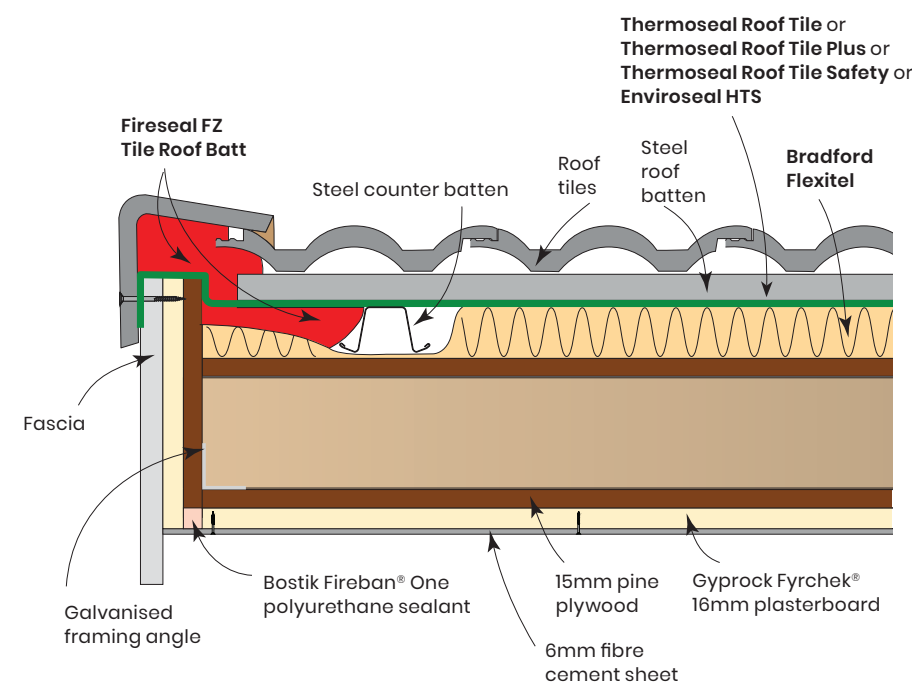
**Figure 4.3.3
Hip/Ridge Detail**

- Pine 15mm pine plywood to be fixed above rafter.
- Cover plywood with 38mm Bradford Flexitel Blanket.
- Steel counter batten (not shown).
- Install Bradford Thermoseal Roof Tile or Enviroseal HTS sarking to entire roof area underneath the tile battens.
- Ridge and hip tiles must be installed over Fireseal FZ Tile Roof batts to eliminate gaps.



**Figure 4.3.4
Barge Detail**

- Pine 15mm pine plywood to be fixed above rafter.
- Cover plywood with 38mm Bradford Flexitel Blanket.
- Install Bradford Thermoseal Roof Tile or Enviroseal HTS sarking to entire roof area underneath the tile battens.
- Gaps under barge tile to be filled with Fireseal FZ Tile Roof batts.



Disclaimer: This manual is current at March 2020. Information has been sourced from recognised third parties and is current at the time of printing. Systems, Standards and Building Codes are subject to change. To ensure the information is current, contact your roof tile supplier. No responsibility is assumed for any errors that may inadvertently appear in this manual. The RTAA directs builders, tile fixers and any other parties associated with the construction to properly assess the requirements of AS3959 before proceeding.

4.4 BAL-FZ Metal Roof

For Metal roofs in BAL-FZ areas, there are 2 methods for Deemed-To-Satisfy compliance:

- AS3959 Construction of buildings in bushfire – prone areas
- National Association of Steel Framed Housing (NASH) Standard for Steel Framed Construction in Bushfire Areas

4.4.1 AS3959 Construction of buildings in bushfire – prone areas

Australian Standard AS3959 specifies the requirements for the construction of buildings in bushfire-prone areas in order to improve their resistance to bushfire attack from burning embers, radiant heat, flame contact and combinations of the three attack forms. The FZ metal roofing systems detailed in this guide are Deemed-to-Satisfy as per AS3959, Section 9 Construction Requirements for BAL-FZ, 9.6.3 Sheet Roofs Appendix H.

| ROOF COMPONENT | ROOF SYSTEM CONSTRUCTION MATERIALS |
|----------------------|------------------------------------|
| Roof | Colorbond or Zincalume |
| Battens | Steel |
| Truss | Timber |
| Barrier Material | Pine plywood |
| Insulation & Sarking | Anticon 80 LD |
| Fascia | Timber |

Figure 4.4.1.1
Fascia/eaves detail

- At eaves install 90mm wide Fireseal FZ Metal Roof batts positioned on the edge and compressed with Anticon 80 LD crushed to a thickness of 40mm by the roof sheet.

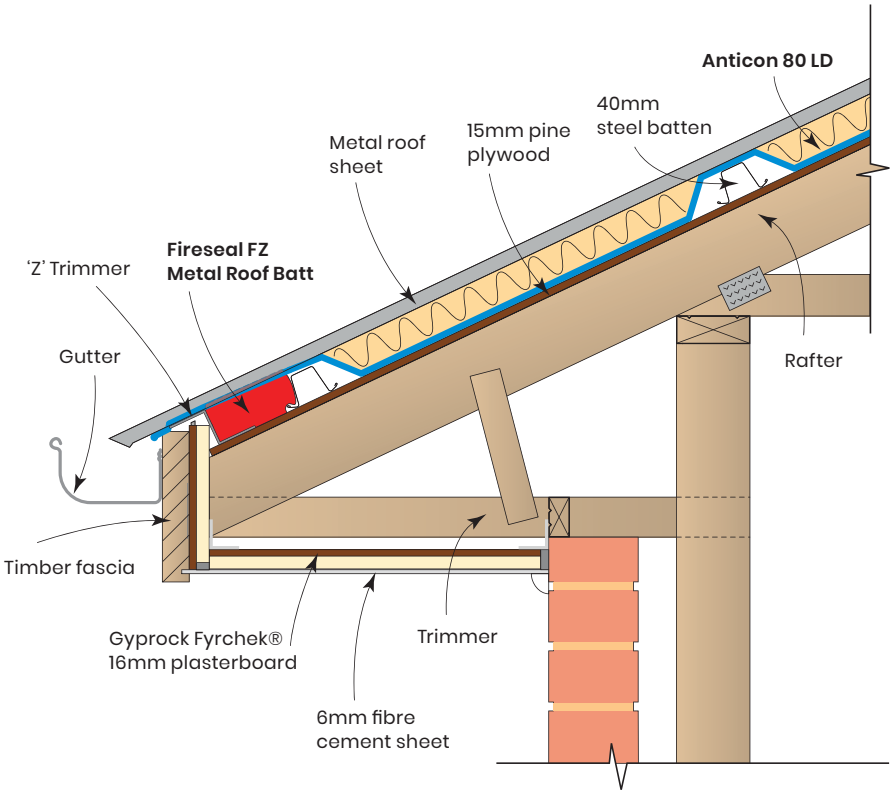


Figure 4.4.1.2
Barge Detail

- Bradford Anticon 80 Light Duty installed with foil side down over roof battens and under roof sheet.
- At barge Fireseal FZ Metal Roof batts are positioned on edge and compressed to a thickness of 40mm by the roof sheet.

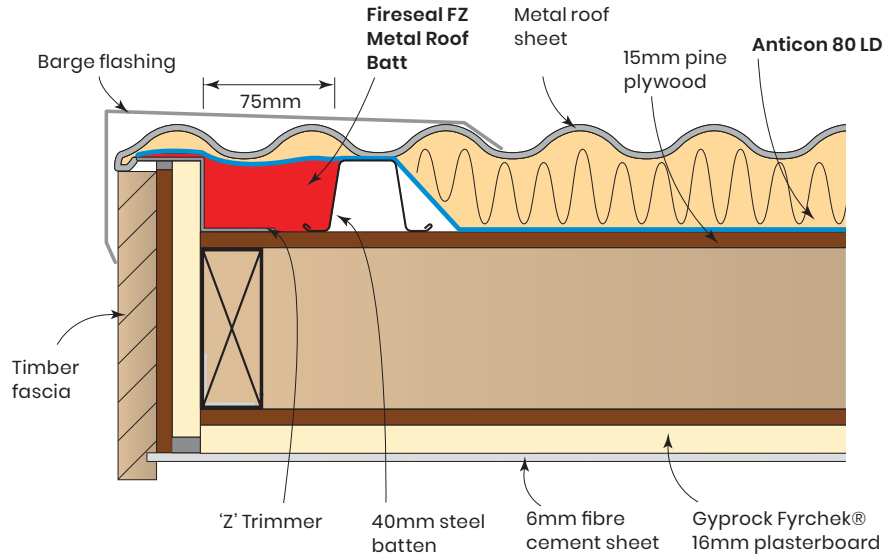


Figure 4.4.1.3
Hip/ridge detail

- Bradford Anticon 80 Light Duty installed with foil side down over roof battens and under roof sheet.
- At ridge install 90mm Fireseal FZ Metal Roof batts in gap between roof sheet edges so that batt is compressed by 50%.

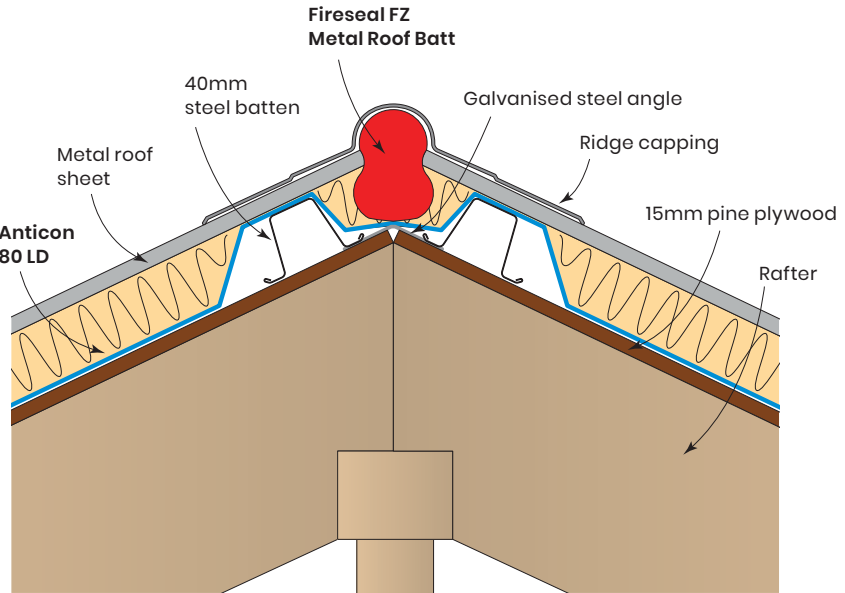
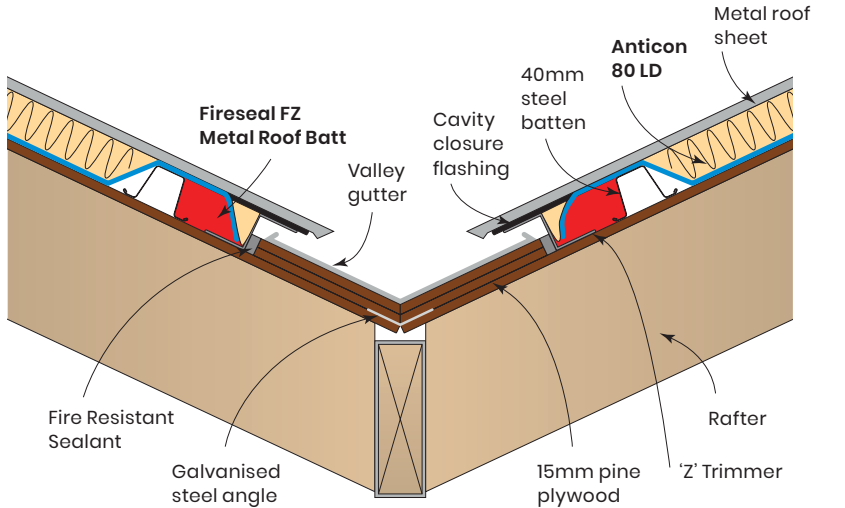


Figure 4.4.1.4
Valley detail

- Bradford Anticon 80 Light Duty installed with foil side down over roof battens and under roof sheet.
- At eaves and valleys install Fireseal FZ Metal Roof batts in edge compressed with Anticon 80 to a thickness of 40mm.



4.4.2 NASH Standard for Steel Framed Construction in Bushfire Areas

The following sets out the construction requirements for metal roofs in BAL FZ as per National Association of Steel Framed Housing (NASH) Standard for Steel Framed Construction in Bushfire Areas, which sets out the acceptable construction details for residential and low-rise buildings in bushfire prone areas. Further details can be downloaded from Bluescope website (www.bluescopesteel.com.au), search "BlueScope Steel Product Solutions for Bushfire Areas – NASH Bushfire Standard".

Figure 4.4.2.1
Roof system with eaves detail

- Bradford Anticon 80 Light Duty installed with foil side down (or Bradford building blanket laid separately over Thermoseal roof metal wall sarking) over roof battens and under roof sheet.

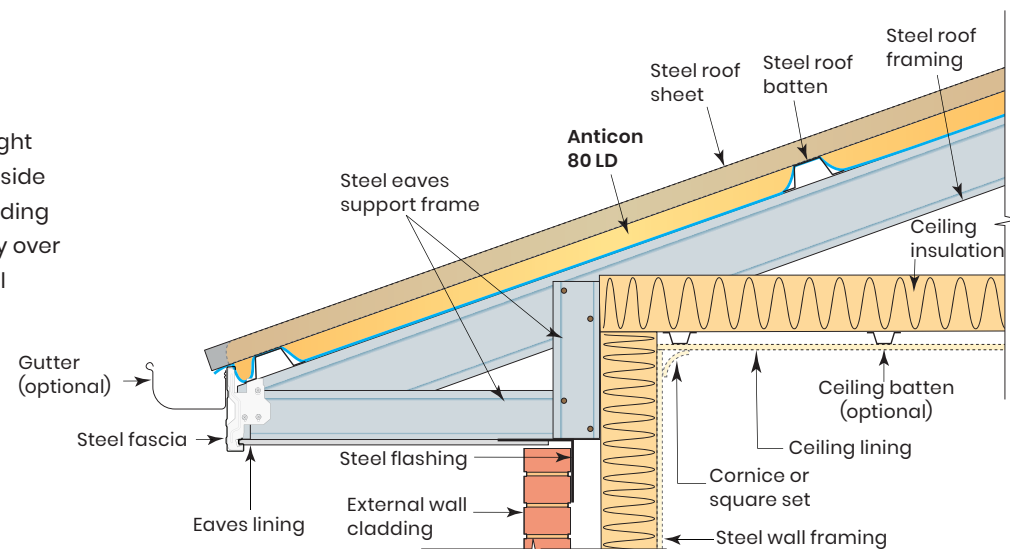


Figure 4.4.2.2
Roof system without eaves detail

- Bradford Anticon 80 Light Duty installed with foil side down (or Bradford building blanket laid separately over Thermoseal roof metal wall sarking) over roof battens and under roof sheet.

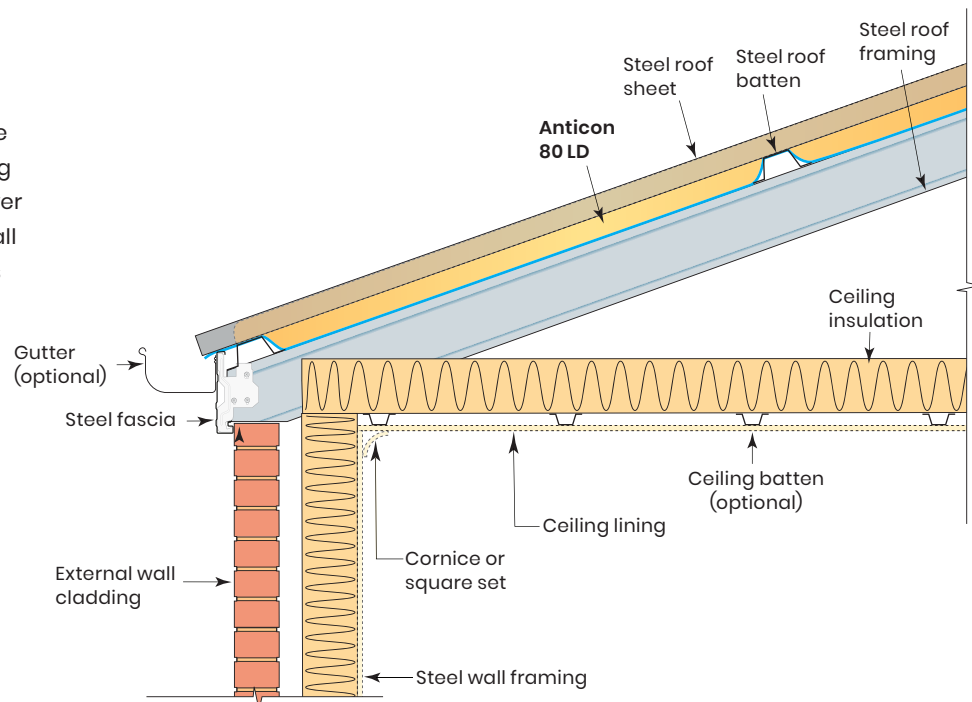


Figure 4.4.2.3
Ridge/hip detail

- Bradford Anticon 80 Light Duty installed with foil side down (or Bradford building blanket laid separately over Thermoseal roof metal wall sarking) over roof battens and under roof sheet.

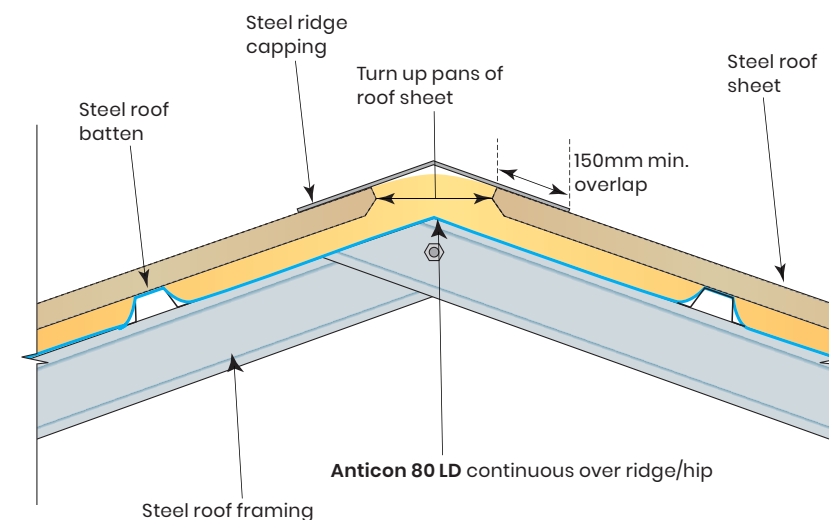
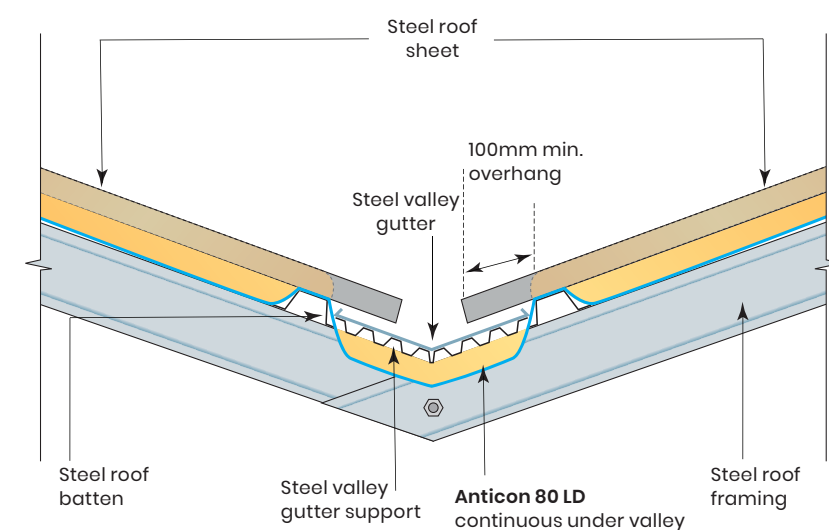


Figure 4.4.2.4
Valley detail

- Bradford Anticon 80 Light Duty installed with foil side down (or Bradford building blanket laid separately over Thermoseal roof metal wall sarking) over roof battens and under roof sheet.



Bradford insulation products for bushfire roofing systems



Anticon foil faced metal roofing blanket

Anticon roofing blanket is a lightweight insulation with a light duty reflective Thermofoil facing. It is designed to provide effective condensation control and thermal and acoustic benefits. Anticon is approved by the National Asthma Council’s Sensitive Choice® program and is suitable for use in homes of people with asthma or allergies.

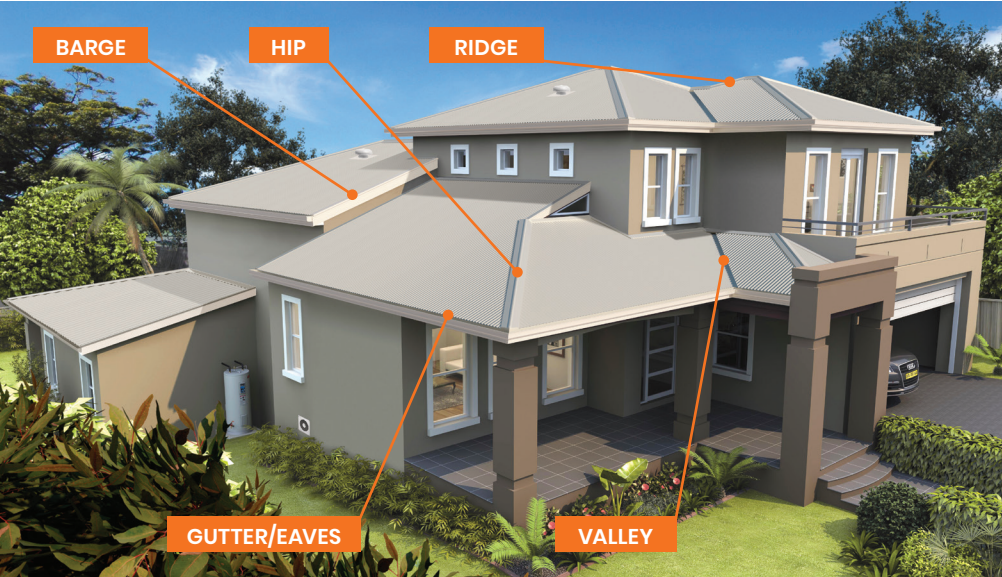
| PRODUCT | R-VALUE | THICKNESS (mm) | WIDTH (mm) | LENGTH (m) | PRODUCT CODE | AREA PER ROLL (m²) |
|---------------|---------|----------------|------------|------------|--------------|--------------------|
| Anticon 60 LD | R1.3 | 60 | 1200 | 15 | 15417 | 18 |
| Anticon 80 LD | R1.8 | 80 | 1200 | 15 | 16072 | 18 |

Multitel BAL 12.5 – 40 Blanket

A non-combustible glasswool roll used to seal off areas of metal roofs from potential ember ingress. The blanket is typically installed at gutter line, hip valley and ridge joint.

| PRODUCT | THICKNESS (mm) | WIDTH (mm) | LENGTH (m) | PIECES PER PACK | PRODUCT CODE | LINEAL METRES PER PACK |
|--------------------------------|----------------|------------|------------|-----------------|--------------|------------------------|
| Multitel BAL 12.5 – 40 Blanket | 25 | 300 | 20 | 4 | 100061 | 80 |

Metal roof: Multitel BAL 12.5 – 40 and FZ Metal Roof Batt installation locations



Thermoseal™ Roof Tile Range

Bradford Thermoseal Roof Tile comprises a range of economical, heavy duty pliable reflective sarking membranes that are ideal for use under cement and terracotta roof tiles. Manufactured from aluminium foil faced woven polymeric fabric, they have high tensile strength and tear resistance. They are suitable for use for ember protection in bushfire prone areas.

| PRODUCT | WIDTH (mm) | LENGTH (m) | PRODUCT CODE | AREA PER ROLL (m²) | APPLICATIONS |
|-----------------------------|------------|------------|--------------|--------------------|--|
| Thermoseal Roof Tile | 1500 | 30 | 15110 | 45* | Suitable for rafter spacings of 600mm or less |
| Thermoseal Roof Tile Plus | 1500 | 30 | 27308 | 45* | Suitable for rafter spacings of 600mm or less |
| Thermoseal Roof Tile Safety | 1500 | 30 | 27060 | 45* | Certified fall arrest membrane for use with rafter spacings up to 900mm* |

*Allow for additional overlaps as required.

Enviroseal™ HTS – Vapour Permeable Roof Sarking Range

Enviroseal HTS is a highly durable, high water hold-out vapour permeable roof underlay for tiled, slate and metal roofs, and meets AS/NZS4200.1 requirement for classification as a medium duty membrane. Enviroseal HTS minimises the risk of condensation by allowing internal moisture to escape, and can act as a tough weather barrier to help prevent rain damage in roofs.

| PRODUCT | WIDTH (mm) | LENGTH (m) | PRODUCT CODE | AREA PER ROLL (m²) |
|----------------------------------|------------|------------|--------------|--------------------|
| Enviroseal HTS | 1500 | 30 | 185381 | 45* |
| Enviroseal HTS w/Integrated Tape | 1500 | 30 | 190904 | 45* |

Thermoseal™ 753 Heady Duty Sarking for Metal Roof

Bradford Thermoseal Heavy Duty sarking is a high vapour barrier reflective sarking with enhanced puncture and wind-flap resistance. Specifically designed for use under metal roofs in dwellings, it helps reduce temperature variation in the roof space and protects against the ingress of embers in the event of a fire.

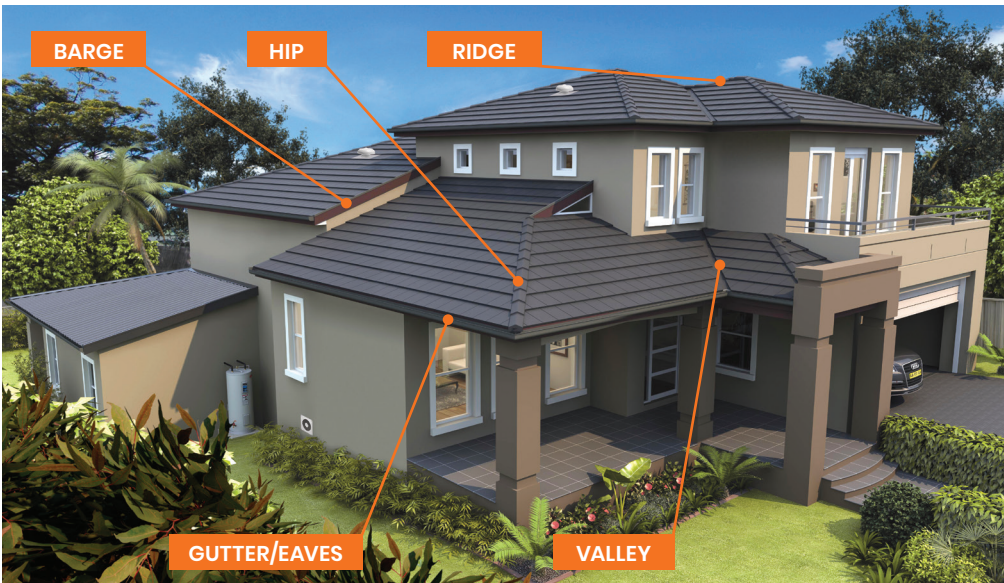
| PRODUCT | WIDTH (mm) | LENGTH (m) | PRODUCT CODE | AREA PER ROLL (m²) |
|-------------------|------------|------------|--------------|--------------------|
| Thermoseal 753 HD | 1350 | 60 | 15091 | 81 |

Fireseal FZ

Bradford Fireseal FZ is a fire rated rockwool insulation suitable for continuous operation in extreme temperature. Specifically designed for use in tiled and metal roofs to help prevent the ingress of embers and flames into the roof space in the event of a fire.

| PRODUCT | THICKNESS (mm) | WIDTH (mm) | LENGTH (m) | PIECES PER PACK | PRODUCT CODE | LINEAL METRES PER PACK |
|------------------------------|----------------|------------|------------|-----------------|--------------|------------------------|
| Fireseal FZ Tile Roof batts | 100 | 115 | 1.2 | 8 | 125083 | 9.6 |
| Fireseal FZ Metal Roof batts | 75 | 90 | 1.2 | 15 | 125084 | 18 |

Tiled roof: FZ Tile Roof Batt installation locations



Bradford Flexitel

Bradford Flexitel is a lightweight insulation blanket with an R-Value of 1.0 and is easily handled. Its thermal qualities help to meet the NCC energy efficiency requirements and it is certified for use in BAL FZ applications.

| PRODUCT | THICKNESS (mm) | WIDTH (mm) | LENGTH (m) | PRODUCT CODE | AREA PER ROLL (m²) |
|----------|----------------|------------|------------|--------------|--------------------|
| Flexitel | 38 | 1200 | 15 | 77365 | 18 |

*Allow for additional overlaps as required.

Maestro BAL – CSIRO assessed as AS 3959 compliant

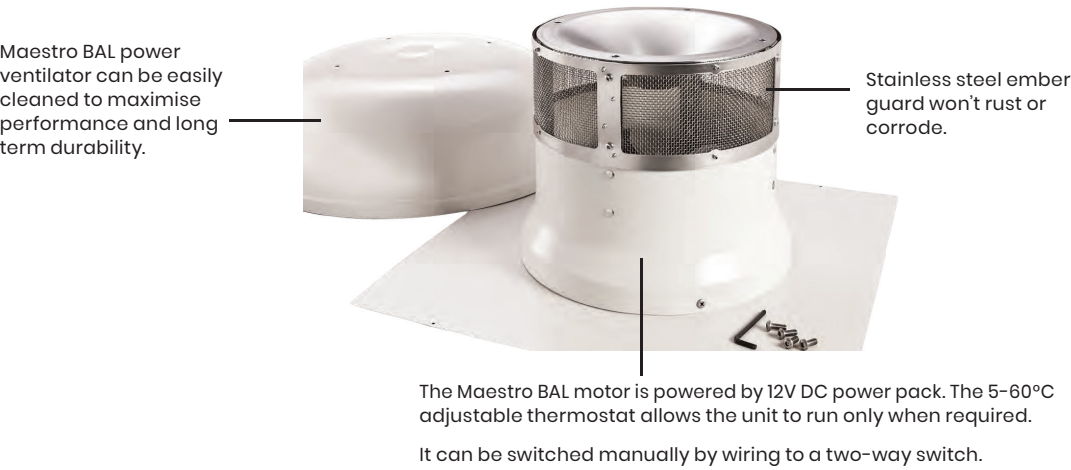
Maestro BAL™ powered by Bradford Air iQ, is a quality powered ventilator specifically designed to meet the requirements of AS3959 in areas up to and including BAL-40.

Why do you need a Bushfire rated ventilation system?

Roof ventilation is extremely important in bushfire prone areas, to reduce heat in the roof space through ventilation whilst being well sealed and protecting against ember ingress.

The standard for construction in bushfire zones requires that the roof space be well sealed, protecting against the risk of windblown embers entering and causing a fire that could threaten the home and occupants.

Maestro BAL features a stainless steel ember guard with 1.9mm aperture and a high efficiency motor that effectively ventilates your roof space while protecting your home and your family in the event of a bushfire. Proper roof ventilation requires good airflow, allowing air to enter the roof space as well as exhaust from the same area. To do this in a BAL40 region, CSR Bradford recommends the installation of 2 Metal Eave Vents per Maestro BAL.



Features & Benefits

Maestro BAL is available as a 12V DC (low voltage) model and includes a thermostat and 12V power pack. Extraction rates are equivalent to up to three wind powered ventilators with low noise.

- Combines thermostat with energy efficient performance to eliminate hot air from the roof space
- Can be wired to operate continuously to minimise damaging condensation build-up in the roof spaces, which minimises the effects of mould on allergy and asthma sufferers
- Quiet operation
- Can be installed in new and existing homes
- Preset automatic temperature sensing speed control, the speed of the system will vary to control the heat load in the roof space without wasting energy consumption
- Humidity sensor adjusts the speed setting based on moisture levels detected, for a year round ventilation solution
- Suitable for use on all types of metal and tiled roofs



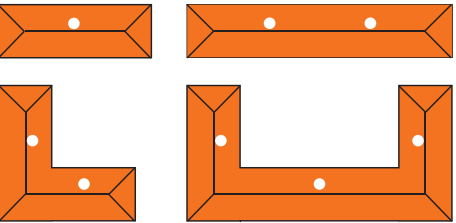
Code Requirements: Bathrooms & Laundries

Under the NCC requirements, bathroom and laundry ventilation cannot be exhausted directly into a sarked roof space without proper roof ventilation. Within BAL zones, sarking or foil-backed insulation across the roof is often a minimum requirement, so fitting a Bradford Maestro BAL roof ventilator is essential.

This simplifies compliance with the code and reduces the risk of moisture build-up and rot in roof spaces. Additionally, a qualified electrician can easily connect laundry and bathroom ventilation products directly to the Maestro BAL so that it switches on when it's most needed, ensuring the roof space is healthy, protected and compliant.

Suggested Placement & Recommended Ventilation Levels

- Install ventilators at same height, spaced apart, to prevent higher unit pulling air in through lower unit.
- Do not install with other types of ventilators as air can be pulled in through less powerful units.



| NO. OF MAESTRO BAL | ROOF AREA (AS STATED BELOW) WILL ACHIEVE 8 AIR CHANGES PER HOUR | ROOF AREA (AS STATED BELOW) WILL ACHIEVE 2 AIR CHANGES PER HOUR |
|--------------------|---|---|
| 1 | 55m ² | 220m ² |
| 2 | 110m ² | 440m ² |

Product Range

Maestro BAL is available in a range of 25 Colorbond® colours to match your roof.

Stocked



| PRODUCT | PRODUCT CODE |
|----------------------------|--------------|
| Maestro BAL Surfmist | 134206 |
| Maestro BAL Headland | 134207 |
| Maestro BAL Woodland Grey | 129247 |
| Maestro BAL Night Sky | 134205 |
| Maestro BAL Shale Grey | 134209 |
| Maestro BAL Monument | 134208 |
| Metal Eave Vent Pack of 2* | 121274 |

Special Order

All other colours are available with approximately 5 days lead time.

Note: Colour range may alter without notice due to supplier and market circumstances.
*Designed for BAL rated areas, eave vents with ventilators are important to ensure good ventilation of the roof cavity. Specially developed from laser cut stainless steel to meet the bushfire requirements of AS3959.
The COLORBOND® steel colour swatches and images shown in this brochure have been reproduced to represent actual product colours as accurately as possible. However, we recommend checking your chosen colour against an actual sample of the product before purchasing as varying light conditions and limitations of the printing process may affect colour tones. COLORBOND®, BlueScope,™ and ® Colour names are registered trademarks of BlueScope Steel Limited.

Health and Safety

Glasswool & Rockwool insulation products are excellent insulation materials and are safe to use under all conditions. Insulation materials have been in worldwide use for over 70 years, and during that time their manufacture and use have been extensively monitored and researched.

CSR Bradford Glasswool & Rockwool products are manufactured using the latest FBS-1 technology, which are classified as Non-Hazardous. Detailed information on health & safety is contained in the SUI & ICANZ (Safe Use Information Sheet & Insulation Council of Australian & New Zealand) literature available from our website: www.bradfordinsulation.com.au.

Product Warranty

CSR Building Products Limited warrants CSR Bradford products to be free of defects in materials and manufacture.

CSR Bradford bulk insulation and foil faced products should not come into contact with water or be used in external applications or alkaline environments.

Product Warranty excludes the following:

1. Damage caused to the product is a result of incorrect onsite storage prior to installation – refer to CSR Bradford documentation for correct storage and handling.
2. Damage caused to the product is a result of a high pressure water cleaner, high pressure media cleaner, mechanical cleaning device or chemical agent.
3. The Product is exposed to corrosive in-situ conditions, such as an alkaline or acidic environment, that does not provide adequate air quality to prevent deterioration of the Product; or
4. The Product is used in a harsh environment without prior written approval from CSR Bradford, including livestock buildings, indoor aquatic centres and fertiliser storage facilities or as outlined in the literature supplied by CSR Bradford; or
5. The Product is used outside its intended purpose as outlined in the literature supplied by CSR Bradford.

Contact CSR Bradford for further Warranty details or refer to the Product or Project specific Warranty where applicable. For full Product Warranty details please refer to our website.

For more information call **1300 850 305** or visit bradfordinsulation.com.au



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bradfordinsulation.com.au

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