

MASONS UNIVERSAL VENTILATED BATTENS

DESIGN AND INSTALLATION GUIDE



MASONS
Designed Smart, Built Tough.

V1 Aug 2024



Wall and Roof Batten



Roof Batten

General and product information

DESCRIPTION - MASONS VENTILATED PLASTIC ROOF BATTENS AND UNIVERSAL VENTILATED PLASTIC WALL & ROOF BATTENS

Available in two sizes Masons Universal Ventilated battens are made of tough non-absorbent polypropylene and have a self-adhesive strip for convenient placement prior to nailing off. Ventilated Battens used to form a cavity allowing the free flow of air and moisture assisting with effective ventilation of a wall or roof cavity*. The cellular construction is non-conductive, capillary action resistant and dimensionally stable and assists with reducing thermal bridging. They are robust with a high compressive strength so are effective packers. They are not suitable to be used as structural battens.

MASONS ROOF AND WALL BATTEN 18MM X 45 X 1.8M

Product code	BATNVENT 45x18x1800	Sold as a Box of 25 battens
Product code	BATNVENT 45X11X1800	Sold as a box of 50 battens

WALLS

Cavity batten to create drained cavity for exterior walls.

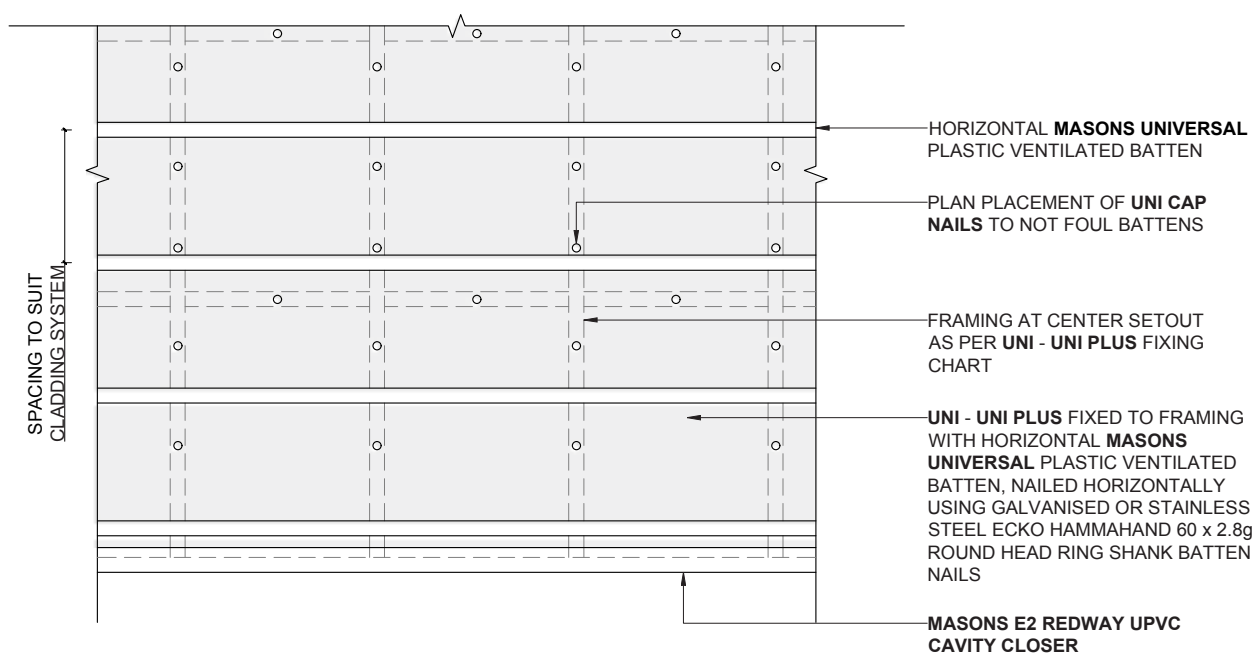
- › Fix Masons Universal Ventilated Battens with hand or gun driven Batten Nails, fixed vertically or horizontally and around joinery openings as required by E2 AS1 and the cladding manufacturer.
- › Adjust nail guns to seat nails flush, or just proud, avoid over driving and rupturing the top layer.
- › Masons Universal Ventilated Battens may be used with all Masons underlay products for roof and wall application. They are likely to be suitable for use with many other underlays except where specified otherwise by the underlay or cladding suppliers.
- › Use in conjunction with Masons Redway E2 cavity closers. Do not use at the wall cavity – roof space junction, use solid batten instead to block off the wall cavity from the roof space.



WHEN USED AS A CAVITY BATTEN OVER UNI SYSTEMS

- When used as cavity batten over UNI PLUS or UNI PRO Flexible Air Barrier System use the specific tested nail pattern for the wind zone and stud spacing available from Masons NZ. A specific tested installation method should be used.
- Fix the batten over UNI PLUS or PRO using Ecko Round Head Hammahand 2.8 x 65-mm SS or Galv Batten Nails driven by an Ecko Hammahand Weather Board coil nailer. Adjust the gun depth gauge, and air pressure so that the nails are seated flush, or slightly proud. The top layer of the batten must not be broken. Calibrate regularly though out the fixing of the battens.
- Use of other fixing guns is not tested and is not permitted to fix Masons Universal Ventilated Batten as part of the UNI system. Hammer – or hand fitting is permitted.

Horizontally fixed Masons Universal Plastic Ventilated Batten



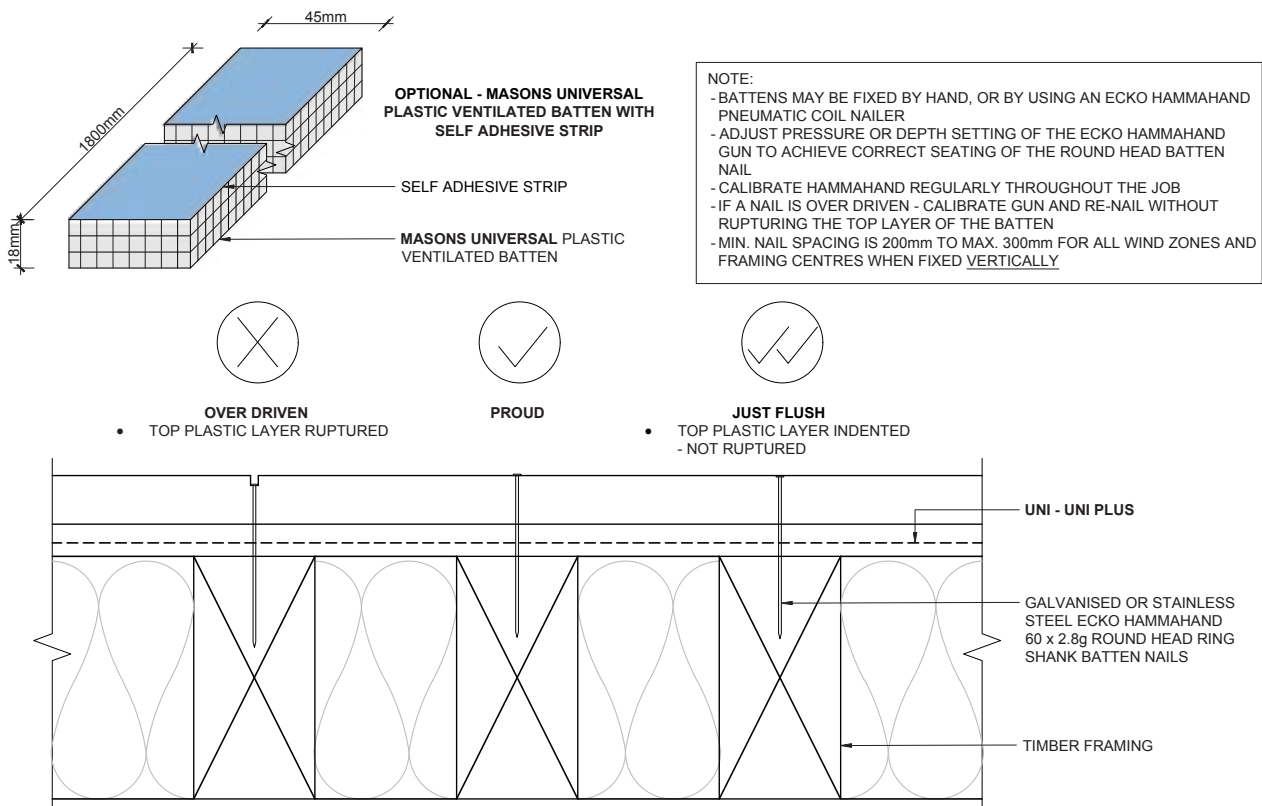
NOTE:

- HORIZONTAL **MASONS UNIVERSAL** PLASTIC VENTILATED BATTENS - DO NOT PROVIDE ADDITIONAL FIXING COMPARED WITH **UNI CAP NAILS**
- STUD SPACING **MUST** BE INSTALLED IN ACCORDANCE WITH MASONS **UNI - UNI PLUS** FIXING CHART FOR THE RELEVANT WIND ZONE
- **UNI CAP NAILS** AND HORIZONTAL **MASONS UNIVERSAL** PLASTIC VENTILATED BATTENS MAY BE USED IN CONJUNCTION. MAXIMUM SPACING BETWEEN **UNI CAP NAILS** AND BATTENS FOR THE WIND ZONE **MUST** BE OBSERVED
- FIT BATTENS AFTER TACKING UP **UNI - UNI PLUS** WITH **UNI CAP NAILS**



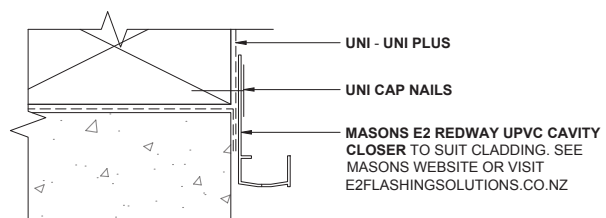
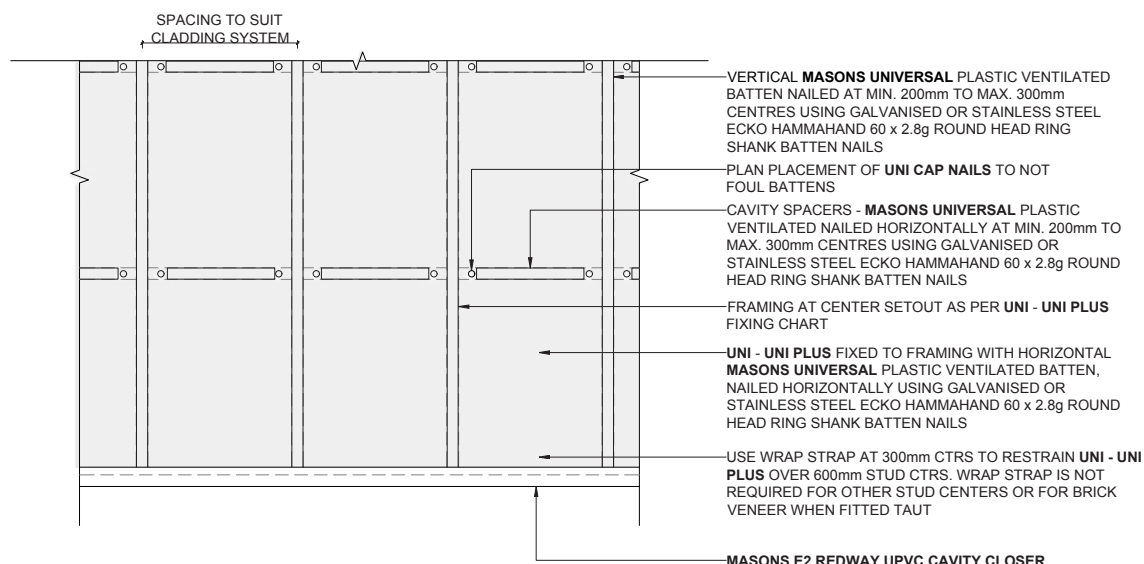
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Masons Universal Plastic Ventilated Batten



Vertical Masons Universal Plastic Ventilated Battens

*any wind zone - any stud spacing (excluding SED)





WHEN USED OVER OTHER FLEXIBLE OR RIGID WALL UNDERLAYS

Fix with Batten Nails or Wafer head screws in keeping with the underlay, or cladding manufacturers requirements for fixing non-structural, non-fire stopping cavity battens. Avoid breaking through the top layer – skin of the batten.

ROOFS

- › Ventilated Roof Battens – part of a vented roof cavity design.
- › Why use ventilated roof battens?

There is a growing understanding that unventilated cold roof spaces can result in excessive condensation with resulting wet insulation and framing timbers. This is well understood in many countries where ventilation in the roof space is seen as essential for dry framing, insulation performance and to reduce the corrosion risk to metal claddings or components.

Cold roof design is very common in New Zealand, the insulation is installed over the ceiling lining, and the roof cladding, underlay and support mesh rise and fall in temperature with sunshine hours and ambient external temperature. Very few residential or light commercial ceiling have a vapour blocker layer under the insulation to stop moisture diffusion into the roof attic space from the normal activities of occupants. As the air in the attic space cools overnight or on cold days moisture in the air condenses at the dew point and forms on the underside of the (cold, uninsulated) roof cladding. The roof underlay absorbs the condensation and releases it again back into the air in the attic roof space when the sun warms the roof cladding and attic space. However, If moisture rich air in the attic roof space cannot escape, excessive condensation can form overwhelming the underlay and raining condensation onto the insulation and roof framing.

DESIGN

Masons Universal Ventilated Cavity Battens in 11mm or 18mm thickness may be used as part of a passive ventilated roof space design. Passive roof space ventilation uses the stack effect and wind movement to create air movement through the roof space carrying out moisture laden air.

The design should provide for air to flow enter the roof space at the eaves, across any bulk insulation pressing against the underlay and roof cladding near the eaves, along the line of the underlay to exit at the ridge. Eaves vents may be sized slightly larger than the ridge vents and must always be used in conjunction.

Care should be taken when designing passive type roof ventilation in corrosion zones such as geothermal or salt spray. In these zones Passive-stack ventilation may need to be avoided. Attention should be given to blocking vapour entering the roof space, and or increased ventilation for the occupied space among other design choices.



EXAMPLES

Masons 11mm Universal Ventilated Batten has a net free open area of 6800mm² per LM
Masons 18mm Universal Ventilated Batten has a net free open area of 12300mm² per LM
Use of a Masons Redway Cavity Closer as a baffle will regulate net free open area to 1000mm² per LM

When calculating the net free open area required for adequate passive ventilation the following ratios are suggested:

- For Duo pitched roofs with a roof slope of less than 10 degrees, and all skillion, or mono pitched roofs – 1/150 ratio – more ventilation.
- For Duo pitched roofs 10 degrees roof slope and greater – 1/300 ratio – less ventilation.
- For Duo pitched roofs Ridge and Eaves LM are added together and doubled.
- For Mono pitch and skillion roofs Ridge and Eaves LM are added together (not doubled).

The formula for calculating the open area and selection of the Masons Ventilated Batten for a duo pitched roof with a roof slope greater than 10 Degrees is as follows:

- Measure the length of Eaves and Ridges in LM x 2 (do not double for Skillion roofs).
- Calculate the m² of Ceiling including soffits in M².
- Divide the ceiling area in M²/300 for a 1/300 passive ventilation ratio (if using a 1/300 ratio) to achieve M² of ventilation open area required.
- Multiply by 1000,000 to convert to mm² of net free open area.
- Divide this figure by the Net free open area of the Masons Ventilated Batten to determine the Masons Universal Batten thickness that is required to provide ventilation at the eaves and ridge.

For example,

The building has an Eaves and Ridge length x 2 of 72 LM of 48 with an ceiling and soffit area of 180M².

$180/300 = .6 \times 1000,000 = 600,000\text{mm}^2$.

600,000/72LM means a net free open area per LM of 833.33 is required at ridge and eaves.

Masons 11mm Universal Ventilated Batten is more than sufficient to meet this net free open area demand. This is the batten thickness to select.



The roof pitch and the wind at the buildings site should be considered when selecting passive roof space ventilation. Mono pitch roofs and roof pitches below 10 Degree pitch benefit less from the 'stack effect' and require more passive ventilation free open area – consider Masons Universal 18 mm ventilated battens, or 11 m battens double stacked.

The amount of wind the roof is exposed to substantially affects roof passive ventilation effectiveness. For windy sites with duo pitched roofs steeper than 10 Degrees slope a passive ventilation ratio of 1:600 may be adequate.

Masons Redway cavity closers may be used to provide additional wind baffling on lower double pitched roofs or for roofs in wind zones High and above.

Masons recommends designers read the MRM COP Ventilation of attic spaces
<https://www.metalroofing.org.nz/technical/ventilation-attic-spaces>

BRANZ have several guides or articles about cold roof ventilation and design. Google search 'BRANZ roof ventilation'.

The details and advice offered by Masons are of a general nature based on industry knowledge and practise. The building designer must always satisfy themselves that their design meets all requirements and are responsible for the final design.

VENTILATED BATTEN OPEN AREA:

Masons Ventilated Roof & Wall Batten 18 x 45mm x 1.8M

Nominal Ventilation open area is 12300mm² per Lm or 22140mm² per 1.8 m length

Masons Ventilated Batten Roof 11 x 45mm x 1.8M

Nominal Ventilation open area 6800mm² per Lm or 12240mm² per 1.8 m length

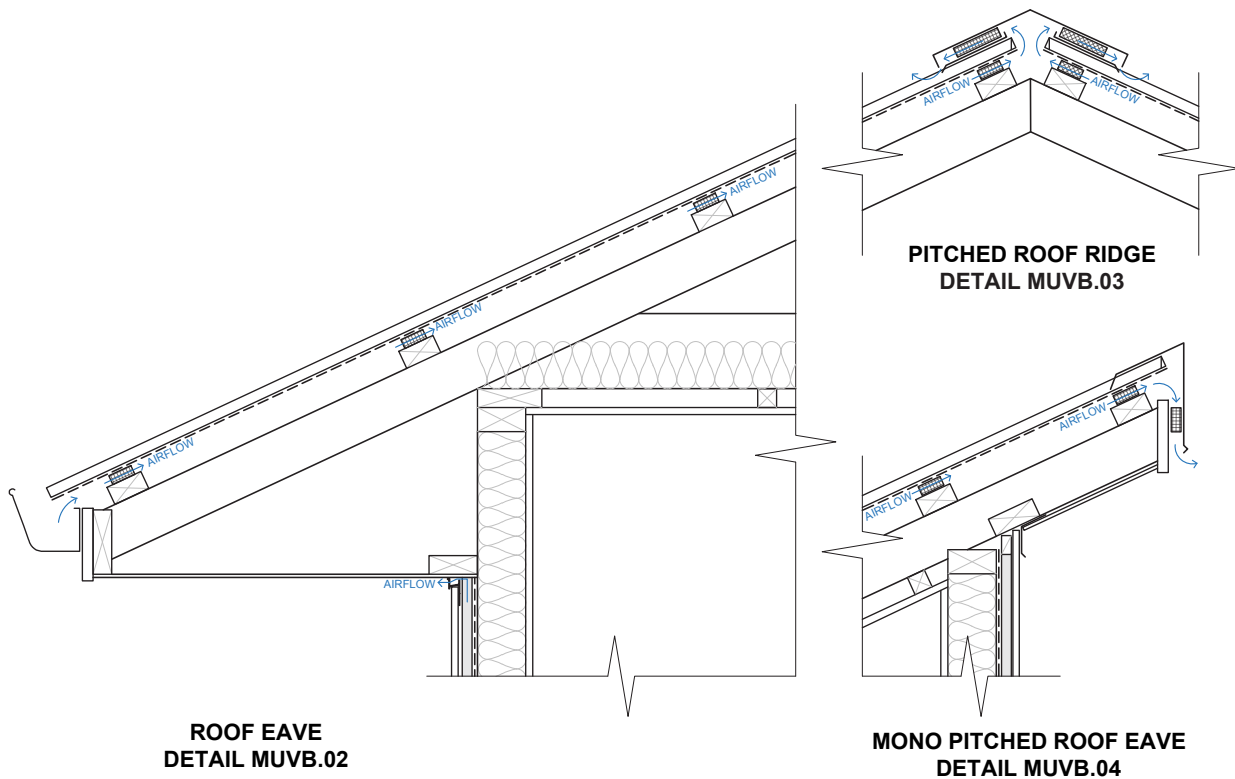
INSTALLATION

Roof:

- Install Masons Universal Ventilated Cavity Battens over the timber purlins before laying Masons or other underlays as specified, using the self-adhesive strip to temporarily fix the battens before overlaying with underlay, roof cladding and fixing off. Do not walk on or traffic battens held only by self-adhesive tape.
- If the battens are to be trafficked, use flat Gav or SS head nails or screws fitted flush (avoid breaking the top surface of the batten) of sufficient length to penetrate the batten width, plus at least 35mm with sufficient gauge to fix battens firmly for light foot traffic whilst the underlay is being laid. Ensure the battens are mechanically fixed to purlins before trafficking and adjust fixing spacings to be firm underfoot, 400mm fixing spacing suggested, this may be adjusted by the installer but in all cases must be secure under foot if to be trafficked.

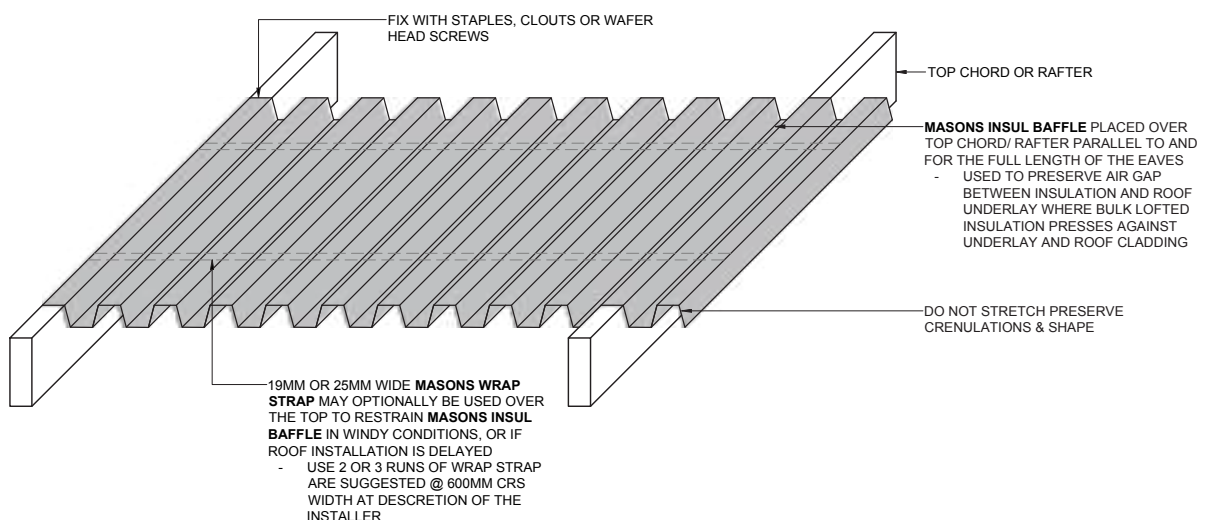


Roof Ventilation



Use in conjunction with Masons Insul-Baffle, insulation/underlay separator to ensure good air circulation near the eaves where insulation may press against the underlay. For more information see our product page. <https://mpb.co.nz/product/insul-baffle>

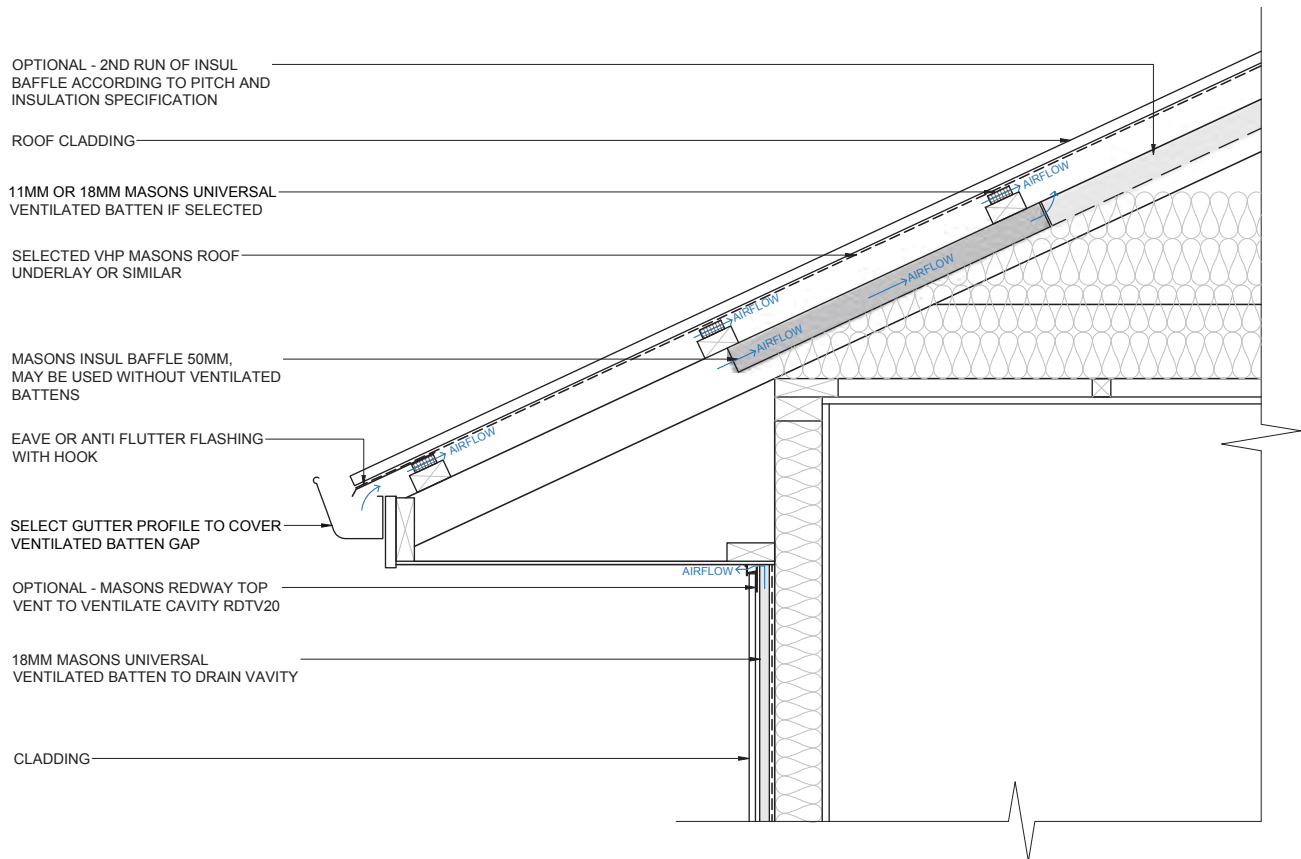
Masons Insul-Baffle 50mm H x 650mm W x 6m L





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Typical Placement



EAVES AND RIDGE:

Masons universal roof, or roof and wall battens may be used to provide air inflow and out flow of the roof space in conjunction with flashings and Redway cavity closers. Masons ventilated battens should be doubled spaced on the ridge vent under flashing, and aligned over the purlin and under the ridge cap to provide sufficient support to prevent indentation or buckling of the ridge cap when fixed off.

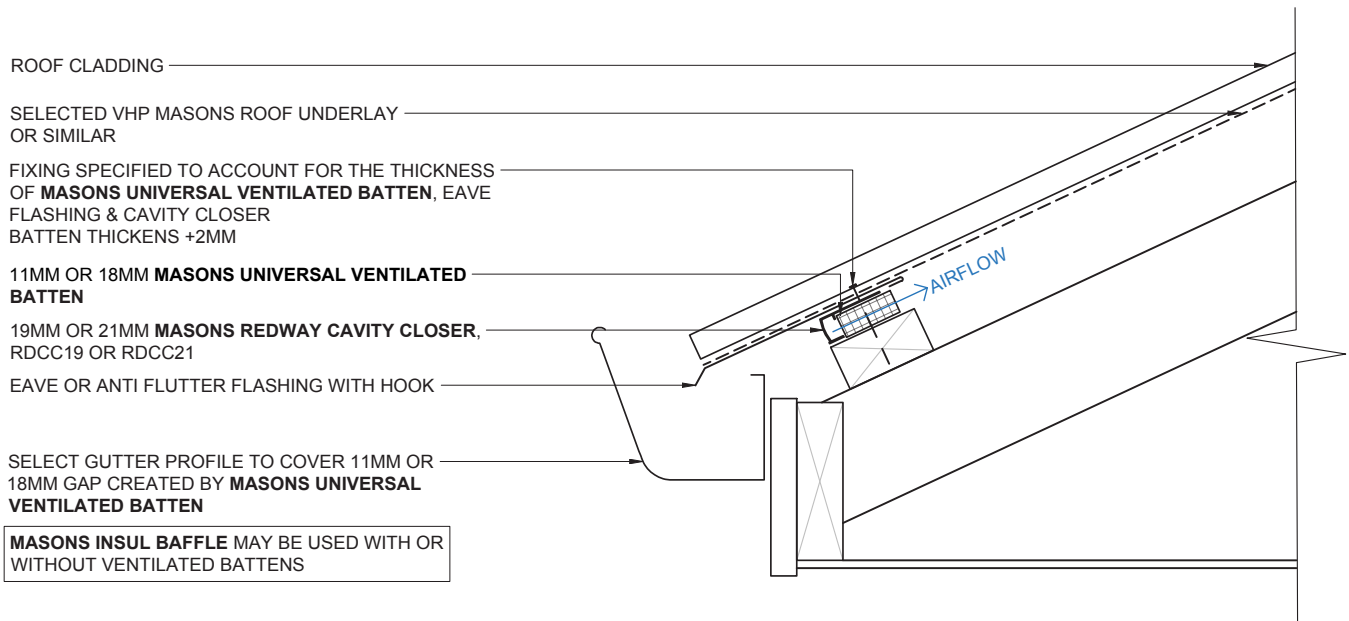
Use an eaves or anti flutter flashing where required by E2 AS1 8.4.11, 8.4.12c Fig 45, or where the roofer wishes to proactively reduce the possible occurrence of underlay flutter. Masons support and suggests the incorporation of an anti-flutter flashing as good practice as the occurrence of underlay flutter is unpredictable and difficult to remedy later.

The air cells in Masons 18mm ventilated batten are small enough to exclude vermin. A Masons Redway Cavity closer RDCC 19 or 21 may be considered when an additional weather deflector is required or for air flow regulation.

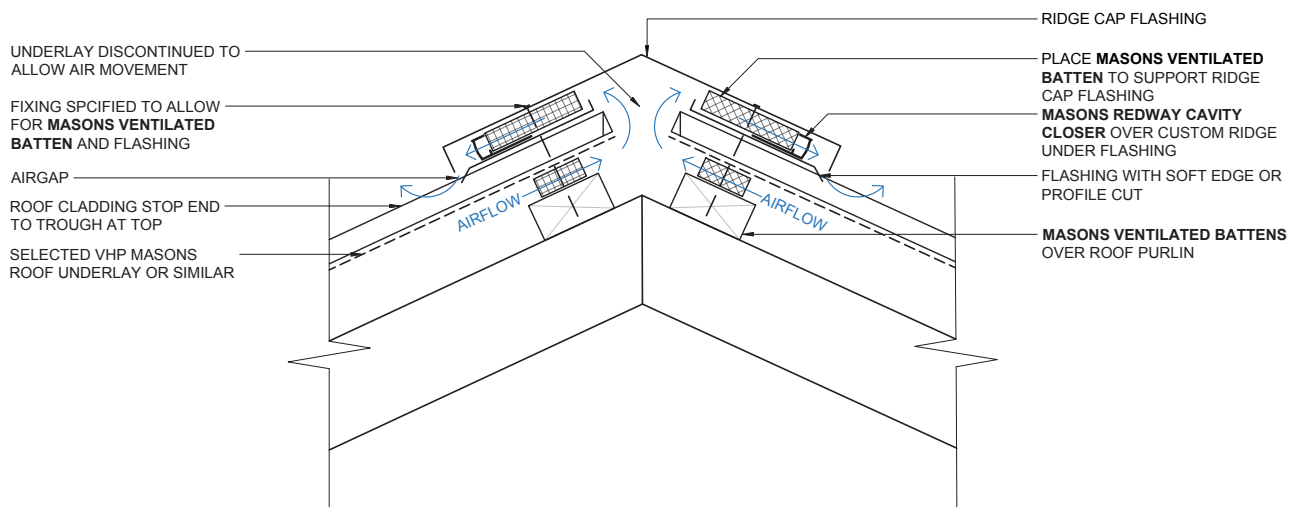
Masons ventilated 11 mm batten also excludes vermin. Masons RDCC15 cavity closer may be considered when an additional weather deflector is required or for air flow regulation.



Roof Eave Detail



Pitched Roof Ridge Detail





Mono Pitched Roof Eave Detail

