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All VM ZINC® profiles must be fixed in the traditional roofing method on a continuous support.

The roofing contractor before commencing must ensure that the following requirements are met.

Surface continuity: - The support surface is to be continuous without any differences in height at any junctions. There should be no protruding screws, nails or objects that could damage the underside of the VM ZINC®.

Structural conformity: - It is essential that the design team has checked that all loads are compatible with the VM ZINC® system. These loads include the weight of the system, live loads, wind & point loads and any traffic from maintenance contractors.

Timber & VM ZINC compatibility: - a low or non acid solid natural and non treated natural timber deck, that has a pH between 5 & 7 is compatible with zinc and can be used as a direct support.

Compatible Timber

Pine
Spruce
Scots pine
Poplar

Incompatible Timber

Larch
Oak
Chestnut
Red cedar
Douglas fir
White cedar
Gum tree

NOTE: - If water is allowed to drip off incompatible trees that overhang the roof it could cause corrosion due to the sap from the tree.

VM ZINC® PLUS consists of rolled titanium zinc, which is protected on the underside by a 60-micron-thick adhesive lacquer. VM ZINC® PLUS is available in two surface finishes: QUATZ-ZINC PLUS (light grey) and ANTHRA-ZINC PLUS (slate grey).

Note the "PLUS" added to the brand name indicates a patented protection on the underside of the titanium zinc roofing material.

The 60-micron lacquer allows direct laying of the zinc on incompatible support thanks to the protective underside coating.

Plywood and treated wood, examples of incompatible supports:

Plywood and chipboard panels can be composed of acidic wood species (pH<5) or contain tannins, phenolic acids, which may increase the risk of corrosion to the underside of the zinc.

Wood treatment and preservation products: products corresponding to class 3 & 4, which comprise mineral element (copper-chromium-arsenic (CCA) or

chromium-bromine-boron (CCB) types) should be avoided in direct contact with zinc. They can create a corrosive action on the zinc under damp conditions.

In Australia and New Zealand, plywood substrates or timber class 3 & 4 are commonly used as a roofing support. **With VM ZINC® PLUS, UMICORE offers the perfect solution to install zinc on incompatible support and solve compatibility problems.**

Recommendation when using VM ZINC® PLUS: when installing VM ZINC® PLUS, be sure to add a slip sheet between the support and the zinc. Many plywoods have an abrasive surface which as the zinc contracts, would rub the underside of the zinc. In time this would wear away the protective coating. By adding a slip sheet you are providing a smooth surface for the zinc to expand and contract on.

VM ZINC® PLUS can be bent, folded or profiled without any surface change. It requires the same methods of laying as for the natural VM ZINC®. VM ZINC® PLUS is manufactured in accordance to the European standards EN988 and EN 1179 for the high quality rolled titanium zinc.

Contact with the outside air provides the CO₂ required to form the natural patina of VM ZINC®

Without the presence of outside air, VM ZINC® does not protect itself. If there is any condensation a chemical reaction can occur.

As a result there can be corrosion on the underside of the VM ZINC® which is not visible until holes appear on the outer skin.

The best ventilation is ensured by two continuous air inlets: one at the top and the other at the bottom of the roof slope or cladding, a minimum of 10mm wide.

This will ensure that the whole of the underside or the timber boarding and the VM ZINC® is ventilated.

If continuous venting can't be achieved then roof ventilators and air vents must be installed, these must be spaced to ensure that the entire underside of the metal is ventilated.

Fixing of fine mesh of 2mm or less over the vents will deter insects etc from entering.

The minimum depth of the air space under the boarding is 40mm, the total area of air inlets and vents is 1/1000th of the surface area of the roof.

The total area of ventilation at the ridge should be 1.5 times greater than the base of the roof. Roof slopes longer than 13m long should have intermediate air inlets as well.

In most cases, a layer of insulating material is placed below the ventilated space. In order to avoid the risk of poorly installed insulation obstructing the air space, or of the insulation getting wet as a result of condensation, a breather membrane is required on top of the insulation.

This breather membrane must be vapour permeable and end in the gutter or the outside of the building.

This breather membrane can also prevent convection currents of cold outside air entering the building.

Given the increasing level of insulation in buildings, the installation of an effective vapour control layer on the warm side of the insulation is required.

The use of VM ZINC® PLUS which has the underside protected during production, means that the installation can be done without ventilation of the underside of the zinc and boarding.

When VM ZINC® is used consideration must be given to what other metals it comes in contact with, and water flowing from one metal surface to another. Metal with the highest potential on the Electro-chemical scale decomposes a metal with a lower potential and causes its destruction after time by accelerating corrosion. While some metal contacts are acceptable others must be avoided.

Direct Contact: - can be over flashings, air conditioning units, condensate pipes, electrical conduits, fixing clips & screws or anything made of metal. Direct contact can only be with zinc or metals very close to zinc on the Electro-Chemical scale. For example a lightning conductor should be aluminium not copper. Aluminium (low potential) is close to zinc (low potential) on the E-C scale where as copper is way up the scale.(high potential).

Indirect Contact: - Rainwater must never flow from a high potential metal onto a metal of lower potential. The water becomes charged with metal ions which can destroy the lower potential metal.

Compatible Metals with VM ZINC®.

Lead	There are no associated problems with this metal
Aluminium	Although a lower potential, it has a similar protective coating, thus the two metals have very similar potentials, eliminating the risk of corrosion.
Galvanised Steel	Has a fine film of Zinc; this zinc to zinc poses no problem.
Stainless Steel	Austenitic stainless steel & lead or tin coated ferritic stainless steel is permissible.

Incompatible Metals with VM ZINC®.

Copper	This is well up the Electro-chemical scale and should be avoided at all times.
Steel (Non Galvanised)	

Zinc has a thermal expansion 2.2mm/M for a temperature change of 100° C.

When installing VM ZINC®, it must always be fixed in a method that allows for thermal expansion and contraction. Sliding clips that hold the panels in place, sliding flashings without fasteners securing them, all will allow for the thermal movement of the zinc. See the following pages which show the recommended installation methods to allow this movement to occur. It should be noted that slip sheets and support flashings may be required in some situations where the panels or flashings may tend to stick to the support surface.

100° C TEMPERATURE VARIATION / M

Stainless Steel	1.02 to 1.65mm
Steel	1.2 to 1.4mm
Copper	1.7mm
Zinc	2.2mm
Aluminium	2.4mm
Lead	2.9mm

PROTECTION AGAINST FINGERMARKS & DIRT.

Protective Film: - Most VM ZINC® panels and flashings have a protective film on them. This should remain in place until the installation is complete to help in preventing damage to the face of the zinc, however as it isn't UV resistant it should be removed within 6 weeks. Failure to do this could result in residues of the adhesive remaining on the zinc and the film breaking down and having difficulty in its removal.

Fingermarks: - If fingermarks are left on the zinc, the use of VM ZINC® specified mineral oil will remove them. Some available mineral oils may adversely react to the zinc. It should be noted, that due to the self healing nature of zinc, fingermarks will be obscured by the formation of the patina over time. The use of cotton gloves by the installers will assist in the prevention of fingermarks.

Grease and Dirt: - If grease or dirt accumulates on the zinc during installation, it should be removed gently with a clean dry cloth. Do not use cleaning products or rub hard in an attempt to remove it. Weather conditions will over time remove it, also remember the self healing nature of the patina.

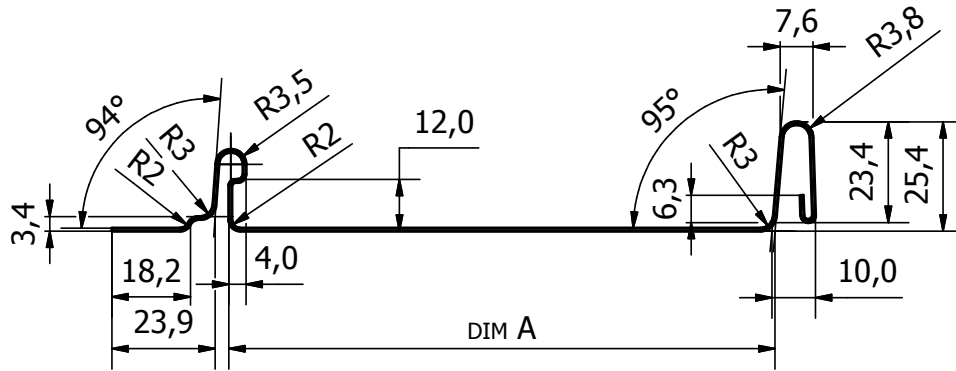
Scratches: - If the zinc is scratched, the self healing patina will minimise the effect over time. If the scratch is deep or wide the panel or flashings may need to be replaced.



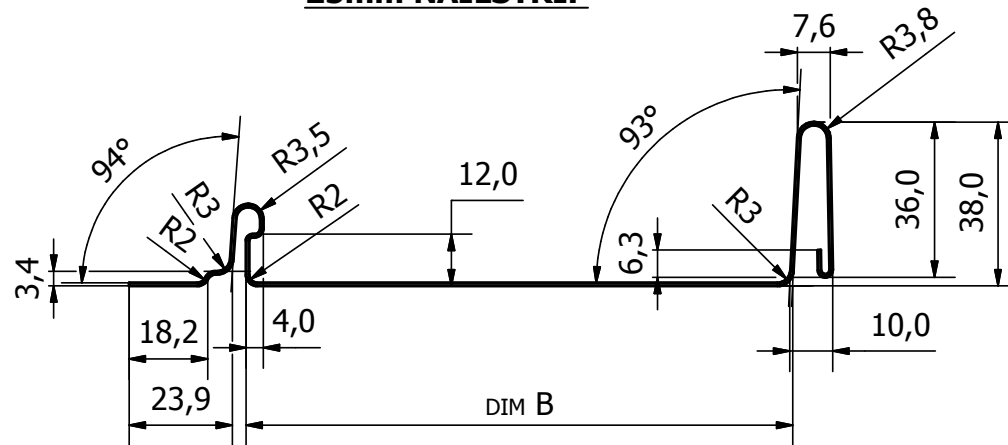
25mm NAILSTRIP



38mm NAILSTRIP



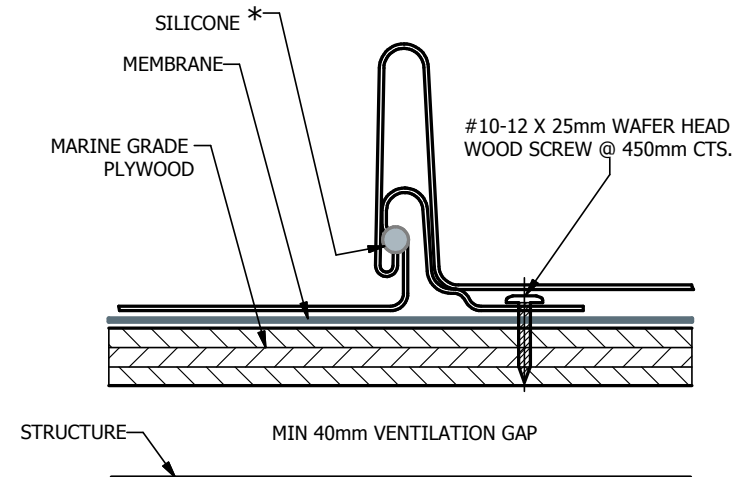
25mm NAILSTRIP



38mm NAILSTRIP

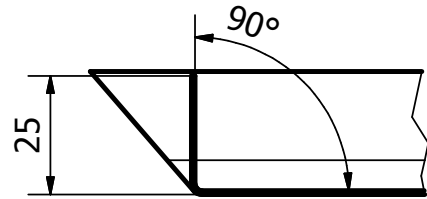
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212	187
377	352
552	527

REVIEW DIMS

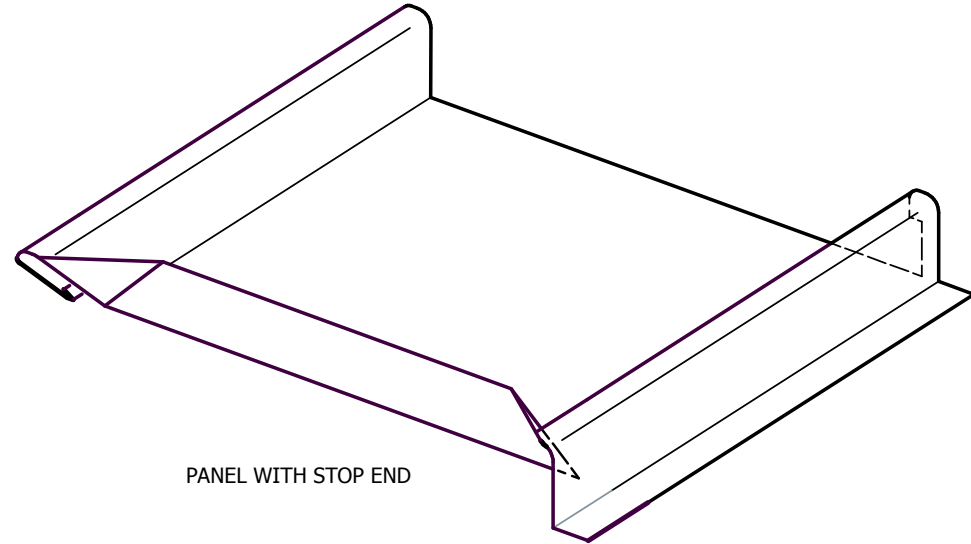


* WHEN ROOF PITCH IS UNDER 7.5° OR TOTAL COMBINED SHEET LENGTH IS OVER 5 METRES.

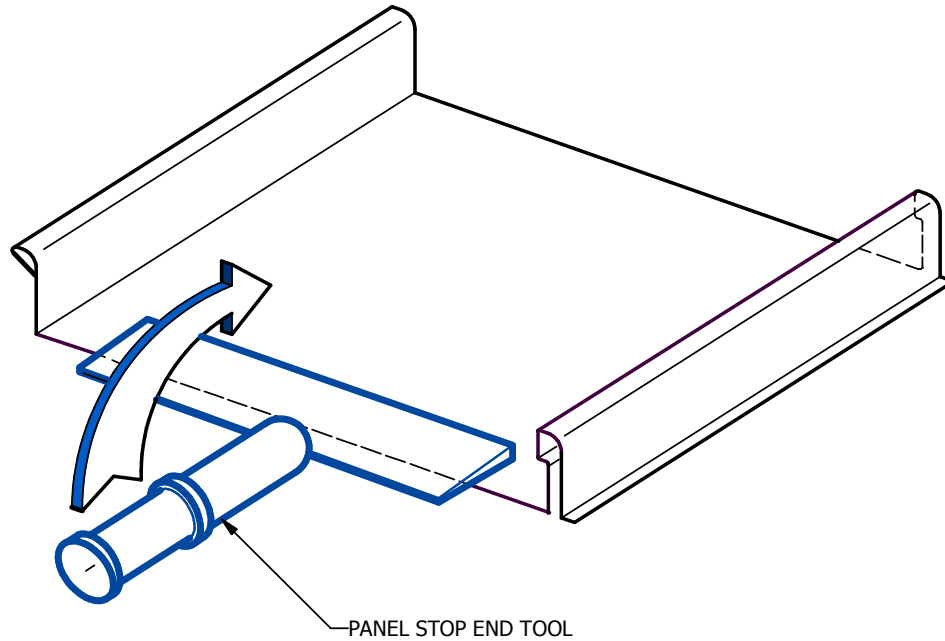
PANEL JOINT AND ATTACHMENT DETAIL



STOP END DETAIL

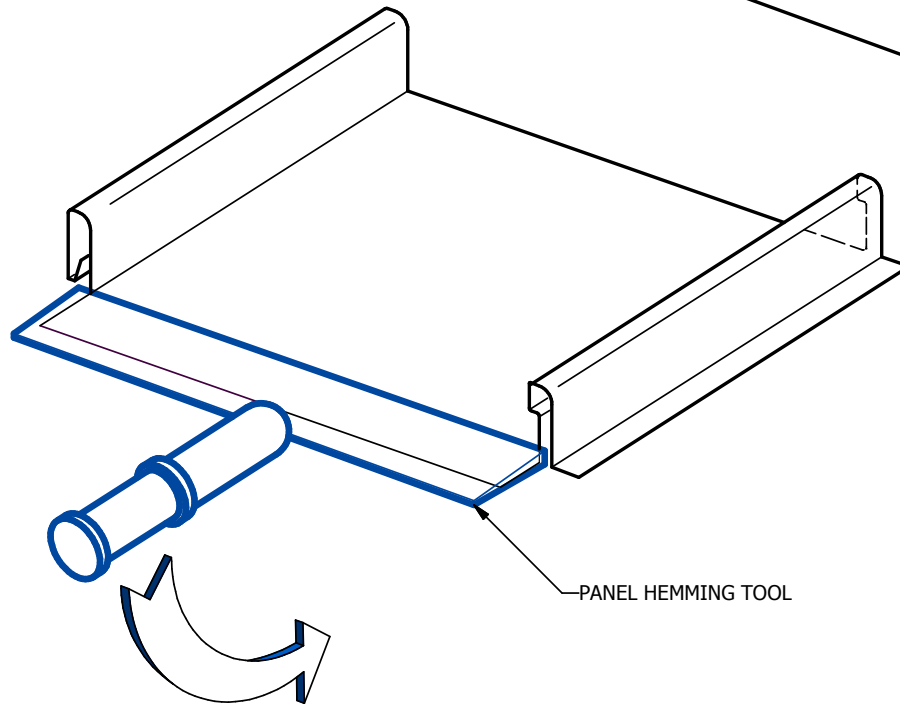
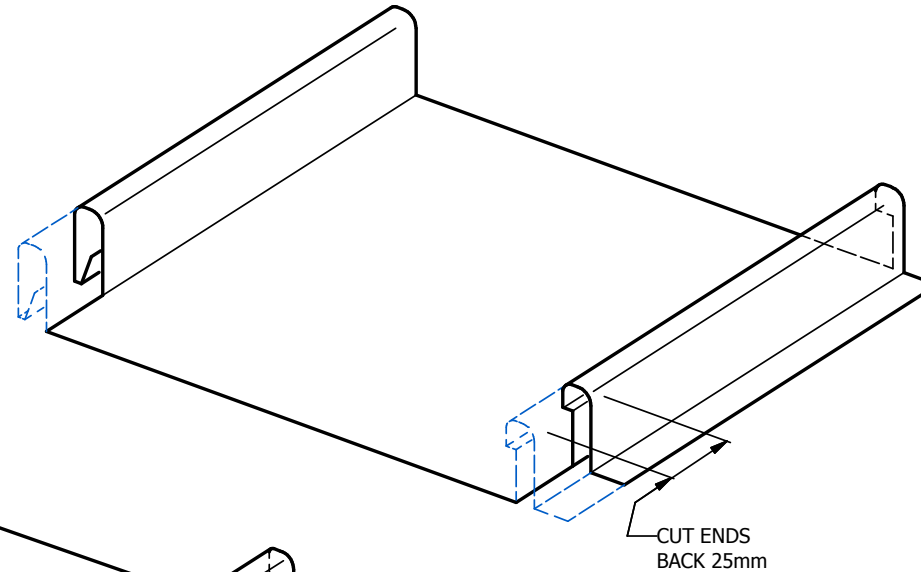
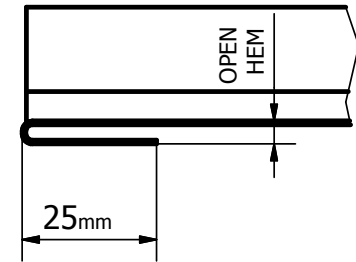


PANEL WITH STOP END



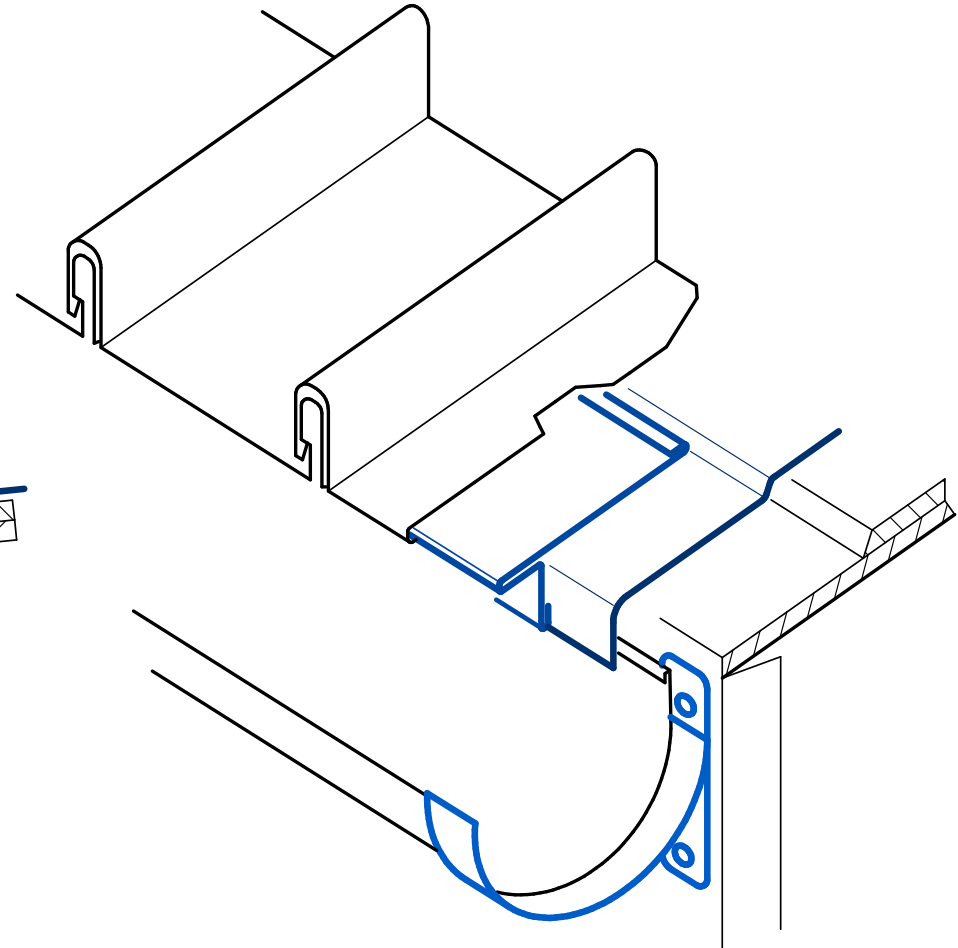
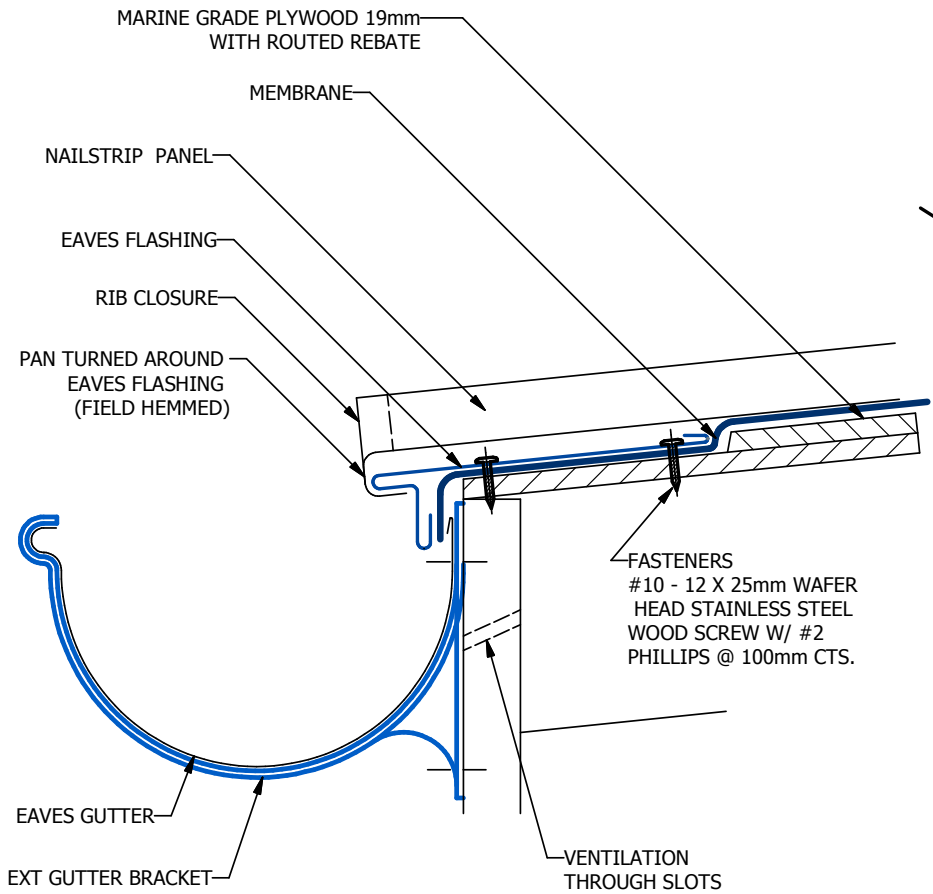
1. PLACE PAN INTO THE PANEL STOP END TOOL. THE FRONT EDGE OF THE TOOL MUST REST BETWEEN THE RIBS.
2. WHILE MAINTAINING PRESSURE AGAINST THE PANEL, ROTATE THE STOP END TOOL AS CLOSE TO 90° AS POSSIBLE.
3. INSPECT COMPLETED BEND.

STOP END PANEL

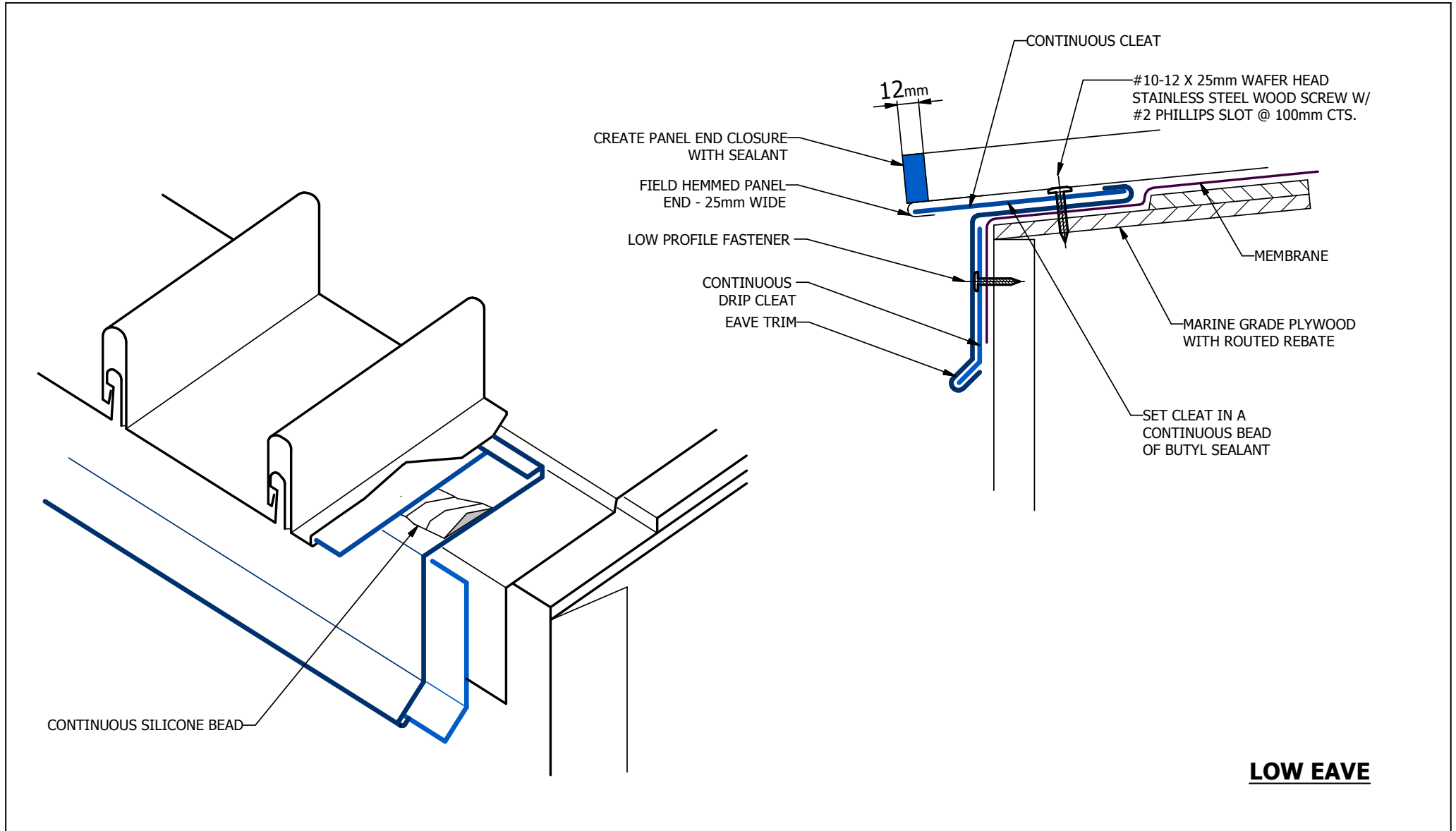


1. PANELS REQUIRING FIELD HEMMED ENDS SHOULD BE FABRICATED 25mm LONGER THAN THE FINISHED PANEL LENGTH. VALLEY CONDITIONS MUST BE FIELD CUT TO THE APPROPRIATE ANGLE.
2. CUT BACK PANEL JOINTS 25mm.
3. PLACE PROTRUDING PAN INTO THE PANEL HEMMING TOOL. THE FRONT EDGE OF THE TOOL MUST REST AGAINST THE NOTCHED JOINT LEGS ON BOTH SIDES.
4. WHILE MAINTAINING PRESSURE AGAINST THE PANEL JOINTS, ROTATE THE HEMMING TOOL AS CLOSE TO 180° AS POSSIBLE.
5. INSPECT COMPLETED HEM TO ENSURE THAT THE HEM IS OPENED AND CAPABLE OF RECEIVING THE CLEAT (SEE ERECTION DETAILS).

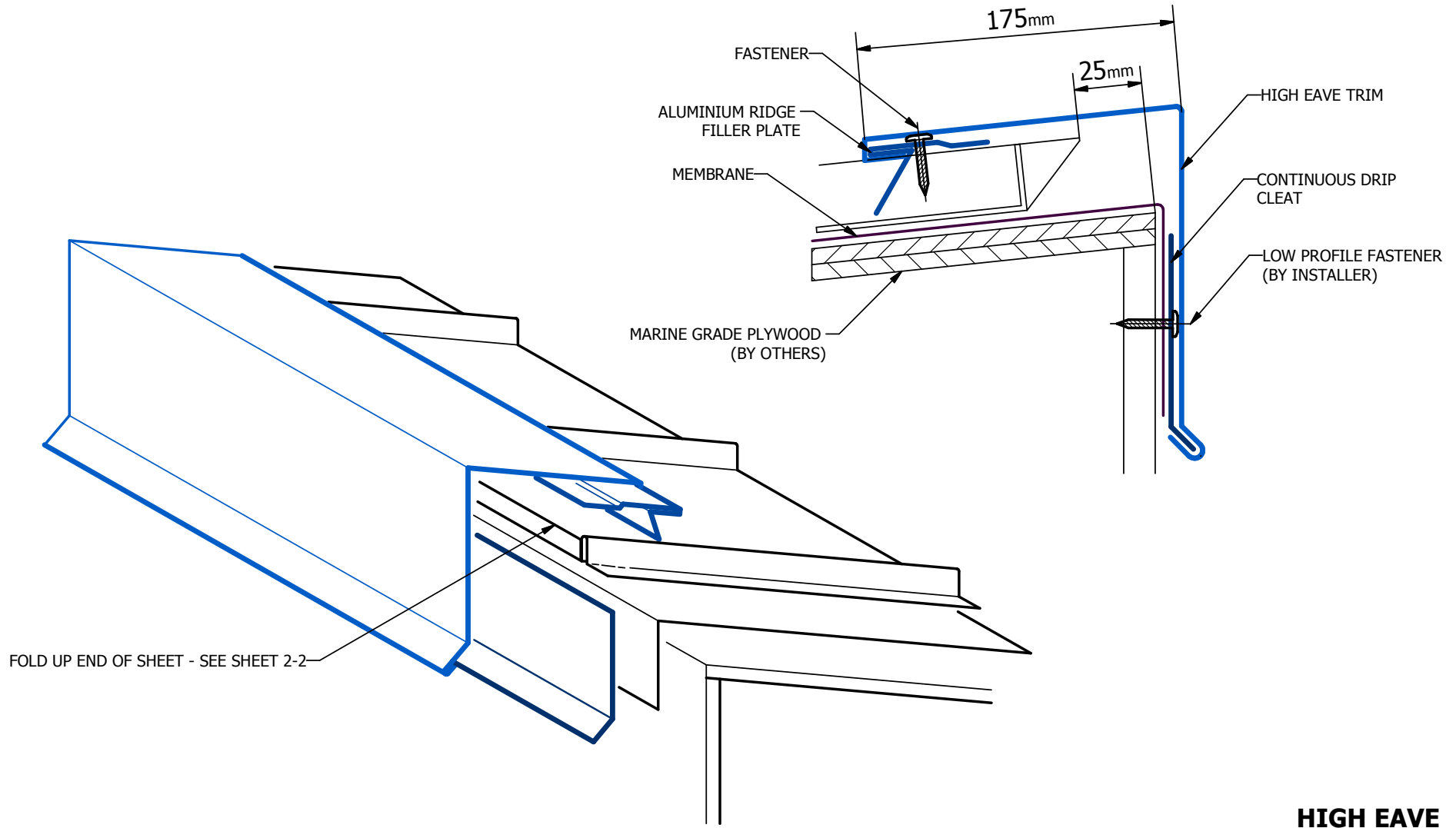
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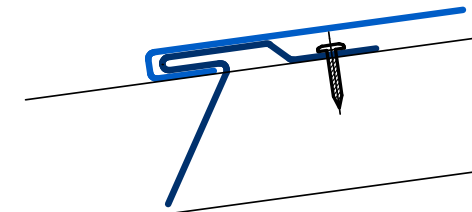
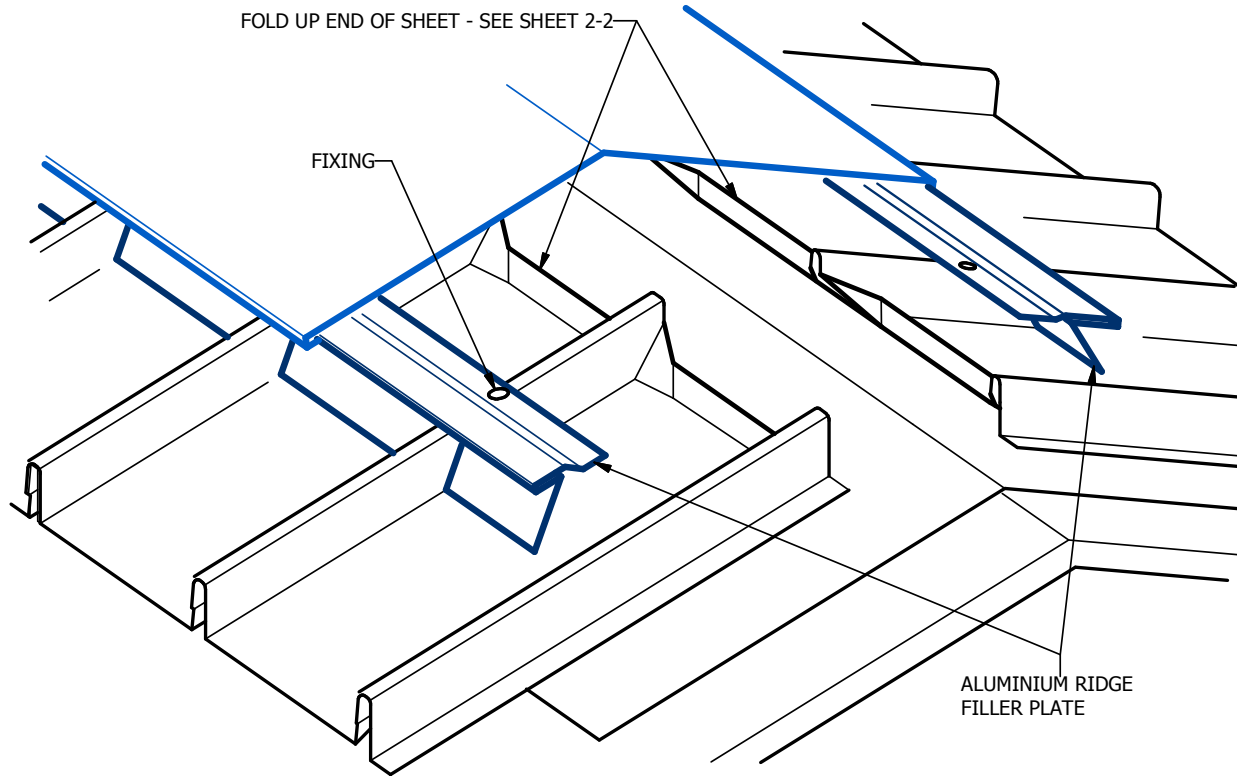
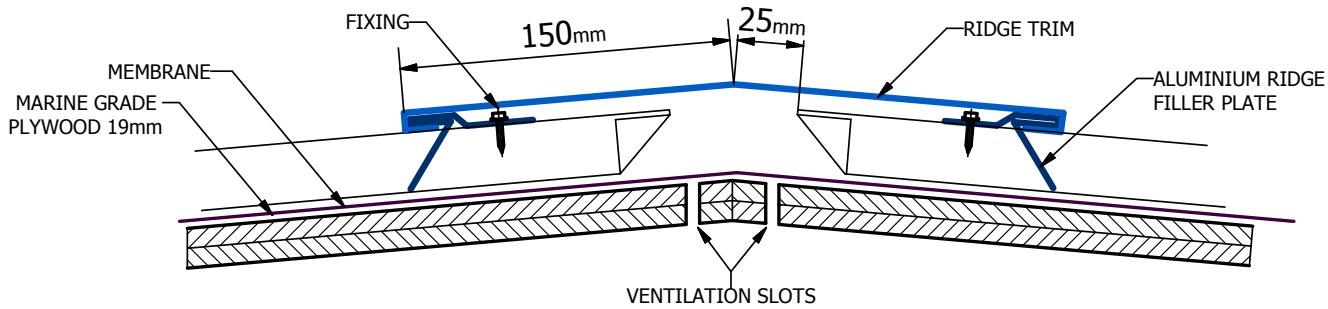


EAVE GUTTER

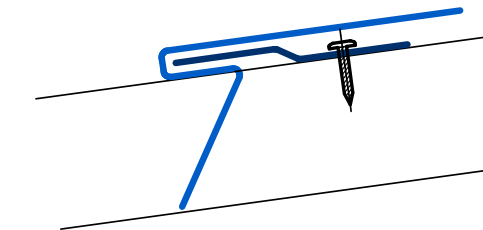


LOW EAVE





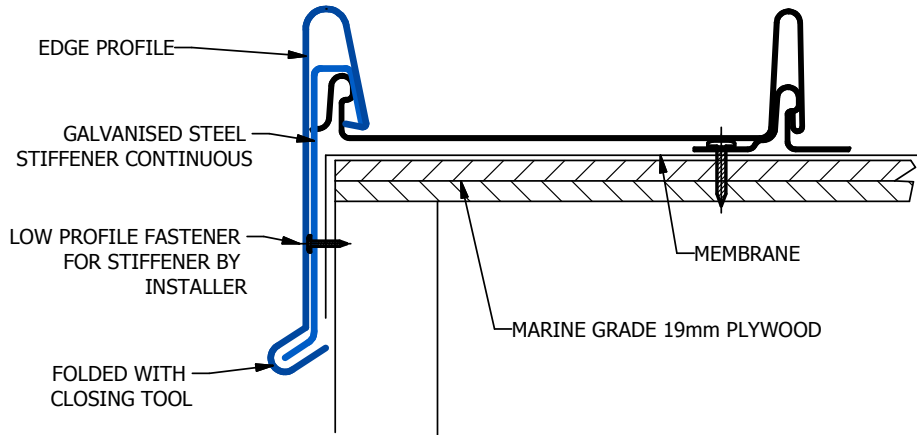
**FILLER PLATE
AS SHOWN**



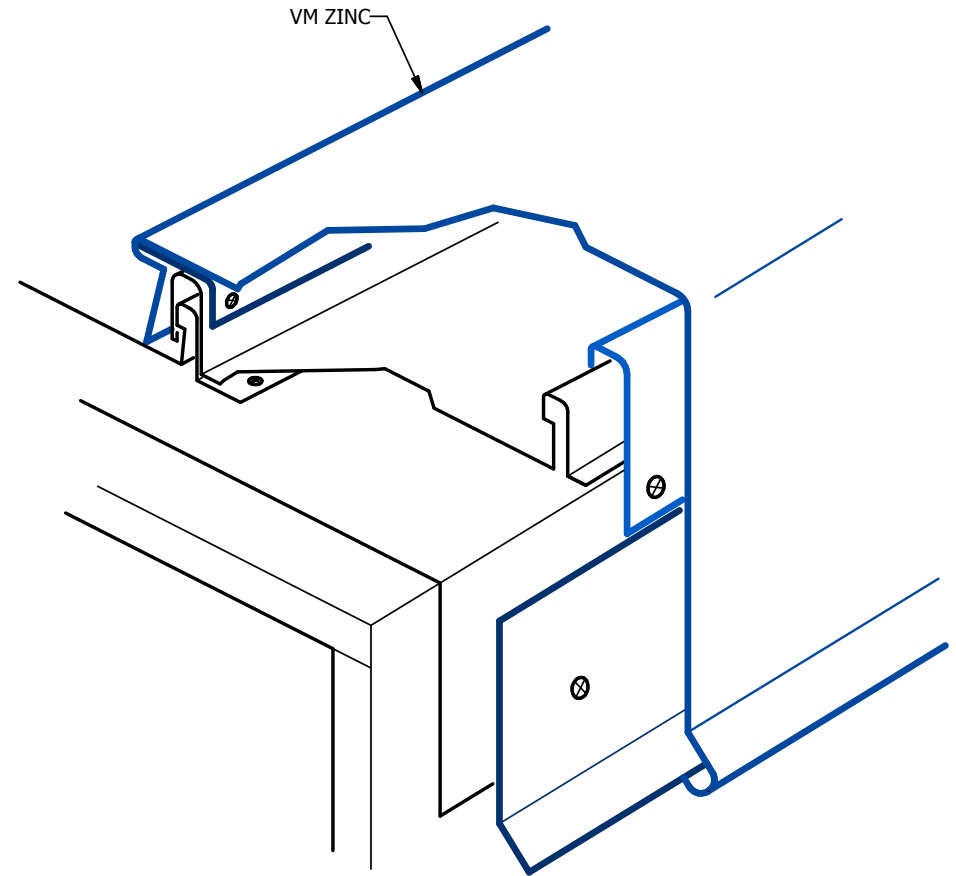
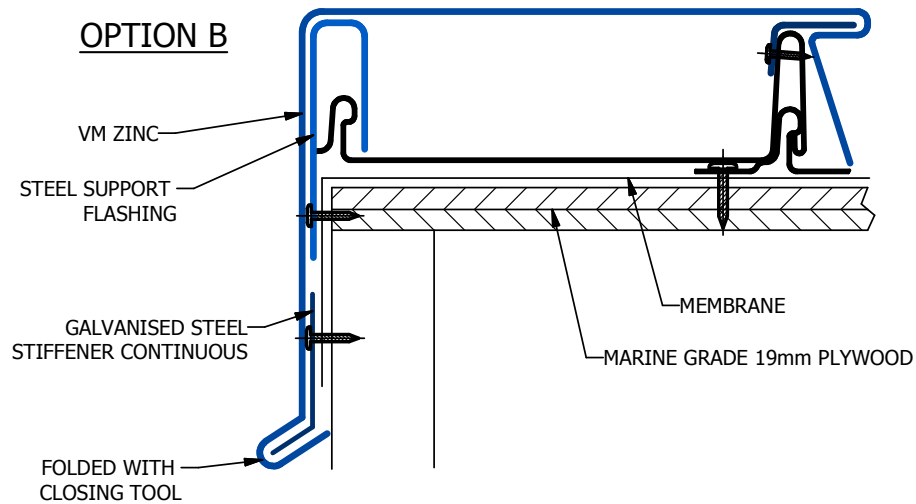
ALTERNATIVE

RIDGE / HIP
NOTE 2 OPTIONS

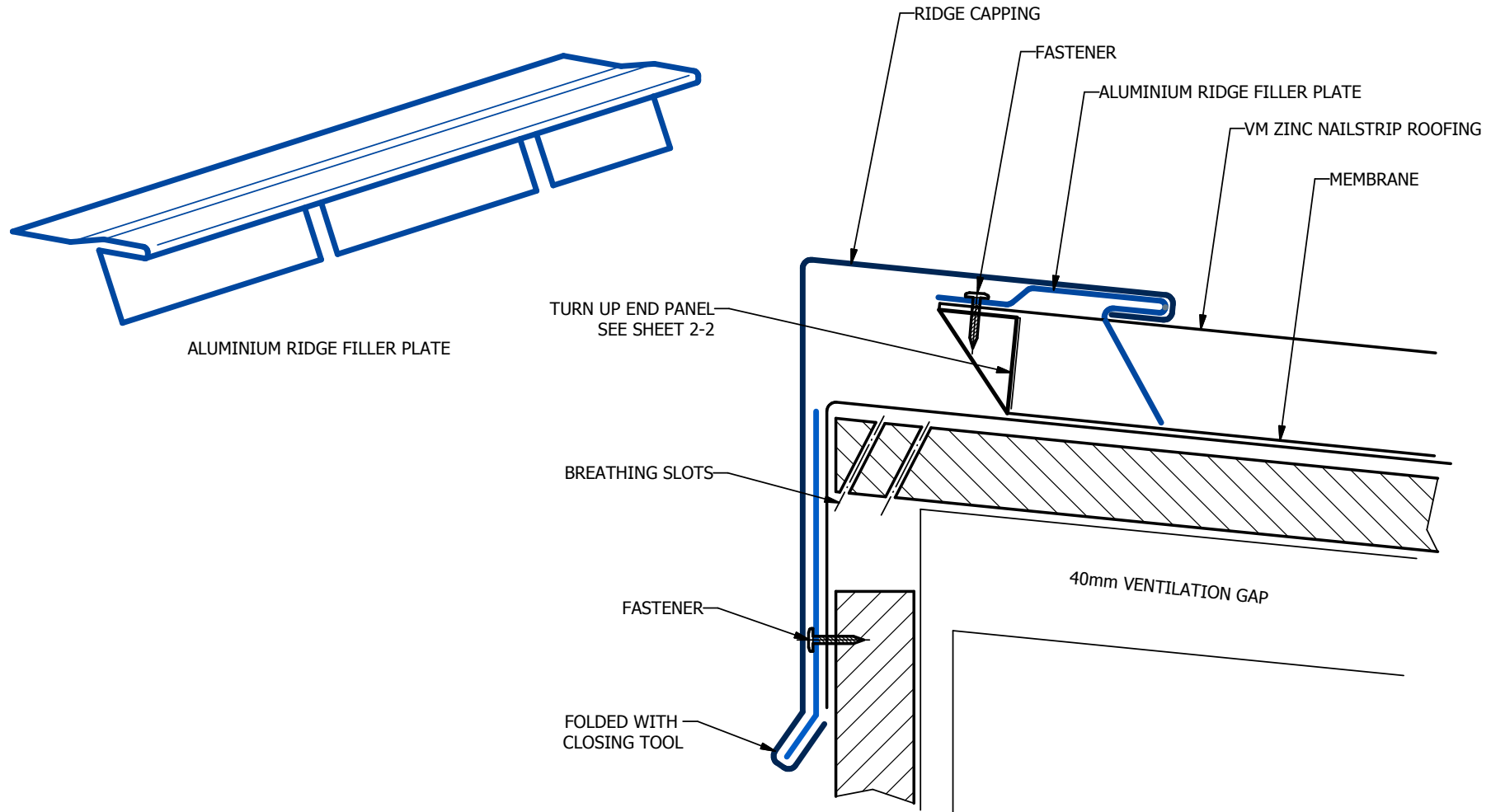
OPTION A



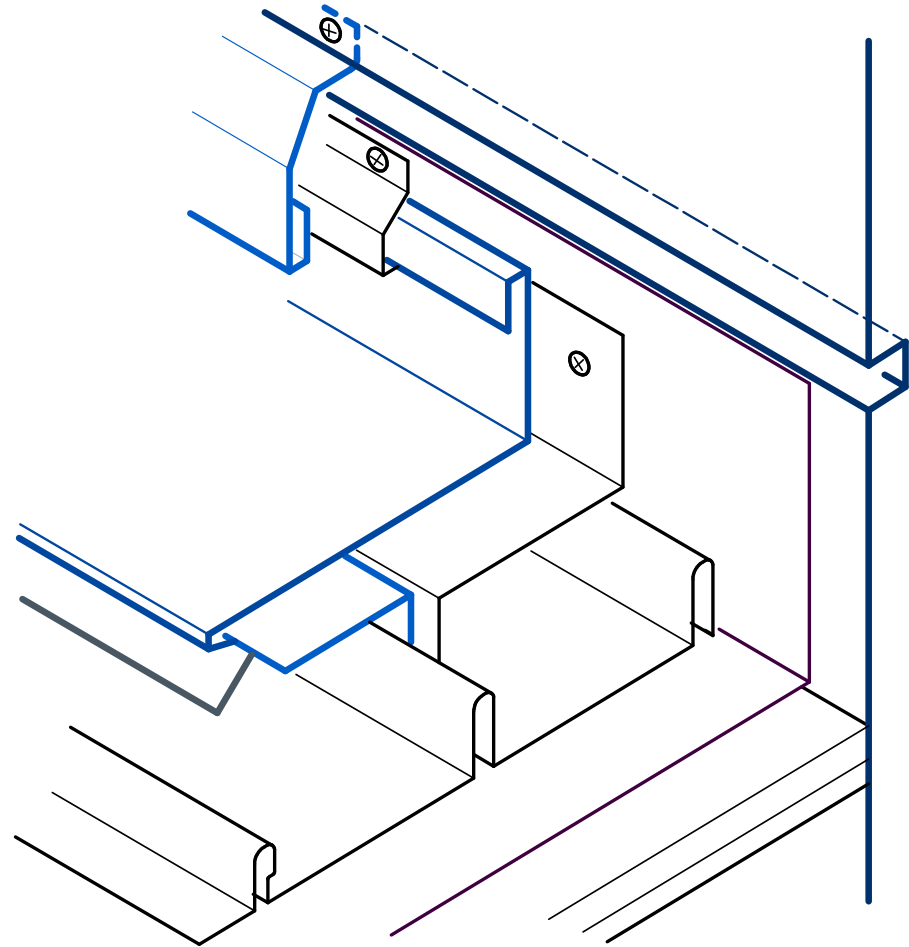
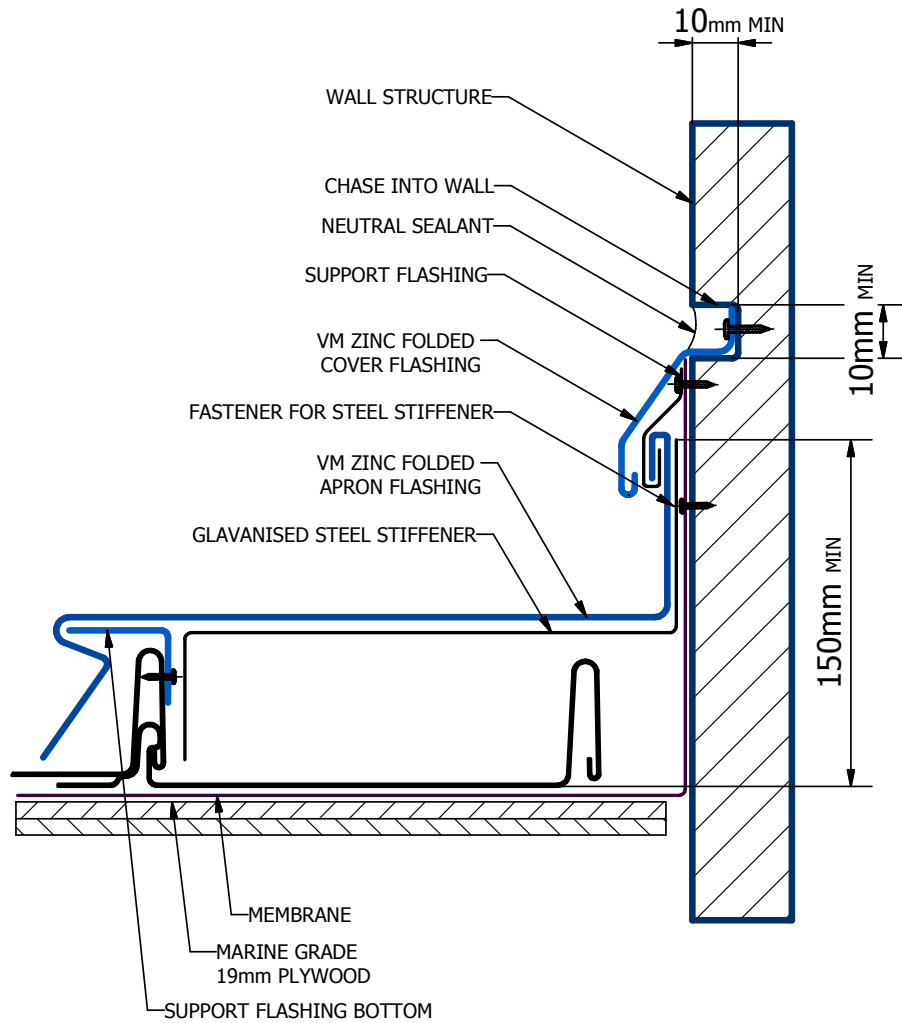
OPTION B



RAKE / BARGE



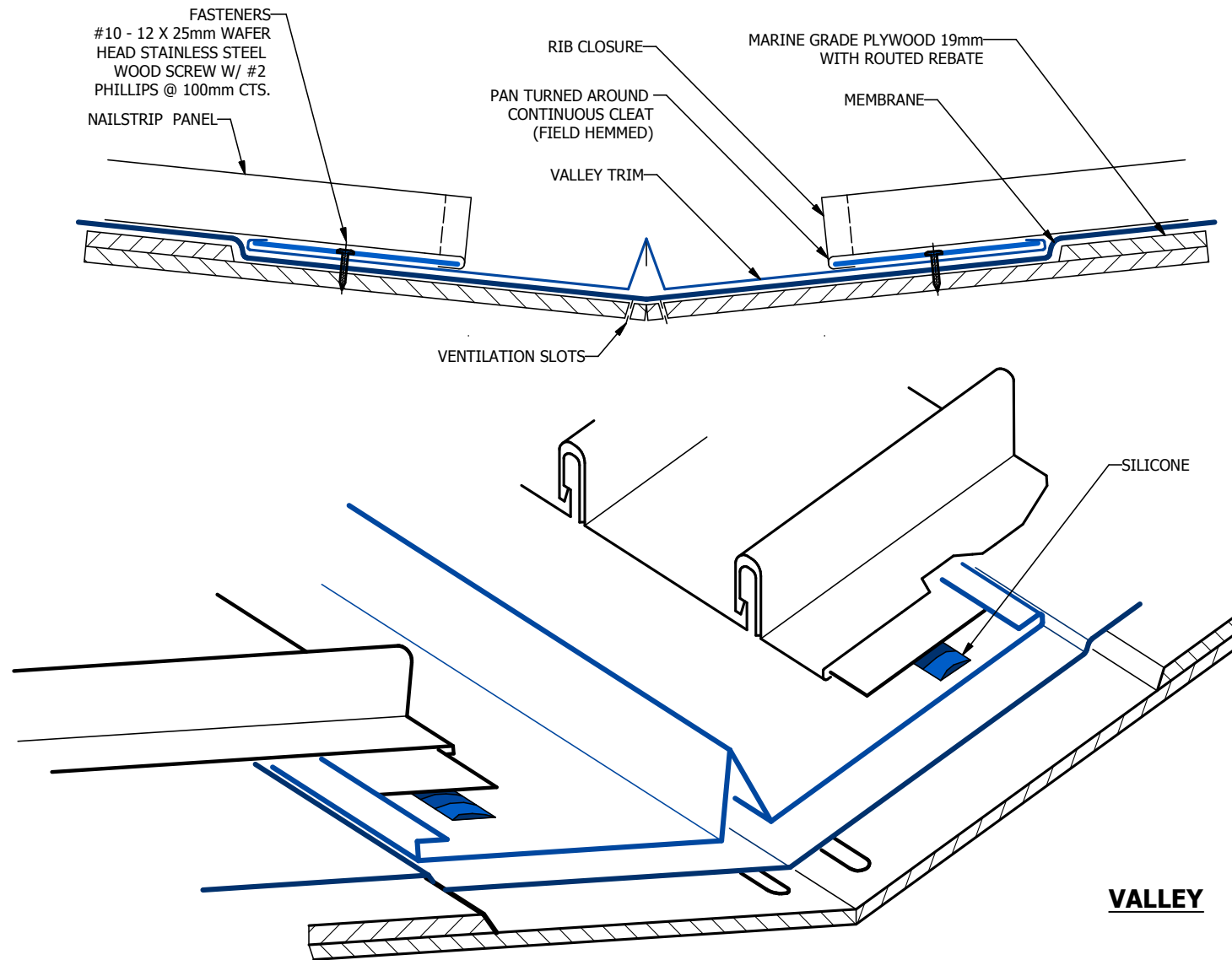
ONE SLOPE RIDGE

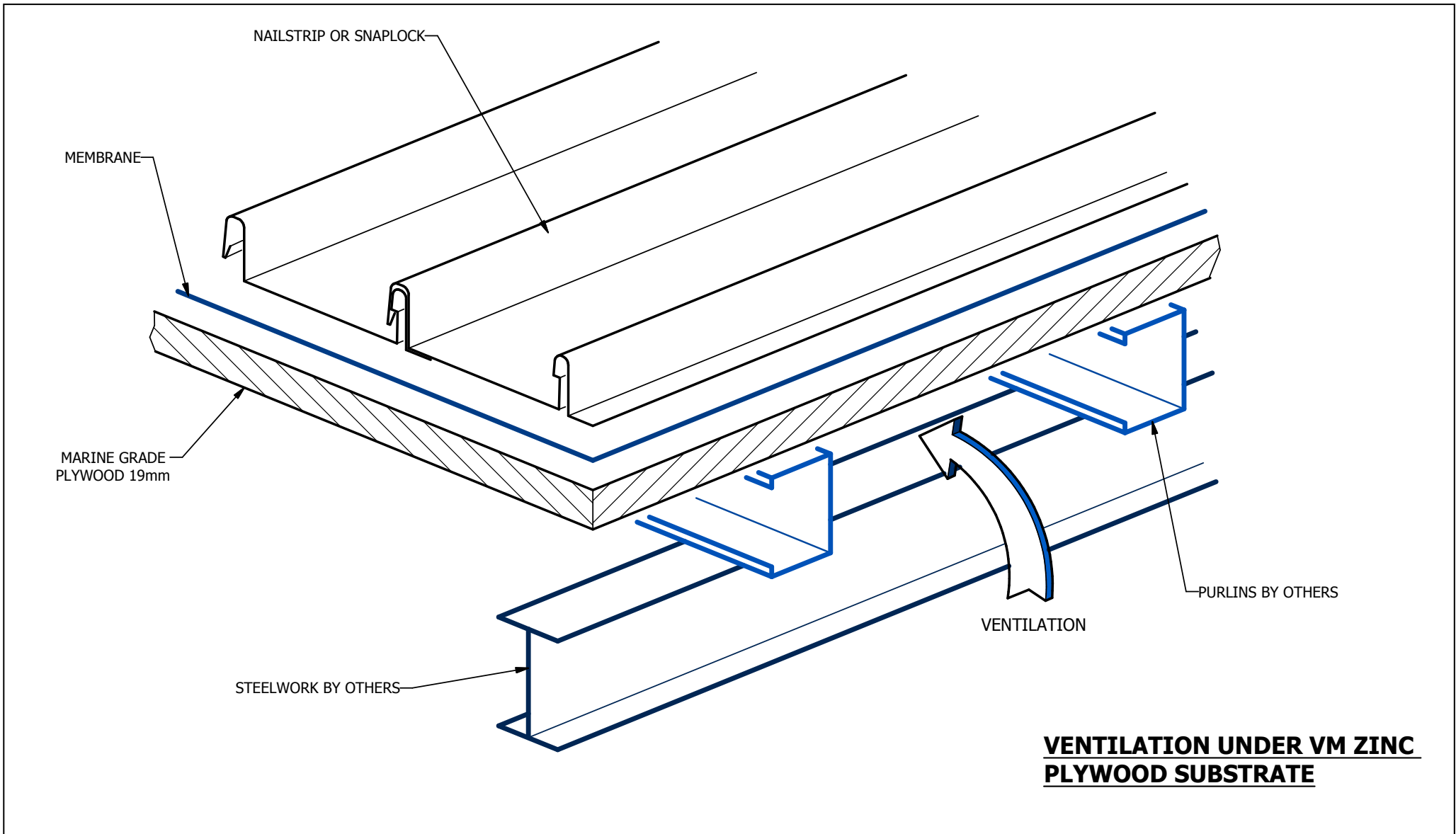


NOTE:- VM ZINC APRON FREE TO MOVE
ON SUPPORT FLASHINGS TOP AND BOTTOM

RAKE WALL FLASHING

NAILSTRIP INSTALLATION DETAILS



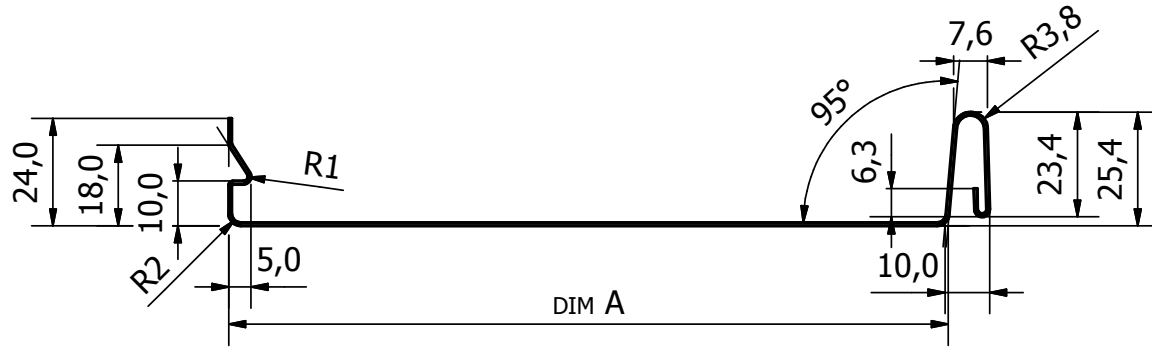




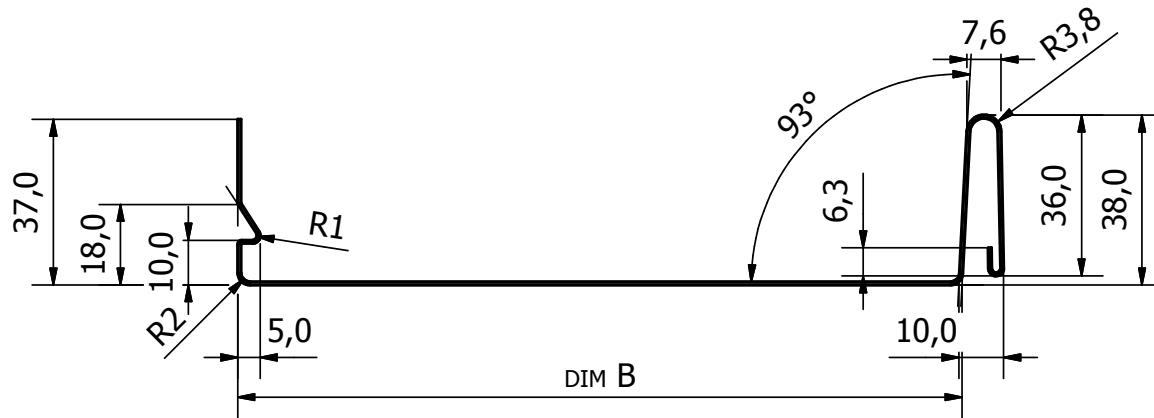
25mm SNAPLOCK



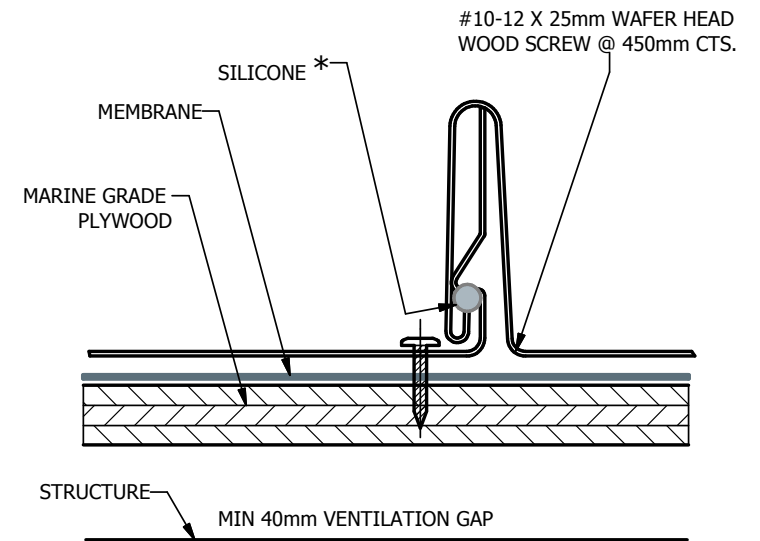
38mm SNAPLOCK



25mm SNAPLOCK

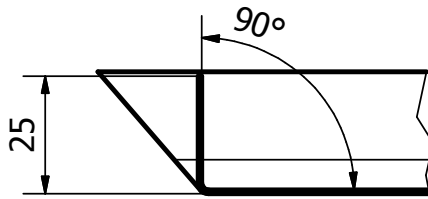


38mm SNAPLOCK

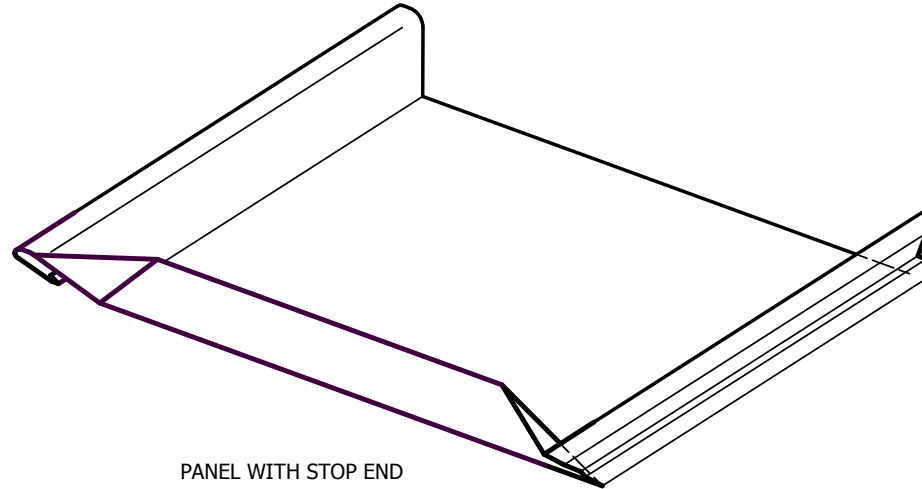


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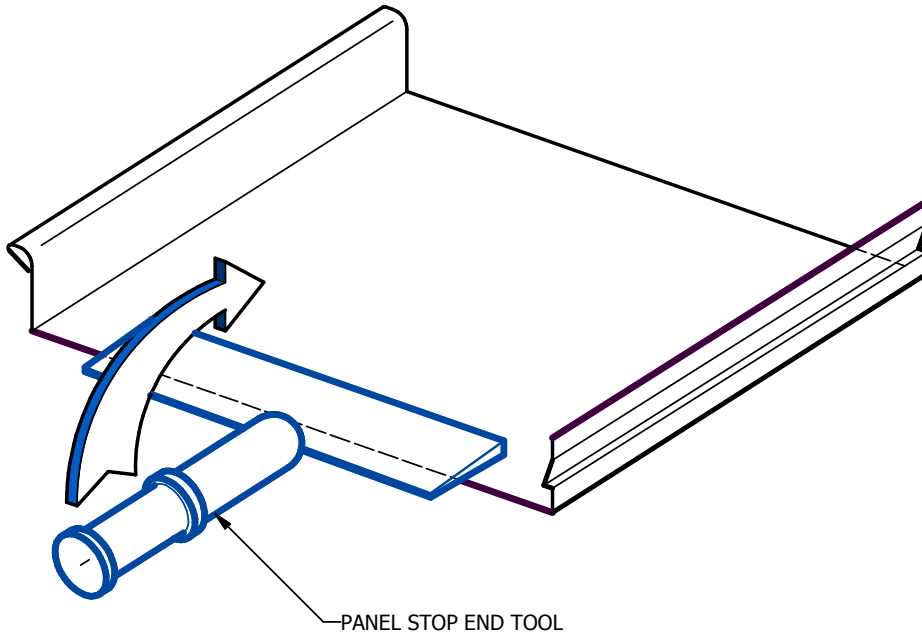
PANEL JOINT AND ATTACHMENT DETAIL



STOP END DETAIL



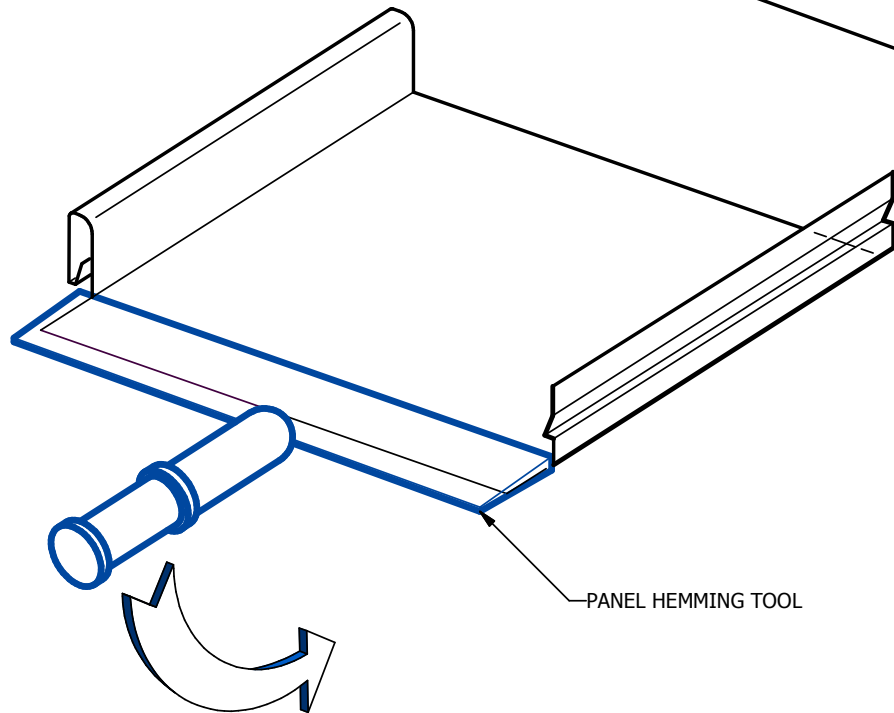
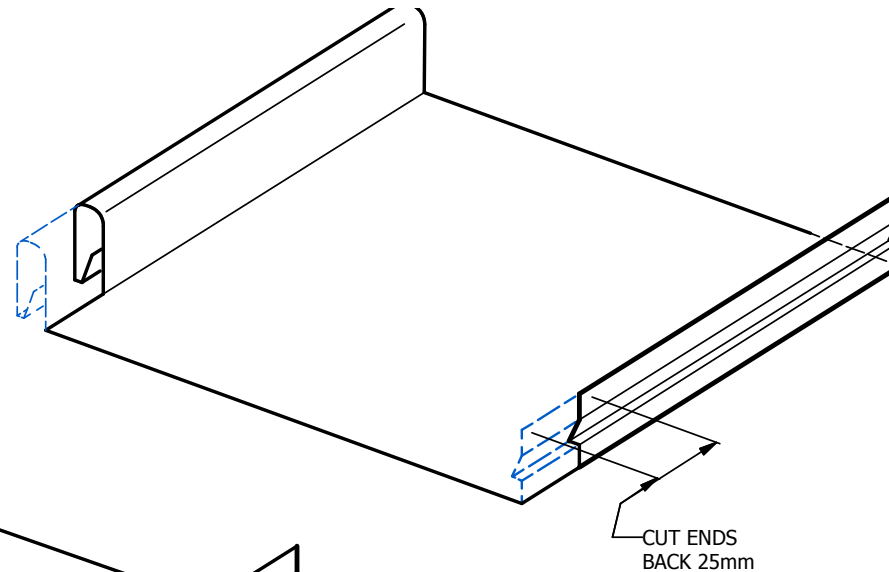
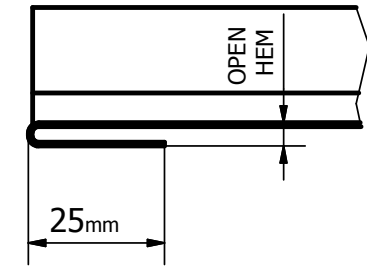
PANEL WITH STOP END



PANEL STOP END TOOL

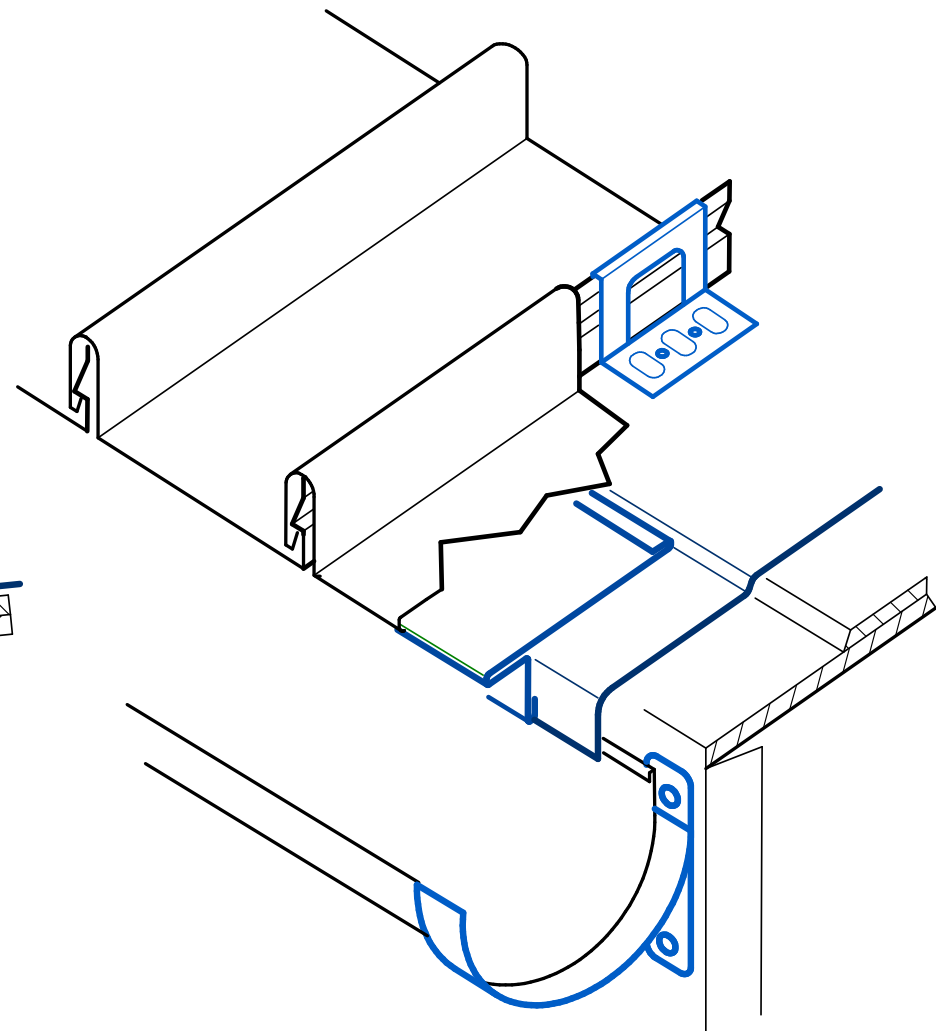
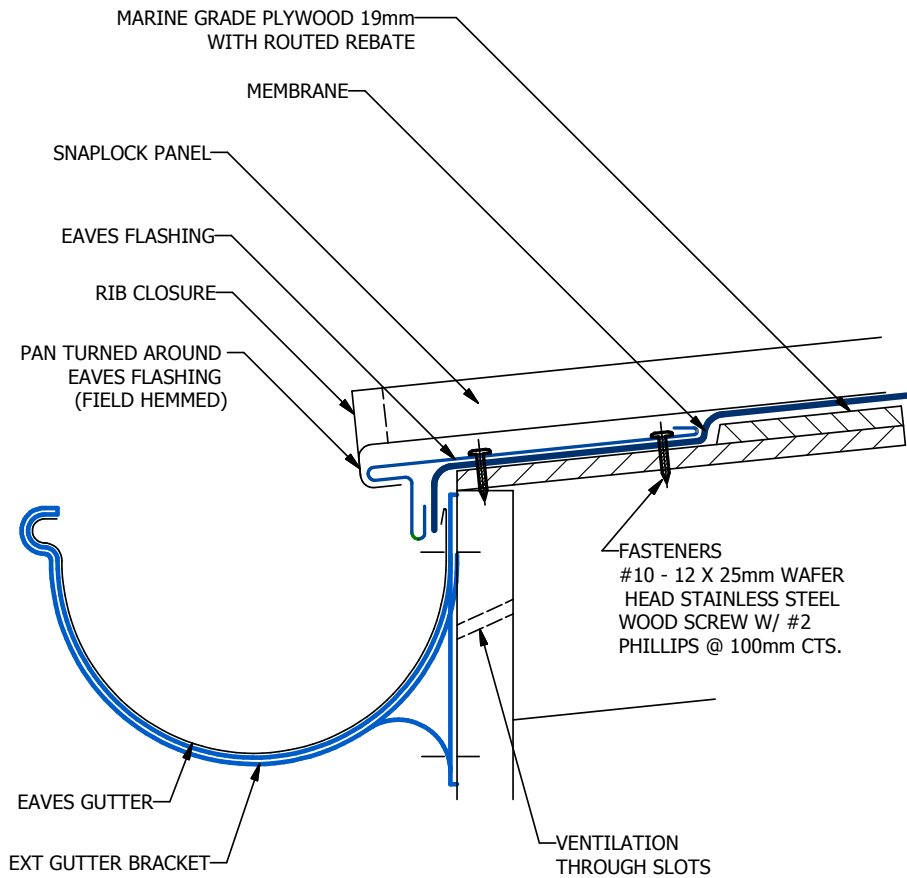
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3. INSPECT COMPLETED BEND.

STOP END PANEL



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FIELD HEMMED PANEL END



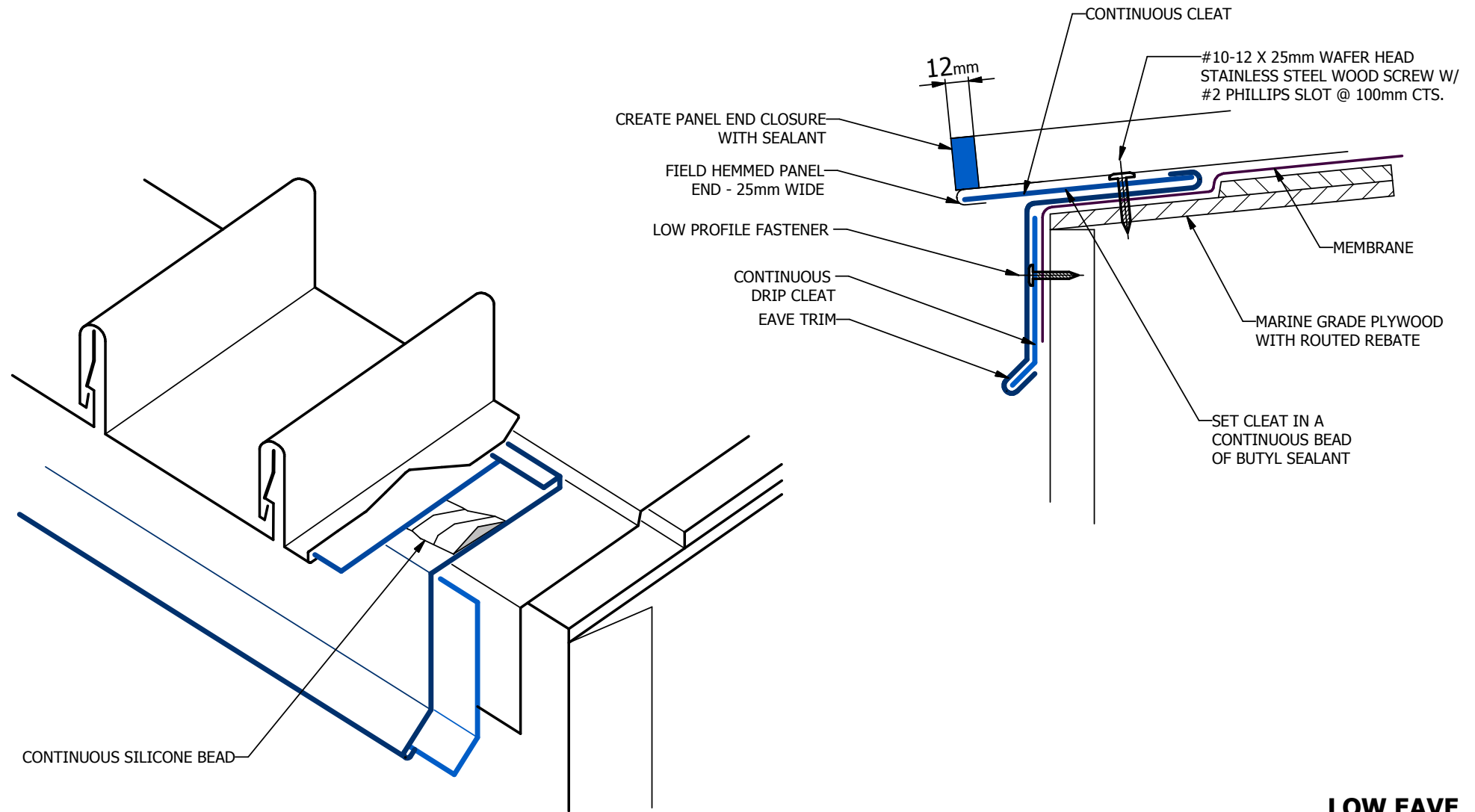
EAVE GUTTER



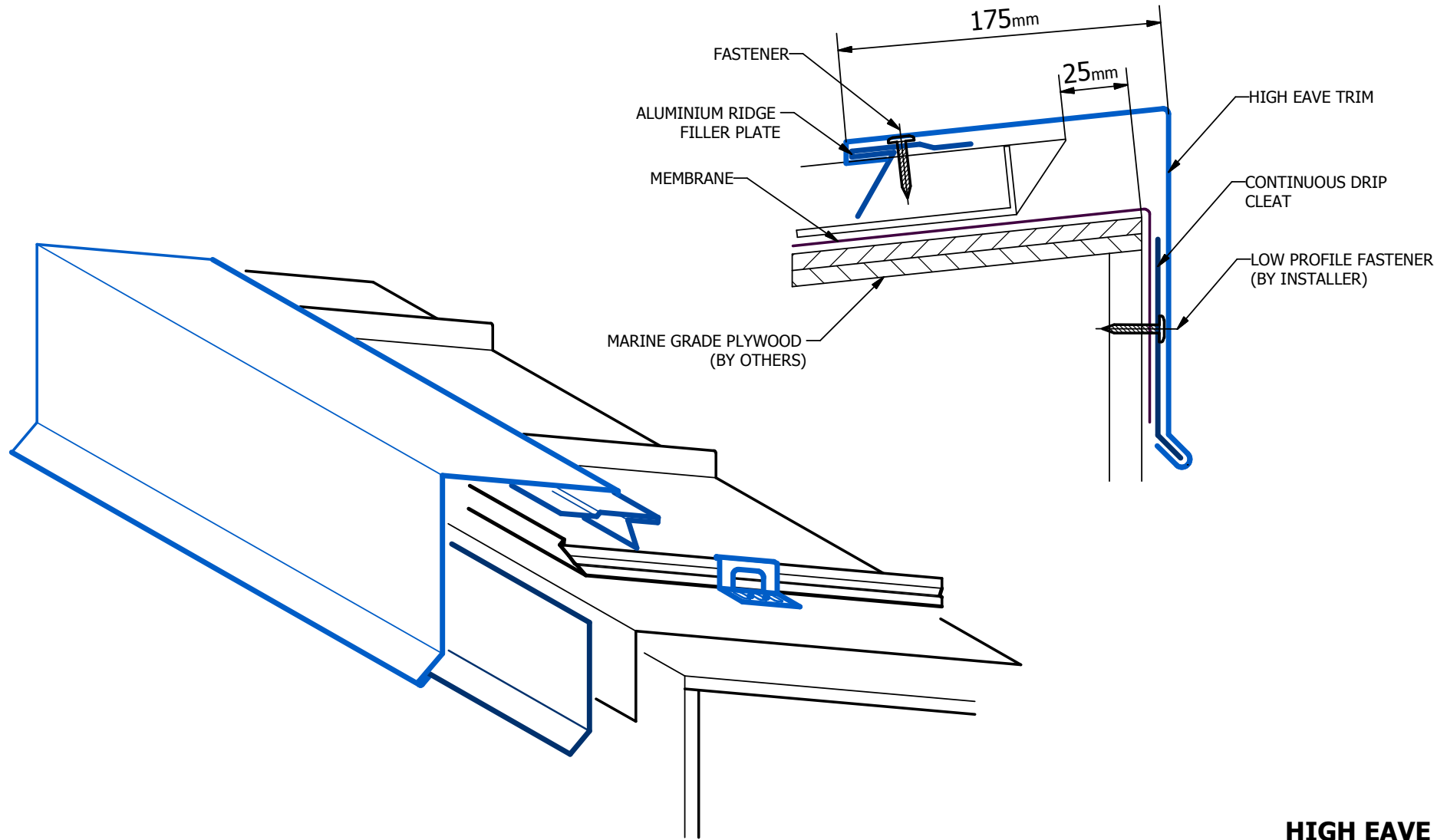
FINISH ON TOP WITH FIELDERS

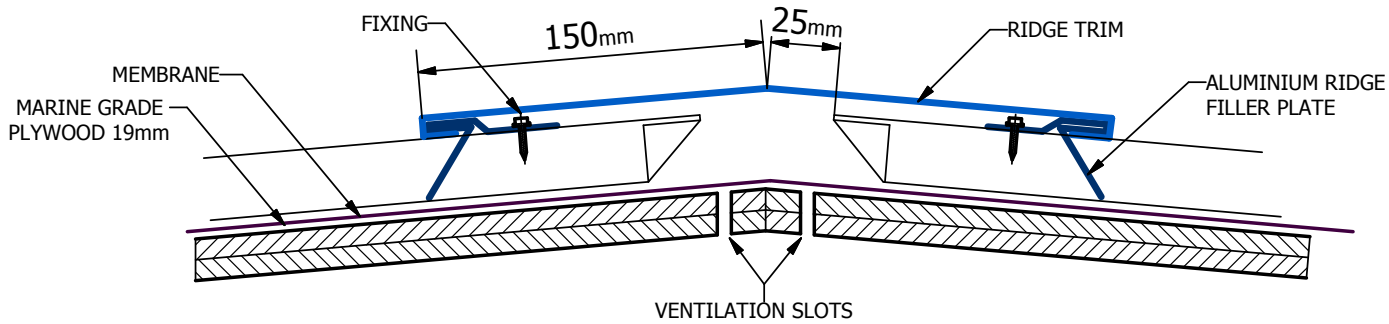
SNAP LOCK INSTALLATION DETAILS

3.5
VM ZINC®

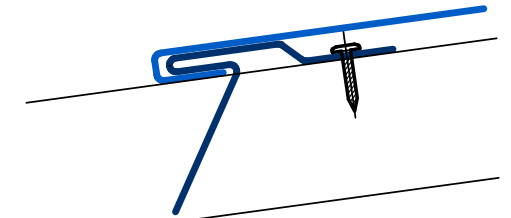
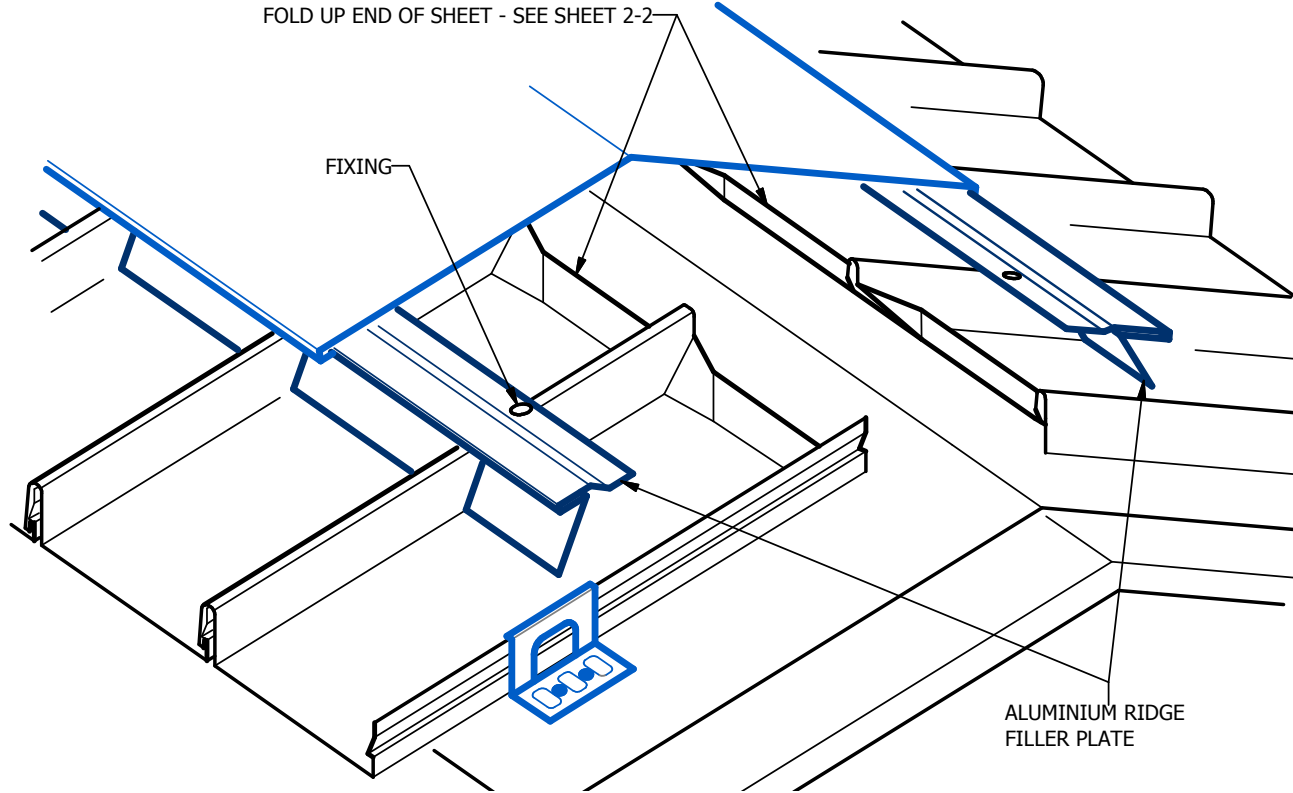


LOW EAVE

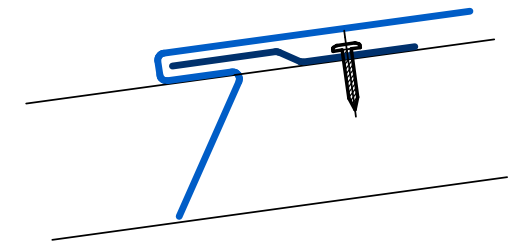




FOLD UP END OF SHEET - SEE SHEET 2-2



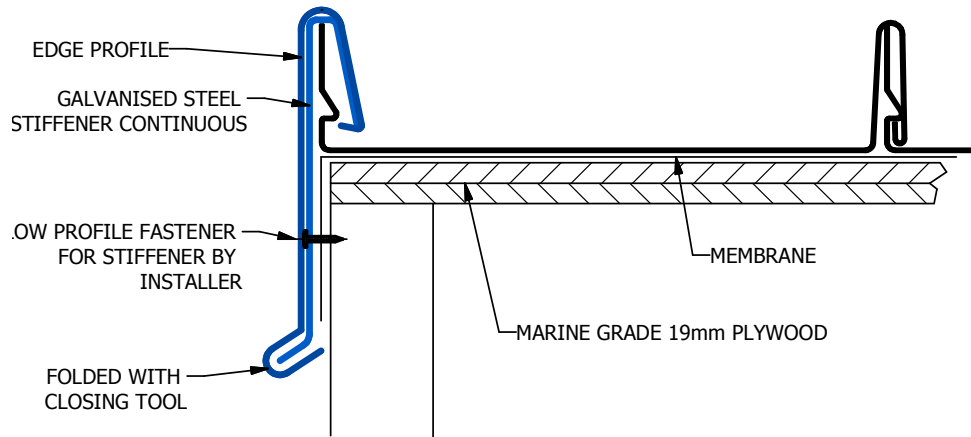
**FILLER PLATE
AS SHOWN**



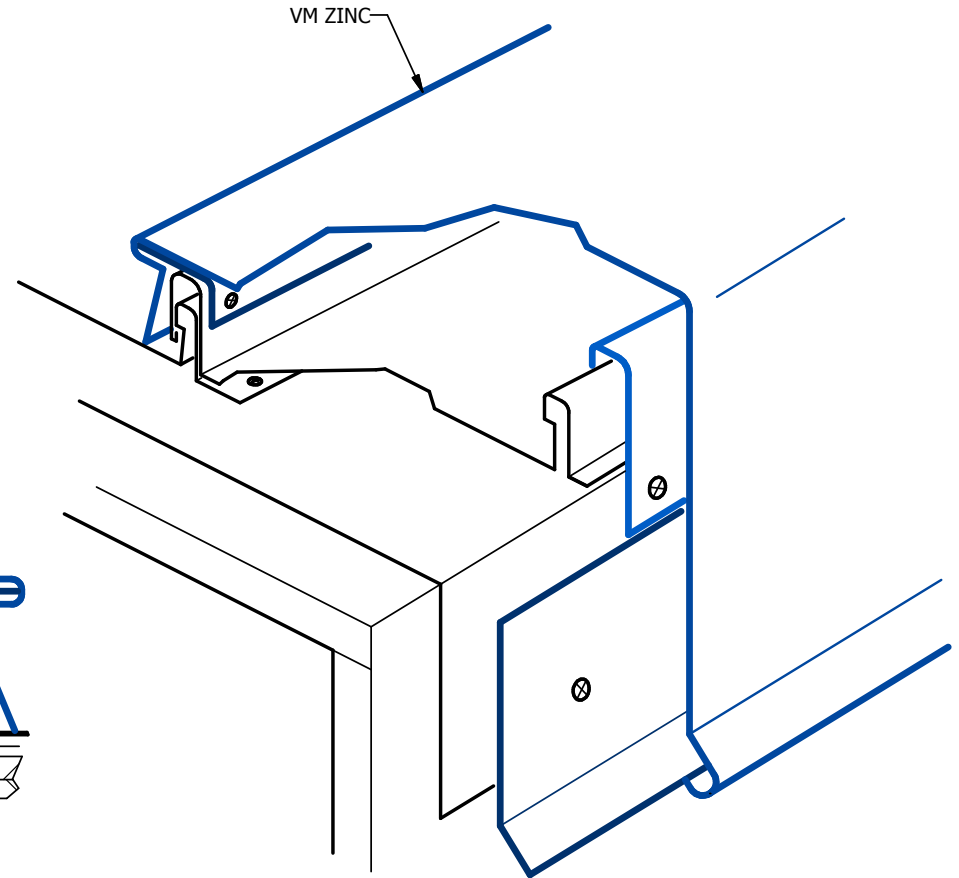
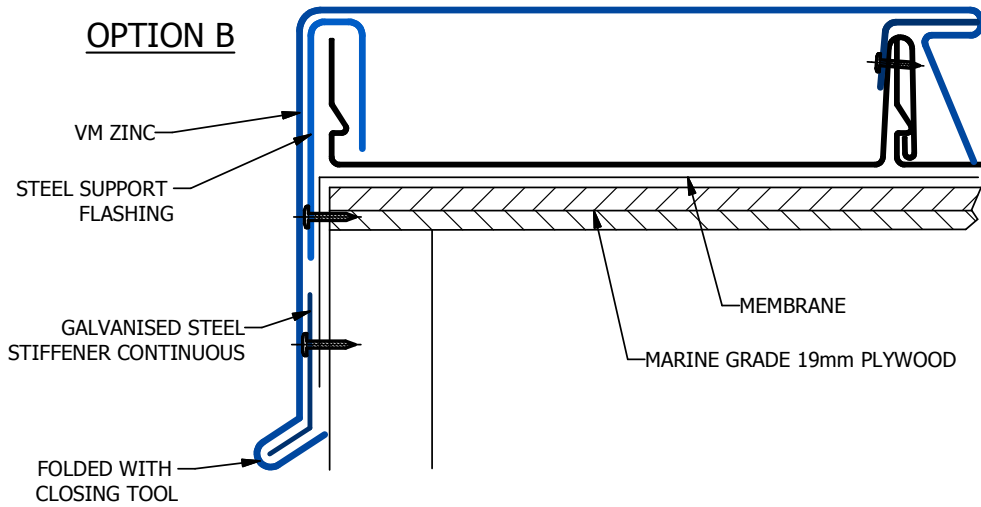
ALTERNATIVE

RIDGE / HIP

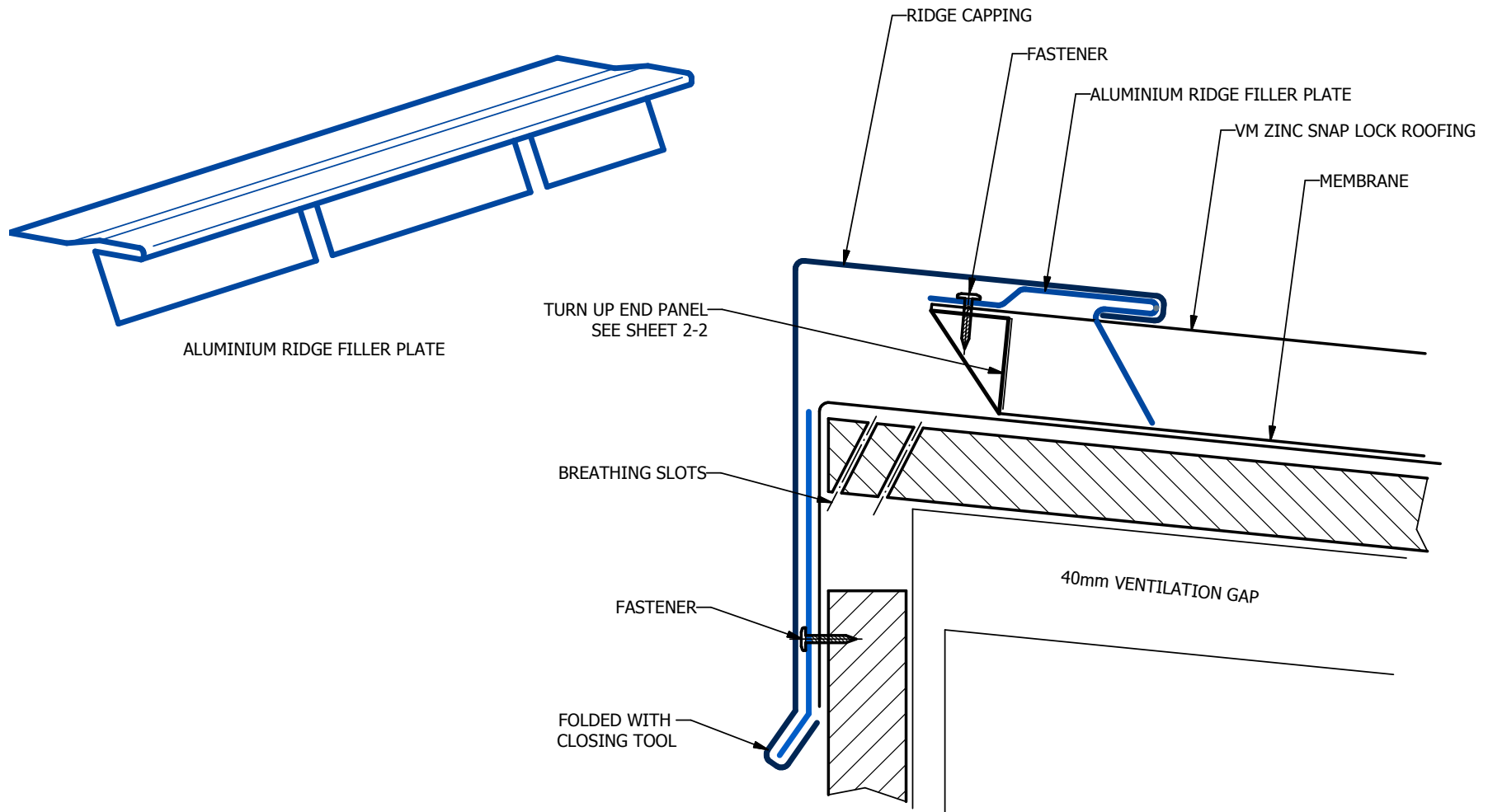
OPTION A



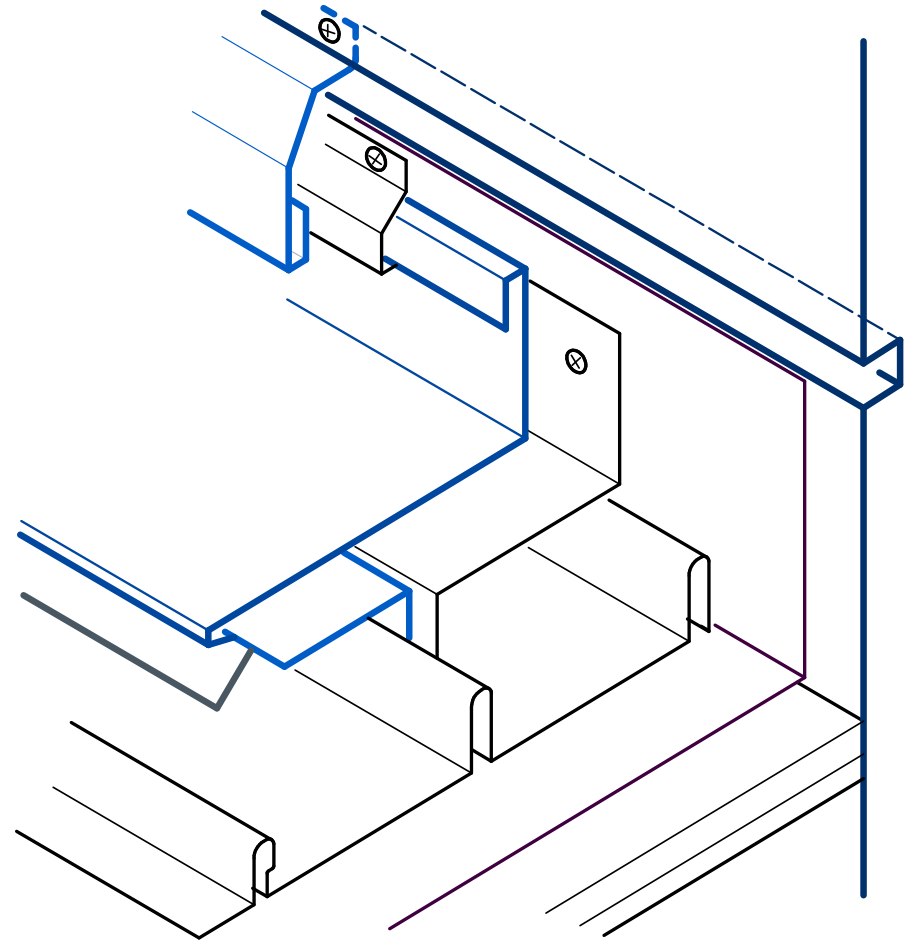
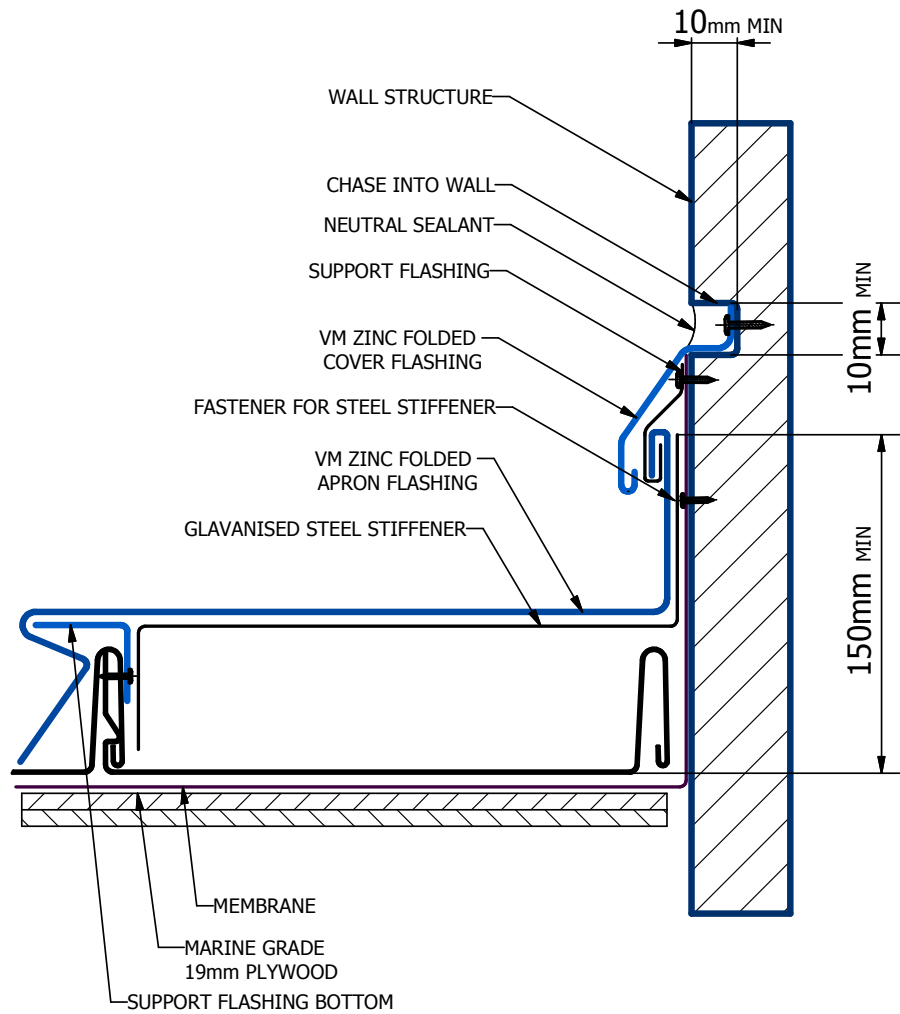
OPTION B



RAKE / BARGE



ONE SLOPE RIDGE



NOTE:- VM ZINC APRON FREE TO MOVE
ON SUPPORT FLASHINGS TOP AND BOTTOM

RAKE WALL FLASHING

SNAP LOCK INSTALLATION DETAILS

