NZ METAL ROOFING MANUFACTURERS INC.

VERSION 1.0 SEPTEMEBER 2025

INSTALLATION GUIDE

METAL FASCIAS, GUTTERS AND DOWNPIPES

METAL FASCIAS, GUTTER & DOWNPIPES INSTALLATION GUIDE

GENERAL

This Installation guide is to be read in conjunction with NZMRM Code of Practice and the Manufacturer's product literature, as well as all relevant building codes and standards.

SCOPE:

This installation guide is applicable to external eaves gutter systems only, and to metal products with a steel substrate.

Products made from other materials such as aluminium or copper etc. require specific design, along with reference to the NZMRM Code of Practice in regard to compatibility with other materials.

PURPOSE:

Assist installers and builders, in understanding the necessary guidelines and steps for preparing and installing fascias, gutters and downpipes, to comply with the performance requirements of the NZ Building Code and aesthetic requirements.

This document will include how to:

- Outline the necessary tools, materials, and measurements required for installation.
- Highlight details to prevent issues such as misalignment, insufficient falls, water ingress, or structural instability.
- Ensure that the fascias, gutters and downpipes complements the overall building design while providing essential weatherproofing for the roof line.

Metal fascias, gutters and downpipes should be installed by a suitably qualified person in accordance with Manufacturer's recommendations and the requirements of the NZBC.

This Installation guide is applicable to products manufactured by NZMRM members only.

TIMBER FRAMED STRUCTURES:

This Installation guide is applicable to timber-framed buildings designed in accordance with NZS 3604:2011.

All diagrams and supporting structure are indicative and should be used as a guideline only.

STEEL FRAMED STRUCTURES:

Installation of fascias, gutters and downpipes will be similar onto steel framed structures in accordance with NASH Standard Part 1:2016 Design Criteria - Alternative Solution and NASH Standard Part 2:2019 Light Steel Framed Buildings.

DURABILITY

Selection of the correct grade of material and appropriate surface coating is imperative to ensure that the fascias, gutters and downpipes will perform satisfactorily in the environment it is to be installed, and meets the requirements of the NZ Building Code.

SUBSTRATE

Typically fascias, gutters and downpipes are manufactured from 0.55mm thickness, grade G300 steel, with a metallic protective coat and a paint coating meeting the requirements of a Type 6 coating in accordance with AS/NZS 2728.

MAINTENANCE

Regular maintenance will extend the life of the fascias, gutters and downpipes. It is strongly advised that areas not receiving regular rain washing should be washed with freshwater on a regular basis.

Regular washing may be a requirement of the product warranty, check with the manufacturer.

PRODUCT SELECTION

Metal fascias, gutters and downpipes must be suitable for the environment and be compatible with adjacent building materials.

As paint formulations from different suppliers may have different performance characteristics, it is important that the metal fascia, gutter and downpipes and accessories are supplied from the same manufacturer.

MEASURING:

Measuring should take place once sufficient structure is in place to enable accurate measurement of lengths required. It is beneficial to make more than one measurement to identify discrepancies and avoid errors.

ORDERING:

Orders should be submitted in writing with enough time to allow for manufacture and transport.

TRANSPORTATION:

Load safety and protection is primarily the driver's responsibility.

Bundles of fascias, gutters and downpipes must be placed and secured to protect against damage from other materials and protected as necessary.

ACCEPTING DELIVERY:

The person receiving the fascias, gutters and downpipes is responsible for identifying a safe and convenient landing point for the load.

UNLOADING:

When unloading by crane, ensure the lifting boom has a spreader bar and that tightening strops do not damage the fascias, gutters and downpipes. Slings or strops should be nylon with sleeves to prevent fraying or cutting and damaging slings. Single slings and chains should not be used.

When unloading by hand, lift each product length off the stack without sliding over or under to ensure no damage to the paint.

METAL FASCIAS, GUTTER & DOWNPIPES INSTALLATION GUIDE

WET STORAGE DAMAGE:

Fascias, gutters and downpipes may deteriorate quickly if water is trapped in between products when closely stacked.

When products get wet during transportation or storage, they should be used immediately or placed so that drainage and air circulation will occur.

Only use a dry, well-ventilated environment for long term storage.

SITE SAFETY:

Installation of fascias, gutters and downpipes present many hazards including laceration, electrocution, puncture and falling from a height. Prudent personal protective equipment (PPE) and installation practices must be employed, and worksafe guidelines followed.

Responsibility for working at height requirements:

- Scaffolding should be determined prior to commencement.

If scaffolding is required then scaffolding should:

- Extend at least 500mm past external/gable corners.
- Be approximately 1200mm below the rafter end in height meet OSH-approved safety standards.

HANDLING:

Do not drag or slide products over or under each other or rough surfaces.

All equipment and materials used to install the fascias, gutters and downpipes should be clean and care taken to prevent damaging the surface.

STRIPPABLE FILMS

Strippable film is a clear pressure sensitive polyethylene plastic film that is applied to most rainwater goods to provide temporary protection from damage during manufacture, transport and handling.

- It is not designed to protect against corrosion, humidity or chemicals.
- It must be removed prior to prolonged exposure to sunlight or it may become extremely difficult to remove.
- Once removed from the product for installation, strippable film must be collected and removed from the site.

MARKING AND CUTTING

Black lead (graphite) pencils must never be used for marking aluminium/zinc unpainted or pre-painted steel products.

Cut pre-painted steel material with care to avoid marring the high-quality finish. Cut by shear only — use nibblers or hand shears.

Cold saws can be used but friction blades and high-speed saw blades must not be used on metal fascias, gutters and downpipes. These blades will damage both the metallic coating and the pre-painted steel surface by creating excessive heat, and creating large amounts of hot swarf which will get embedded into the coating surface.

All debris must be swept off the product at the end of each day.

FASTENERS

The durability of fasteners should equal or exceed that of the material being fastened, and the fastener metal or coating must be compatible with the cladding material if in contact. Fasteners used for pre-painted steel products should be factory colour matched before installation.

FASTENER EMBEDMENT

Screw fasteners should be long enough to give adequate penetration into the supporting structure. Generally, 30mm minimum embedment is required for screws into timber or typically three threads engagement for screws into steel, for buildings within the scope of NZS 3604 and the NASH standard, up to Extra High Wind Zones. SED Wind Zone requires specific design by a suitably qualified structural engineer. Fixing types, embedment, pullout, etc. need to be checked specifically with the fastener manufacturer to ensure design loads can be met.

FASTENERS SHOULD BE:

- A minimum of Class 4 for Severe Environments, Class 5 for Very Severe Environments;
- Manufactured and coated with materials compatible with the material being fastened.

INSTALLATION

The correct depth setting on a screw gun is provided either by the depth gauge or by a clutch torque adjustment, and an adjustment should be made every time a different screw or material thickness is to be drilled. Resilient washers under fastener heads will only seal properly with the right adjustment.

Experienced operators can, in most instances, drive screws correctly by using a variable speed screw gun; however, a depth set gun will give more consistent results.

Type 17 screws driven into timber will ‘part’ the fibres rather than cutting them which provides a self-locking action against withdrawal. Screws driven completely through timber will, therefore, not have the same pull-out resistance as screws with embedded tips.

Impact drivers and poorly fitting nut drivers can both damage the protective coating on the screw head which will affect durability. It is the installers responsibility to ensure the method of installing screws does not cause damage.

Screw points, method of driving, and thread design all have an impact on pull-out capacity; so in critical situations, the specific screw and method of installation must be specified.

RIVETS

Rivets should have a minimum diameter of 4mm.

Use only aluminium rivets for galvanised and aluminium/zinc-coated steel products.

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PRODUCT DAMAGE

A small ding in a fascia, gutter or downpipes, will not normally cause any structural problems and may be aesthetically acceptable, however deeper dings can cause cracking.

For aesthetic reasons, any damage may be unacceptable. However, if the damage is not visible, it can be repaired by using a sealed and riveted saddle cap. If damage to the gutter could cause water to pond, the section of gutter should be replaced.

WATER PONDING

Excessive water ponding will create a prolonged time of wetness and increased build-up of debris. Ponding will detract from a coated steel product's life and will invalidate the product warranty.

Shallow water ponding up to 5mm is acceptable.

COLOUR MATCHING PAINT

Colour match paint is designed for matching accessories to the pre-painted material; it is not designed for repairing marks or blemishes. Paint should never be used to touch up marks and blemishes.

Fasteners and accessories requiring colour matching should be painted before installation and ideally away from the roof or wall cladding as air-dried paints used to disguise marks, weather at a rate different from that of pre-painted material and will often become more apparent than the mark they are intended to disguise.

Minor scratches that do not extend to the metallic coating, are less than 3mm in width, and are not visually noticeable from a distance of 3m, are best left alone, as they will not affect the performance of the pre-painted product due to the self-healing qualities of the primer and protective alloy coating. They become less evident as the coating weathers.

Extensive coating damage to any pre-painted steel product can only be rectified by replacement of the affected product.

COMPLETION

The installer should notify the main contractor on completion of the scheduled work.

All fascias, gutters and downpipes should be left clean and free from debris on completion of the work, and any roofing related debris on site should be safely removed.

MAINTENANCE

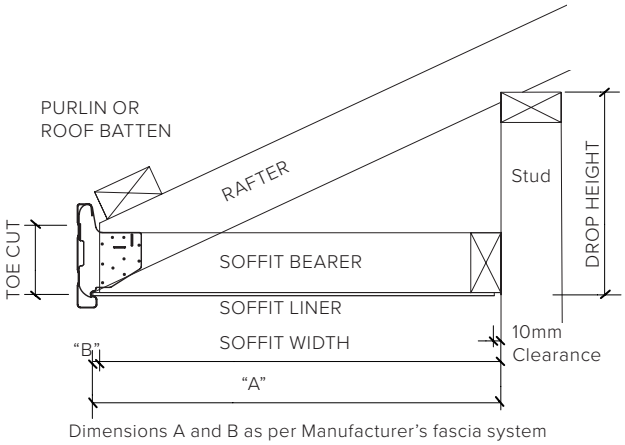
Refer to manufacturers literature for product maintenance requirements.

METAL FASCIA INSTALLATION

EAVES SETOUT

Most manufacturers have fascia drop heights and toe cut dimensions, required to suit their fascia system.

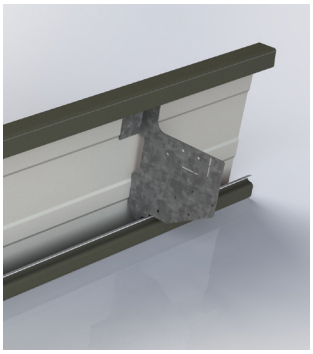
Indicative Eaves Detail.



Dimensions A and B as per Manufacturer's fascia system

EAVES BRACKETS

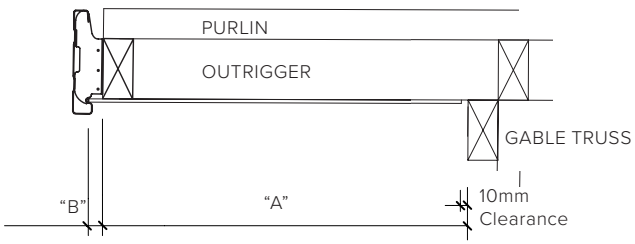
The material and specifications of the eaves bracket are specific to each manufacturer. Eaves brackets are typically attached to the side of the truss.



GABLE END SETOUT

Most manufacturers have drop heights and toe cut dimensions, required to suit their fascia.

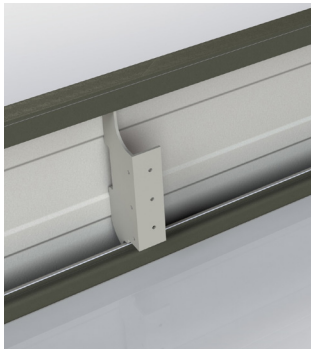
Indicative Gable End Detail.



Dimensions A and B as per Manufacturer's fascia system

GABLE END BRACKETS

The material and specifications of the gable end bracket are specific to each manufacturer. Gable end brackets are typically bent 90 degress and face fastened to the fly rafter.

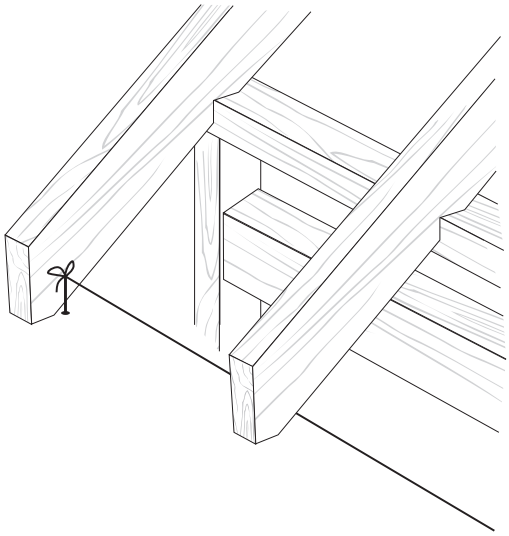


All diagrams are indicative.

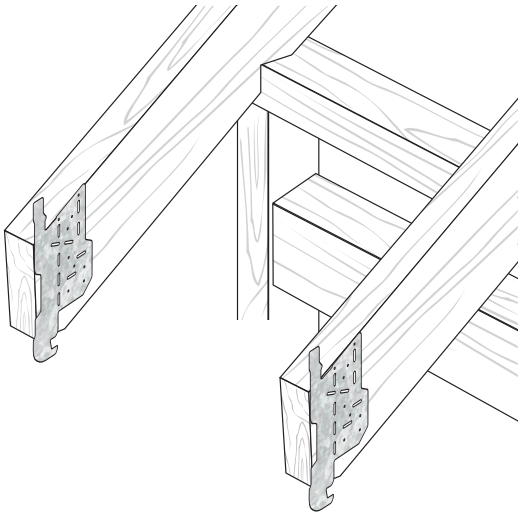
METAL FASCIA INSTALLATION

FASCIA BRACKET INSTALLATION

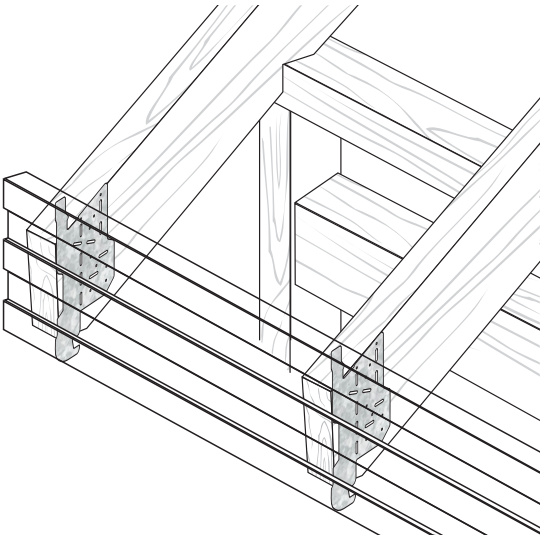
- Secure a bracket at the end of each fascia line, ensuring it is positioned correctly to accept the soffit linings and intersecting fascias.
- Stretch a string line between these two brackets, ensuring there is sufficient space below the fascia line for any doors, windows or trims.
- Install brackets to the string line to every rafter (maximum 1200mm centres), with brackets at maximum 200mm from all corners. This can be achieved by placing a nogg in between the rafter at the toe.
- Carefully inspect each fascia to confirm it is perfectly level across all sections.



- Position the rafter brackets so they align with the intended location of the eave lining.
- Begin by securing rafter brackets at the two endpoints of each fascia run.
- Ensure these brackets are level and positioned correctly.



- Position the brackets based on the required drop height, which is determined by the roof pitch, purlin height and eaves overhang.
- Align the brackets ensuring the fascia is plumb (vertical on the front face).
- Once the brackets are properly installed, fit the fascia into position by hooking the top of the fascia over the brackets, and locking it into the bottom of the brackets. This method helps ensure the fascia aligns evenly and securely with the brackets.



All diagrams are indicative.

METAL FASCIA INSTALLATION

FASCIA JOINERS

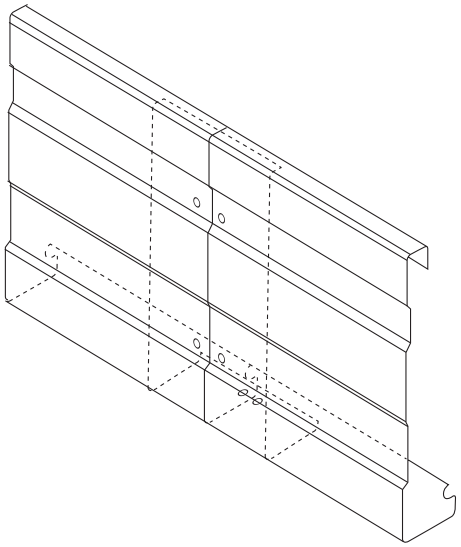
- For long, straight runs, a splice plate or end lap may be needed to join separate lengths of fascia. This should be done before attachment to both corners.

SPLICE PLATES

- Slide the splice plate halfway into the fascia and attach. Position the rivets in the top and bottom groove.
- Slide the next length of fascia onto the splice plate, butt the fascia ends tightly together then attach as before.

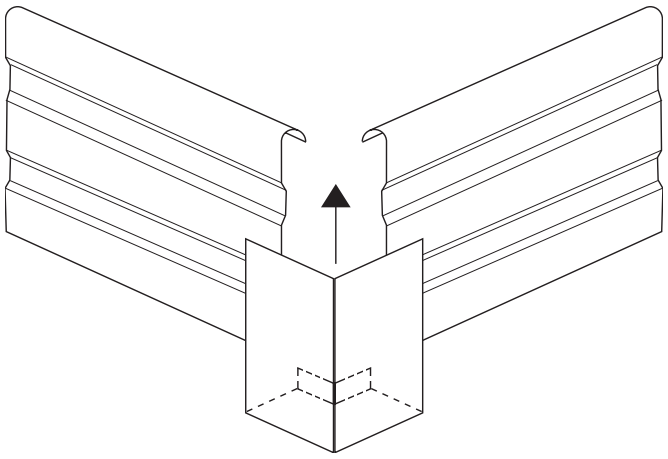
END LAPS

- Joiners can be formed by cutting back the soffit groove and top hanger edge to create a telescopic insert to create a 50mm minimum end lap.



EXTERNAL CORNER

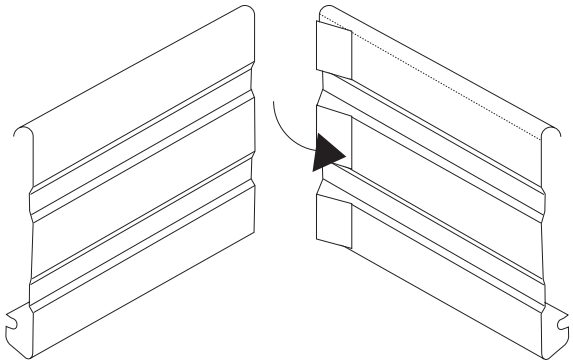
Installation of external corners may vary by manufacturer, refer to specific product data. In general, external corners are completed using a mechanical joint similar to the internal corner, or using and external corner component, riveted into position behind the fascia.

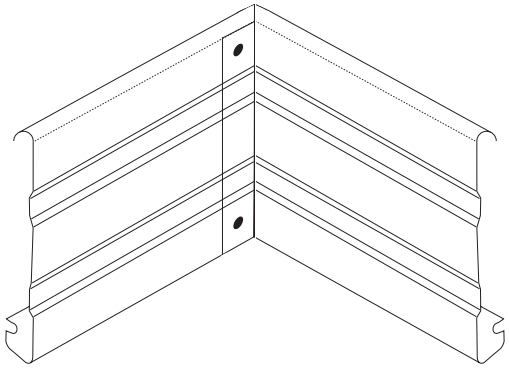


INTERNAL CORNERS

Installation of internal corners may vary by manufacturer, refer to specific product data. As a general guideline:

- Cut and trim one fascia end such that only tabs remain on the top and bottom front face.
- Turn the long face tab through 90°.
- Butt against the other fascia between top and bottom tabs.
- Rivet the top and bottom front face to corresponding tabs to create a mechanical joint (two sections of metal mechanically joined together with a minimum of two rivets).
- Mitre and trim the soffit groove at corners to form a mechanical joint.





All diagrams are indicative.

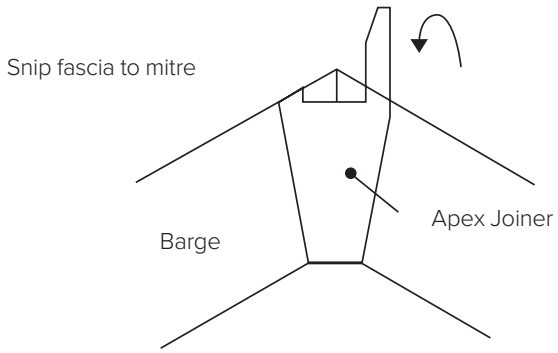
METAL FASCIA INSTALLATION

BARGE

- The frame of a gable roof end can be of two types. In the 2nd example, the rafter brackets have to be bent through 90° along the bend line.
- Fix barge brackets at maximum spacings of 600mm with the eaves recess at the rear bottom of the bracket aligning with the rafter brackets for the fascia.
- The barge fascia is hooked over the top of the brackets and locked into position at the bottom of the brackets, to butt against the adjacent length.

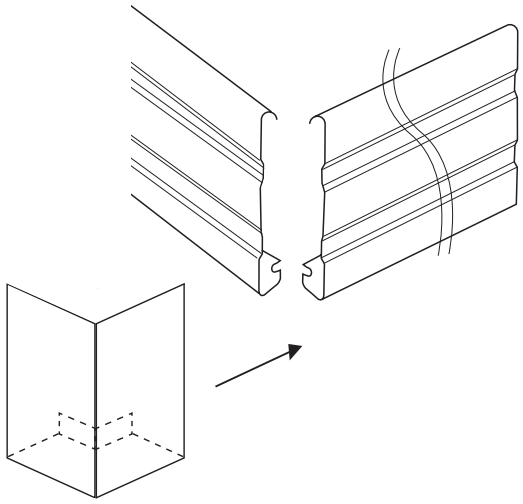
APEX

The apex joint can be formed using an apex joiner (if available) or by mitre cut and mechanical joint.



BARGE FASCIA CORNER

Installation of barge corners may vary by manufacturer, refer to specific product data. In general, external corners are completed using a mechanical joint similar to the internal corner, or using and external corner component (left or right hand), riveted into position behind the fascia.



All diagrams are indicative.

METAL EAVES GUTTER INSTALLATION

PRE-INSTALLATION:

Determine the correct length of the gutter, allowing extra length for mitres and joiners.

GUTTER EXPANSION

All gutters are subject to expansion. Maximum gutter-length is determined by the type of metal and its colour. Where gutters have an allowance for expansion (such as an external gutter on a typical gutter bracket, lengths should be restricted to 25m for steel.

An expansion joint can be either a sump, rainwater head or a joiner flashing.

GUTTER LAPPING

Lap Joints to have a lap of 50mm min. in the direction of flow and to be sealed and fastened.

Due to gutter fall requirements water should flow over a lap, not into it.

GUTTER MITRES

On completion, mitres fabricated from eaves gutter materials, to be true in size, shape and angle and either have:

- All beads reinforced with purpose-made gussets custom-designed cast or pressed metal angles.

or;

- Have lapped mitres.

GUTTER FALL

All Gutter must have a minimum fall of 1:500 (2mm in 1m), the NZMRM Code of Practice recommends 1:200 (5mm in 1m), as it will improve drainage and self-cleaning.

GUTTER PLACEMENT

Gutters should be installed with the back 10mm lower than the fascia board or cladding to allow for draining of overflow water through the gap between the gutter back and the fascia.

OUTBUILDINGS

Small outbuildings such as garden sheds up to 10sqm are also traditionally exempt from requiring gutters and downpipes, providing the discharge does not interfere with neighbouring buildings.

GUTTER SUPPORT SYSTEMS

There are basic methods of supporting a gutter.

1. External brackets
2. Internal brackets
3. Snow straps

Gutter brackets must withstand the potential weight of a gutter full of water. In snow load areas, gutters may be fitted with snow straps and brackets at a maximum of 600mm centres to withstand the additional potential weight of any snow build-up.

GUTTER BRACKET MATERIAL

Brackets should be made of compatible material ,suitably durable for the environment in which it is installed.

BRACKET PLACEMENT AND SUPPORT

Brackets for external gutters should be located a minimum of 200mm to all stop-ends, corners, sumps and rain water heads at a maximum of 750 mm spacing for gutters less than 180mm wide, and at 600mm for gutters 180 – 300mm wide.

- Ensure all gutter outlets and stop ends are fitted at the correct location prior to installation of the gutter.
- Any exposed metal foot on internal brackets should be protected with a suitable paint system.
- Large gutter sizes, e.g. standard Box 175mm and above will require fixings to also resist wind uplift loads.
- Large gutter sizes e.g. standard Box 175mm and above, supported by metal fascias is not advised and requires specific approval from the manufacturer.

VALLEY OUTLETS

When the back of a gutter is cut down to allow the valley to discharge into it, the gutter capacity is affected.

The outlet must be within 2m of a downpipe if the catchment area exceeds 50m^2.

GUTTER LEAF GUARD

The NZMRM Code of Practice advises against installing these types of products; gutter leaf guards are specifically excluded from the gutter warranty.

BRACKET INSTALLATION:

- Use a string line to secure one end to the fascia and run it to the end of the run or the next corner, ensuring the back of the gutter is at least 10mm lower than the top of the fascia board, allowing for fall. Ensure the string line is taut.
- To install the next length of gutter, determine the correct fall. Always overlap the joins to allow water to flow over the joint, like a waterfall, instead of into the joint.
- Use pliers to open the bead of the outside gutter and close the bead of the inside gutter as required. Apply sealant to both ends of the lap in between the top and bottom faces.
  Slide or roll the upstream (inside) gutter into the downstream (outside) gutter, ensuring a 50mm min. overlap. Rivet securely in place.
- Ensure that all metal filings (swarf) are cleaned from the gutter. Silicone should be smoothed to ensure the passage of water is not impeded.
- A weir stop-end, or an outlet with a top edge above the sole of the gutter, can be used to increase overflow capacity.

EXTERNAL METAL DOWNPIPE INSTALLATION

DOWNPIPE INSTALLATION

- Measure the distance from the bottom of the gutter to the sump level, ensuring there is sufficient clearance to enable the grate to be cleaned.
- Measure height and depth (Where offsets under eave are required) and form offsets. All horizontal sections of downpipes must have a minimum fall of 5 degrees (1 in 12).
- Install downpipe brackets to cladding. Minimum of 500mm from bends, droppers and risers. Downpipe brackets to be spaced at intervals not exceeding 2m vertically and 1m on a slope.
- Ensure downpipe is mechanically fastened to the dropper with rivets or screws.
- Place droppers at the lowest point.

DOWNPIPE OFFSETS

When installing downpipes, the eaves overhang may require a downpipe offset.

Check the measurement between the bottom of the gutter and the bottom of the fascia to determine if the upstand needs to be cut down. This only needs to be done once, as a common system.

DOWNPIPE DISCHARGE

All exterior downpipes must discharge freely over a grated gully trap or into an oversize pipe or a soak pit.

DOWNPIPE BRACKET MATERIAL

Brackets are to be manufactured of materials compatible with downpipe materials and of a thickness not less than that of the downpipes.
Downpipe brackets must securely hold the downpipe vertically.

DOWNPIPE RETAINING BRACKETS

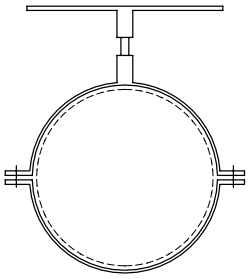
Downpipe retaining brackets, otherwise known as stand-off clips as astragals, are used to align the downpipe between the dropper and discharge sump.

Normally they are situated near both ends of the downpipe, with intermediate brackets placed in high traffic areas.

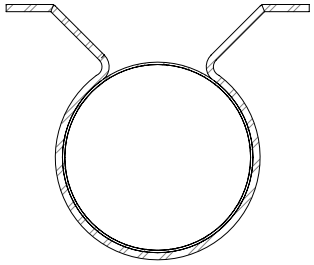
CLIPS, STRAPS AND MUNZING RINGS

Downpipe brackets vary per manufacturer below are a couple of examples:

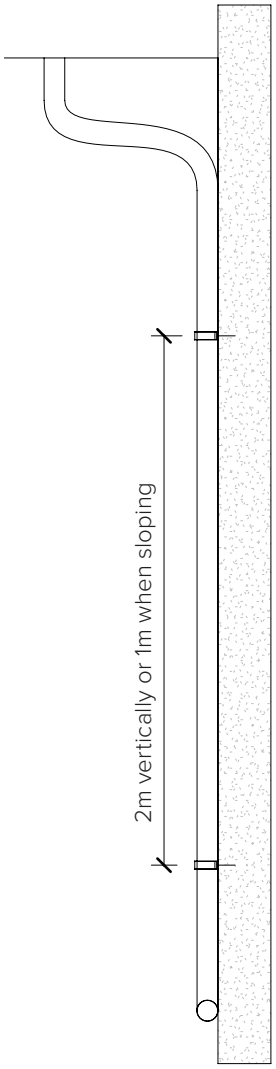
MUNZING RING:



CLIP:



DOWNPIPE BRACKET SPACING:



All diagrams are indicative.

JOB COMPLETION PROTOCOLS

- Ensure all materials are collected and disposed of in the site skip or offsite as appropriate. This includes packaging, strippable film, fastenings and off cuts.
- Ensure that the gutter is clean of any swarf or fastenings.

NZMRM MEMBERS

For a list of all NZMRM members refer to www.metalroofing.org.nz

DISCLAIMER:

The NZ Metal Roof and Wall Cladding Installation Guide is published by NZ Metal Roofing Manufacturers Inc. (NZMRM), to provide:

- Acceptable Installation Guidelines for the handling and the fixing of metal fascias, gutters and downpipes.

This Installation Guide does not describe or dismiss alternative methods, which may need specific acceptance by the Building Consent Authorities.

It is published in accordance with current technology, materials, and building codes.

This Installation guide will be periodically updated to reflect changes in legislation and standards or improvements in technology and available materials.

The most current Installation Guide is available on the NZMRM website, www.metalroofing.org.nz.

VERSION 1.0 SEPTEMBER 2025

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