

DESIGNING FOR STEEL
ROOFING & CLADDING

Design Considerations

FOR STEEL ROOFING & CLADDING
IN VERY SEVERE ENVIRONMENTS

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Design with the elements in mind

As New Zealanders, we're more than a little used to climatic extremes, particularly those of us who live in very severe marine zones.

In these areas, salt spray can produce highly corrosive conditions that, if not allowed for, can have a detrimental effect on the ongoing appearance and resilience of a building.

Now, with the ever-increasing use of coated, profiled steel in both roofing and cladding, it has never been more important to focus on appropriate design and installation where those atmospheric contaminants most commonly occur. This is especially relevant where the cladding is not regularly washed by rain, such as underneath eaves.

Stick to the specs

It is vital to follow the manufacturers installation specifications as closely as possible.

When the roofing profile is specified, the roofing manufacturer will provide a fastening pattern recommendation. Each profile will have a designated fixing type, either penetrating fasteners, like nails or self-drilling screws, or clip-type fastenings. The most appropriate product should be selected for the local environment.

The use of coated steel fasteners appropriate for the conditions are recommended in severe marine environments. The life of these fasteners, like the coated steel roofing or cladding, is directly related to the level of washing. Fasteners which are subject to a build-up of salt through infrequent washing will have a reduced life. Stainless steel fasteners are not compatible with zinc/aluminium coated steel-based products.

Galvanised clips used for clip fastened profiles are also subject to the build-up of salt and atmospheric dust. To lessen the impact of airborne salt, the use of pre-formed, profiled, closed cell foam sealers is essential to prevent the salt from entering the roof cavity. The galvanised clips, particularly those nearest to the gutter line, should have additional protection through the application of a primer and a marine topcoat. The positioning of the fascia and gutter will also influence the amount of air entering the roof cavity and should be installed using an apron flashing as shown in the NZMRM Code of Practice 5.3.5.4 (see figure 1).

The roof pitch, orientation to the prevailing wind, as well as the type and positioning of the gutters will all impact on the life of the roof.

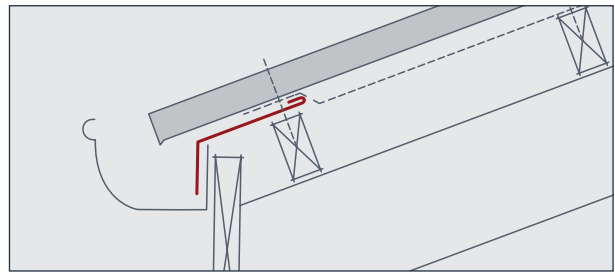


Figure 1 – Apron flashing (shown as dark red line).

Keep it clean

Regular and thorough maintenance by simple washing down is an essential requirement where metal roofs and wall claddings are used close to the sea. The option of alternative cladding materials in areas not regularly washed by rain should be seriously considered, particularly where maintenance is infrequent.

Refer to New Zealand Steel's Environmental Categories Guide for recommendations on the correct products and maintenance requirements for use in coastal locations.

The building design should take into account these key points:

- Location and orientation of the building in relation to the prevailing wind and the sea
- Steel roofing and cladding material
 - Product specified
 - Profile
 - Fastener specified
 - Positioning of the gutter
 - Flashing designs for windows and doors
- Ease of maintenance
 - Extent of overhang
 - Areas not washed by rain
 - Soffit material and ability to access for cleaning.

Additional Information

New Zealand Metal Roof and Cladding Code of Practice.
Environmental Categories Warranty & Product Maintenance Recommendations.

Please note that the information in this bulletin is intended as a guide only and we recommend that you seek third party professional advice in all instances and before undertaking your construction project.

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