

# Flashings



## Dimond Roofing, a division of Fletcher Steel Limited, NZBN 9429037626563

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### Place of Manufacture

Aotearoa New Zealand

### Technical Manual

<https://www.dimond.co.nz/downloads>

### Product Description

Flashings are used to weatherproof the edges of roofs and walls. We stock large quantities of barge board flashing and ridge capping and can manufacture any flashing to customers exact requirements.

Correct detailing of Dimond roof and wall flashing has more than cosmetic importance - it is essential in ensuring the wet weather performance of the cladding.

Correct flashing and detailing will improve the overall appearance of the finished job.

In many instances, alternative methods are examined to provide a clear understanding of the implications arising from these alternatives.

In all cases, a qualified tradesman should be engaged to ensure the advice given here is applicable to your intended use.

For overall roof and wall design, refer to the Dimond Technical Manual. If these products are to be used in cyclonic areas as defined in AS 1170.2:2011, contact Dimond for more detail.

The following range of flashings have proven to be universally popular and suitable for most applications. Minor local variations may exist from that shown. Dimensions are nominal and may vary with changes in material

### Scope of Use

#### 2.1 Recommend for use where:

Dimond Flashings cladding systems are intended for use in constructing the building envelope for commercial buildings and residential buildings subject to the limitations listed below.

The information contained within this manual is only applicable to Dimond Flashings cladding systems – it cannot be assumed to apply to similar products from other manufacturers

#### 2.2 Intended product use

Dimond Flashings cladding systems is intended to only be used on roof or wall constructions as the building envelop on either commercial or residential new or rebuild projects.

#### 2.3 Limitations on use

Reference to sections below of the Dimond Technical Manual is required to ensure the expected system performance is achieved;

Dimond Technical Manual	Section Number
Roofing and Cladding Components	2.2
Installation Information	2.3

## Compliance with the NZ Building Code

### 3.1 Compliance Statement and Applicable NZBC Standards

Past history of use of Dimond products in New Zealand and information available from Pacific Coilcoaters and New Zealand Steel indicate that provided the system design, installation, use and maintenance is in line with the guidelines contained in the current Dimond Roofing technical literature and standards referenced therein, Dimond® Roofing flashing systems can reasonably be expected to meet or contribute to meeting the following performance criteria outlined in New Zealand Building Code;

- **B2 Durability: Performance clauses B2.3.1(b):** Dimond long run roofing and wall cladding has been tested in accordance with AS/NZS 2728:2013 as stated in NZMRM standard section 17.4
- **E2 External moisture: Performance E2.3.1, E2.3.2:** is suitable for installation in accordance with Acceptable Solution E2/AS1, NZMRM COP V3.0, RANZ installation guides and Dimond installation Details/Technical Manual. Installation details provided by other parties such as architects and engineers. may also be suitable.
- **F2 Hazardous building materials: Performance F2.3.1:** The quantities solid particles emitted by Dimond long run roofing and cladding, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere.

### Relevant Standards

- NZBC - E2/AS1 - External Moisture/building performance
- NZMRM Cop - NZ Metal Roof and Wall Cladding Code of Practice
- AS 1562.1:2018 - Sheet roof and wall cladding
- AS 4040.1,2 and 3-1992 - Methods of testing sheet roof and wall cladding resistance to concentrated loads, wind pressure for non-cyclone and cyclone regions
- AS/NZS 2728:2013 - Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
- AS/NZS 1530.3:1999 - Methods for fire testing on building materials, components, and structures. Simultaneous determination of ignitability, flame propagation, heat, and smoke release
- AS/NZS 4020:2018 - Testing product for use with drinking water
- ISO 5660-1:2015 - Reaction to fire tests - Heat release. Smoke production and mass loss rate. Part 1
- ISO9223:2012 - Corrosion of metals and alloys - Corrosivity of atmospheres - Classification, determination, and estimation

## Durability & Maintenance Requirements

### 4.1 Environments

Manufactured from coated steel produced by New Zealand Steel at Glenbrook from Ironsand mined off North Island's West coast and Zinalume® coated. COLOURSTEEL® is factory painted at New Zealand Steel, Glenbrook or if its ColorCote® its painted at Pacific Coilcoaters Penrose.

Dimond® Roofing recycle all steel scrap waste and offcuts which can then be remelted down and reused in other steel based products. At the end of its useful life as a roofing profile can be recycled back by remelted down.

Dimond Technical Manual	Section Number
Environments	2.1.1.2

### 4.2 Durability & Maintenance guidelines

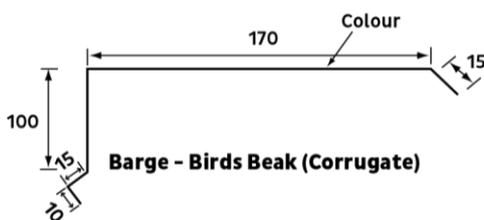
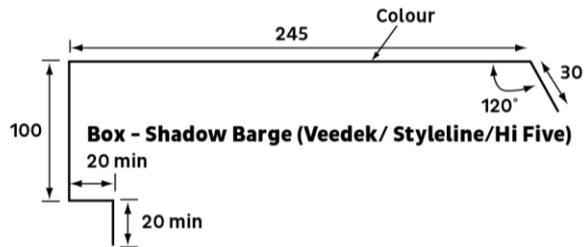
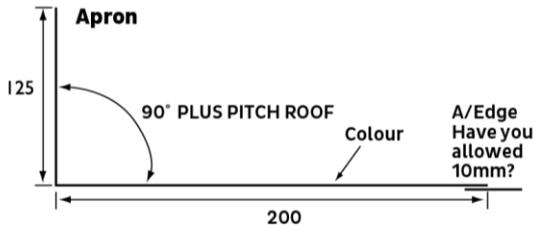
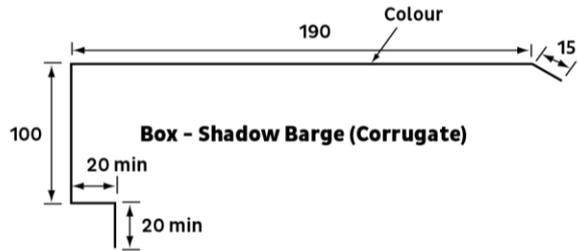
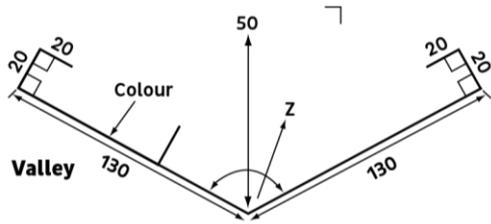
All roofing and cladding products are subject to the cumulative effect of weather, dust and other deposits. Normal rain washing will remove most accumulated atmospheric contaminants from roofs. For wall cladding, manual washing every 3 to 12 months, depending on the paint system, is recommended in moderate to very severe environments to prevent accumulation of dirt, debris or other material not removed by rain washing. For areas that do not receive any or adequate rain washing (called unwashed areas) such as soffits, wall cladding under eaves, underside of gutters, fascia's, sheltered areas of garage doors and unwashed roof areas, more extensive manual washing is required. Similarly other high-risk areas, around flues, under television aerials or overhanging trees and sites prone to mould, lichen, bird droppings or debris, need to have extensive manual washing.

All materials selected and supplied by Dimond® Roofing are warranted for internal use only, to exceed the requirements of NZBC B.2.3 (1) for 15 years durability, providing the materials selected are suited to the environment and designed, detailed, and fixed and maintained in compliance with Dimond® Roofing instructions, the Roofing Code of Practice and good trade practice.

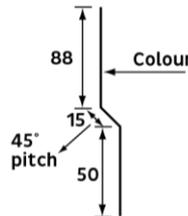
Dimond Technical Manual	Section Number
Life Cycle Costing and Maintenance Options	2.1.1.4

## Flashing Design

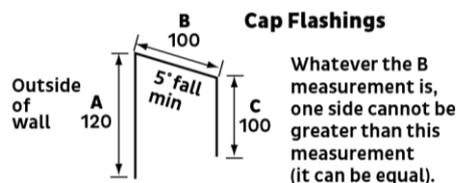
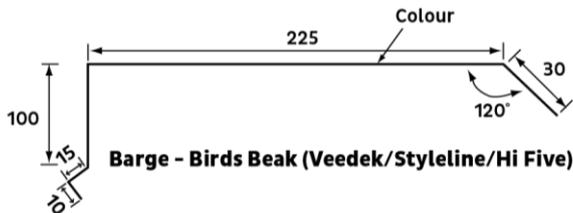
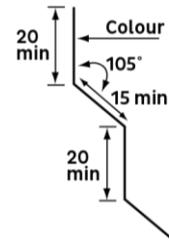
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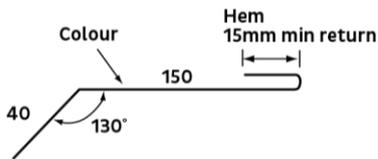
**Z Flashing**



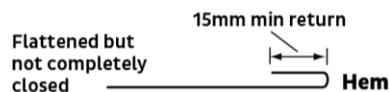
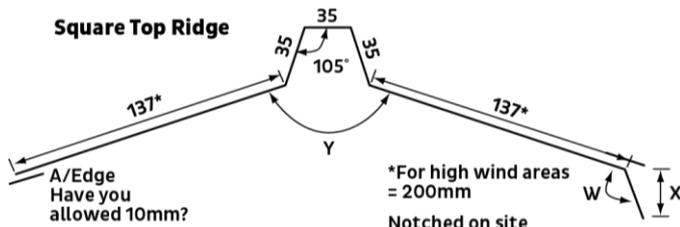
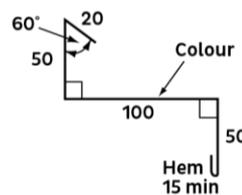
**Window Flashing**



**Gutter Eave Flashing**



**Example of Hem & Angles Required**



When considering the flashings for your job be aware that our range of standard flashings are a small sample of what is possible. Below is a summary of the issues and the limitations that should be considered when detailing specific flashing shapes.

The material used will be:

	BMT Thickness (mm)	Grade
Steel	0.55	G300
Aluminium	0.9	5052/5251-H34

The girth of the flashing will be limited in one direction to 1219mm maximum (coil width). Where one dimension is 1219mm or less, the recommended maximum length (the other dimension) is 6m. Lengths longer than 6m should be avoided, as thermal expansion issues will be accentuated with flashings.

Where flashing shapes are complex or bulky, it is recommended the maximum lengths be kept to 3m to assist with handling and installation of the product. As the flashing shapes are created by mechanical folding there are certain limitations relating to the angle of the folds and the distance between two folds that need to be considered. The tightness that the material can be folded back on itself will also limit the options. The limitations will vary depending on material type including whether the material is painted.

Flashings running across sheet profiles must be finished to minimise the gap created over profile pans or troughs. This is achieved by notching the front downturn of the flashing over the sheet profile ribs, or on the Corrugate Profile, a soft edge to the flashing can be used. Notching should be specified as “flashing to be notched on site”.

When Duraclad is the selected roof or wall material, aluminium flashings are normally recommended. In some chemical environments, a check on the suitability of aluminium should be made.

Other things to consider in the design and installation of flashings:

- flashings must shed moisture to the outside of the building;
- flashings must not retain moisture (all flashing surfaces must maintain a minimum 3° fall);
- all flashing surfaces to be no wider than 300mm in one plane unless strengthening ribs are incorporated or there is additional support underneath;
- the cover provided shall be sufficient to ensure wind driven moisture does not enter the building. Flashings may be used either with or without compressible foam strip. When installed correctly the foam strip will restrict air flow and carriage of water under the flashing.
- where several 6m lengths of flashings are lapped end to end and joined by rivets and sealant, consideration must be given to accommodating thermal expansion if the assembled length exceeds 18m for steel or 12m for aluminium.
- details showing flashing placement for steps in long runs of roofing are shown in the detail drawings for each profile.

## Fixings

As the flashings are usually located at the perimeter of the structure, they are often subjected to the highest wind pressures. Accordingly, the fixing patterns used must adequately accommodate the expected wind loads. Where a flashing covers the roof or wall cladding, the primary fastening must penetrate through to the support structure (purlin or girt). The location of the fasteners used to secure the roof will be suitable to fasten the flashing.

Where thermal expansion is being accommodated at the ridge, primary fastenings should not be used to hold the flashing. Other options such as clips will be required. Where the flashing covers a barge or parapet in low and medium wind zones, the fastener should be spaced at no more than 1m centres along the vertical face. In high wind zones and above (over 45m/sec), the maximum spacing should not exceed 500mm.

Where secondary fastenings (a fixing that secures the flashing to roof sheet only) are used to fasten the laps and provide additional hold down (side lap stitching), stitching screws are recommended. If aluminium rivets are used, the minimum diameter shall be 4.8mm.

## Effective Minimum Cover of Flashing Over Roof Sheet (mm)

Flashing Type	Low, medium, or high wind zones where roof pitch is 10° or greater	For all pitches in very high wind zones and above, and for all wind zones where roof pitch is less than 10°
Ridge - Transverse over roofing	130	200
Barge - parallel with ribs	1 rib	2 ribs
Barge - parallel with corrugate	2 corrugations	3 corrugations
Barge - vertically down smooth face sheet	50	75
Barge - vertically down profiled face sheet	75	100
Apron - transverse over roofing	130	200

Apron - parallel with ribs	1 rib	2 ribs
Apron - parallel with corrugate	2 corrugations	3 corrugations
Apron - vertically up smooth face sheet	50+ hem or 100	75+ hem or 100
Apron - vertically up profiled face sheet	75+ hem or 100	100+ hem or 125
Parapet - vertically down smooth face sheet	50	75
Parapet - vertically down profiled face sheet	75	100

Dimension excludes any soft edge or turn down to roofing.

Wall cladding must finish within 25mm above any apron flashing to allow clearance and avoid dirt building up. In high wind areas a profiled foam seal can be used under the ridge or apron flashing, over the roofing, to create a pressure differential chamber to avoid moisture being driven in. The foam seal should be placed adjacent to the stop end at the head of the sheet.

All roof and wall cladding profiles are to be stop ended at the top end of the sheet on all pitches. The cover dimensions given above are the cover over the roof or wall cladding not the leg length of the flashing.

On profiles other than Corrugate where cover over 2 ribs is required, flashings must cover at least one rib plus the trimmed side of the sheet turned up to the full height of the rib.

### Installation and Construction Instructions

Wherever possible, flashings should be screw fixed through to the supporting structure, with sufficient slope or fall to ensure ponding does not occur. Stitch screws should be the preferred means of attaching flashings to sheeting ribs. If aluminium rivets are used, the minimum size should be 4.8mm diameter.

All fasteners should be of sufficient size and frequency to withstand the loads that may be applied through wind uplift or thermal expansion, throughout the life of the roofing material. As a guide, where flashings cover the roof, use the same fastener that has been used to fasten the roof.

#### Fastener Frequency

As a guide, the fastener frequency for fixing flashings should be:

Wind Zone*	Fasteners Per Metre
Low (32 m/s)	1
Medium (37 m/s)	2
High (44 m/s)	3
Severe (50 m/s)	4

\* in accordance with NZS 3604

Sensible allowance should be made to allow relative thermal expansion between flashings and sheeting if sheet lengths exceed 12m.

Expansion joints in the flashings should be considered for steel flashings greater than 18m and aluminium flashings greater than 12m in length.

Flashing lapping over roofing should be in accordance with Table 2.1.O of Section 2.1.3.6 of the Dimond Roofing & Cladding Technical Manual. Where barges meet the gutter, this must be closed off to ensure wind driven moisture and birds cannot enter the building.

#### Profiled Foam

Profiled foam sealing strips should be installed when specified at the top end of the sheet, adjacent to the stop end. To help keep the strips in place it is good practice to position them on a bead of silicone sealant.

#### Notching

Best practice to notch flashing downturns around sheet profiles is to mark in-situ and use a rib-shaped template. Clearance gaps around the ribs should be just sufficient to prevent cut edge contact with the sheet surface. Gaps between 1mm and 3mm are generally considered satisfactory.

Soft edging can be used on corrugate and low rib profiles with rib heights up to 30mm and should be neatly pushed down and formed in to the profile pans to achieve a neat-tight fit.

#### Property boot pipe flashing

Property boot pipe flashings must not be positioned in such a way that a dam is formed across a water channel. It is preferred that Property boot pipe flashings are positioned on the 'bias' rather than square across the sheet. If the pipe and Property boot pipe flashing dam up the pan or restrict more than 50% of the water flow around the pipe and flashing, an additional cover over flashing to the ridge and sealing of the Property boot pipe flashing to this flashing should be considered. Excess silicone sealant should be avoided, as it will add to the risk of water ponding.

## Penetrations

Penetration holes with their major dimension or diameter greater than 150mm must have support framing placed around the perimeter of the penetration holes.

Water diversion around the penetration must not cause an overload of the receiving channel such as the pans that the water has been diverted into, which may cause flooding. Penetration flashing shall not rely solely on the silicone sealant to achieve weather tightness of the flashing.

For installation instructions please refer to the sections of Dimonds Technical Manual Installation Guide references below or the links provided;

Dimond Technical Manual Installation Guide Reference	Section Number
Handling and Storage	2.3.1
Layout and fastening	2.3.2
Flashings	2.3.3
General Workmanship	2.3.4
Code of Practice	<a href="https://www.metalroofing.org.nz/cop/introduction">https://www.metalroofing.org.nz/cop/introduction</a>
Dimond CAD details	<a href="https://www.dimond.co.nz/downloads#drawings">https://www.dimond.co.nz/downloads#drawings</a>

## Warnings/Bans

Not subject to any warning or ban under section 26 of the Building Act 2004.

## DISCLAIMER

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