



Incompatible  
Materials

# Consider Compatibility and Combat Corrosion

To prevent accelerated corrosion when using two separate metallic materials alongside each other, follow this simple guide.

It outlines industry best practice in terms of appropriate coating applications, flashings, cappings and, in the case of materials such as lead and copper, where certain COLORSTEEL® products are incompatible in the presence of moisture or flowing water.

Compatibility counts. Consider it at the start of your building project and combat corrosion.

## RECOMMENDATION

Flashings and ridge capping should be manufactured from the same coating system used for the main roof area to ensure equal durability.

For COLORSTEEL® and ZINCALUME® steel products, extended ridge caps, soft zinc or practices such as cutting and notching are recommended.

Where penetration flashings are required, neoprene, silicone rubber, EPDM, aluminium or soft zinc all offer excellent performance.

## COMPATIBILITY

When two different metals are in contact and moisture is present, one metal is relatively protected while the other suffers accelerated corrosion. This is known as galvanic or bi-metallic corrosion. A similar problem can also occur with water flowing over dissimilar metals.

## COPPER AND BRASS

Copper and brass are not compatible with, ZINCALUME® or COLORSTEEL® products, particularly when in contact with water or where water can flow from it. All care must be taken to prevent the overflow of water from copper or brass on to the roofing and guttering material. When using copper gutters, consideration must be made for potential splash back onto the long run roofing material.

## LEAD

Lead is not compatible with ZINCALUME® steel products. Corrosion will occur from contact between lead and ZINCALUME® steel material or from water run-off from lead to ZINCALUME® steel products.

For this reason, **New Zealand Steel does not recommend the use of lead with ZINCALUME® or COLORSTEEL®.**

If lead is used with unpainted ZINCALUME® steel, a suitable barrier paint system must be applied to both products to prevent direct metal-to-metal contact. The entire surface of the ZINCALUME® steel roof must be painted. A barrier paint system must also be applied to the top surface of the lead to prevent indirect contact through water run-off.

If lead is used with COLORSTEEL® products, a suitable barrier paint system must be applied to both surfaces of the lead to ensure that there is no metal contact or indirect contact through water run-off.

In both cases, consideration must be given to the choice and maintenance of the barrier material or coating system. It is very important to ensure that it continues its insulation function for the expected life of the ZINCALUME® or COLORSTEEL® products. In most cases, the expected durability of the products will far exceed that of the barrier system, unless regular maintenance of the barrier system is carried out.

Some lead products are supplied with a factory-applied primer coat. In these cases, the supplier should be contacted for advice on a suitable finish coat barrier system and the ongoing maintenance requirements for that system.

## RUN-OFF FROM INERT MATERIALS

The zinc coating on galvanised steel products develops a protective surface film as a result of natural weathering. When flowing over galvanised roofing, rainwater dissolves small amounts of minerals and salts from the zinc surface. These minerals and salts promote and maintain the protective film and enhance the corrosion resistance of downstream galvanised steel products (eg: lean-to roofs, gutters and valleys). However when rainwater flows over, or is collected from roofing materials which do not promote this protective film (Inert Materials), accelerated corrosion of unpainted galvanised steel roofs and gutters can occur. Some Examples of Inert Materials are ZINCALUME® steel, COLORSTEEL®, glass, fibreglass, glazed tiles, PVC, acrylic and aluminium.

## GUIDELINES:

On galvanised roofing, run skylights down to the gutter.

To achieve maximum life from your rainwater goods we recommend that they are manufactured from either ZINCALUME® steel or COLORSTEEL® products.

Unpainted galvanised steel must not be used for roofing or rainwater goods, including valleys and gutters, to collect water run-off from ZINCALUME® coated steel products or any other inert material.

Zinc / Zincalume® / Aluminium	<b>MORE ACTIVE MATERIALS</b>  <b>MORE NOBLE METALS</b>	<p>This Chart lists commonly used metals in a 'Galvanic series'. If any two of these metals are in damp contact or a run-off situation, the metal higher on the table will sacrifice itself to protect the metal lower on the scale. Therefore the simple rule is to remember that you can run water down but not uphill. For example zinc to copper is alright but copper to zinc is not.</p>
Steel		
Lead		
Copper and Brass		
Stainless Steel		

**New Zealand Steel will not accept responsibility for any corrosion claims which occur as a result of the use of lead with ZINCALUME® steel products or COLORSTEEL® products.**



## Our line on lead

It's common practice to use lead as a flashing material on concrete tile roofs.

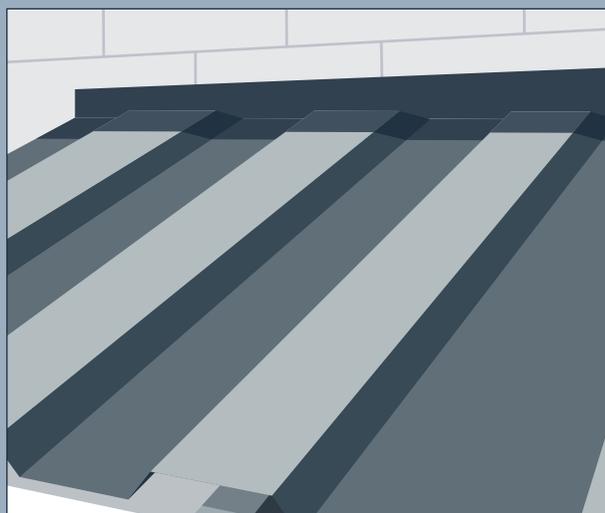
**However, the New Zealand Steel stance remains that the use of lead with ZINCALUME® or COLORSTEEL® products is not recommended.**

## Guidelines for rainwater goods

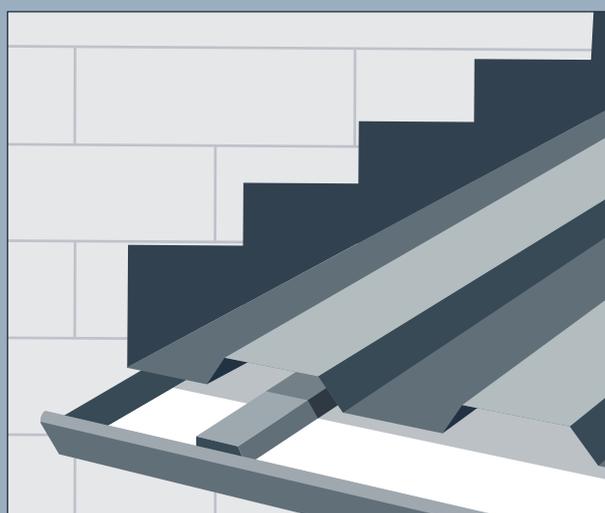
The following guidelines apply only to the use of lead flashings on concrete tile roofs where ZINCALUME® or COLORSTEEL® rainwater goods are used.

To be clear, these guidelines DO NOT APPLY to the use of lead flashings with COLORSTEEL® roofing profiles.

1. **Unpainted** ZINCALUME® rainwater goods must not be used on concrete tile roofs where painted or unpainted lead flashings are used.
2. In **moderate and severe environments** COLORSTEEL® Endura® or COLORSTEEL® Maxx® rainwater goods may be used on concrete tile roofs where primed or painted lead flashings are in use. The paint system must be maintained in a sound condition.
3. In **moderate environments only**, although NOT recommended, COLORSTEEL® Endura® rainwater goods may be used on concrete tile roofs where unpainted lead flashings are in use, providing the Building Owner is duly notified and accepts the minimum risk of corrosion failure due to the presence of lead.
4. **Where ZINCALUME® or COLORSTEEL® products have been used for rainwater goods in conjunction with painted or unpainted lead, and corrosion has occurred due to that lead, New Zealand Steel will not accept responsibility for a claim.**



COLORSTEEL® guttering with painted lead flashing.



COLORSTEEL® guttering with unpainted lead flashing.

For more information about COLORSTEEL® products  
call **0800 697 833** or visit **colorsteel.co.nz**

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