



ZINCALUME®
Coated Steel

For enhanced
corrosion resistance

Continuing a tradition of dependability

ZINCALUME® coated steel combines the barrier protection of aluminum with the sacrificial protection of zinc, giving the advantages of both metals. The resulting alloy coating enhances corrosion resistance, making it ideal for applications like roofing and cladding.

COLORSTEEL® consists of a ZINCALUME® steel substrate to which a pre-painted finish system is applied. This system offers additional corrosion resistance while providing a range of colours to compliment any project. COLORSTEEL® Endura® is ideal for many applications, while COLORSTEEL® Maxx® is specifically developed to withstand higher atmospheric salt concentrations and is incredibly resistant to corrosion.

Please refer to the Environmental Categories & Product Maintenance Recommendations Brochure for detailed information on our warranties and the environments they are offered in.



Appearance

ZINCALUME® coated steel has a finely spangled silvery matt finish. After exposure the surface finish darkens over time as the resin coating weathers away. This can occur at varying rates due to differences in aspect, degree of shading and the effect of rain rivulets over the ZINCALUME® surface.

This change is a natural one and is visual only. The protective properties of the product are not affected.

COLORSTEEL® is available in a wide variety of colours to suit every project.

While COLORSTEEL® products are designed for durability, all paint coatings will deteriorate over time. Therefore, at some stage, it will be necessary to repaint to avoid serious deterioration of the product. The main consideration is the paint coating integrity to perform a suitable bond for the overpainted system so that the durability of the new coating system is maintained. New Zealand Steel's experience would indicate that this period to first repaint is around 15 years. However, local climatic conditions, building design and paint colour can have a significant influence on the performance of the paint system. Therefore you may need to consult New Zealand Steel or paint suppliers, to help assess the most suitable time to repaint. COLORSTEEL® products may be readily over painted, after suitable preparation, for aesthetic reasons.

WEATHERING OF COLORSTEEL® PRODUCTS

All building products will weather over time. The weathering of COLORSTEEL® products will result in changes to gloss and colour. Factors which influence the change are environmental pollution, UV levels, building orientation and paint colour. When adding to an existing building, consideration should be given to the weathered appearance of the COLORSTEEL® products in the older part of the building.



Painting ZINCALUME® coated steel

ZINCALUME® coated steel is readily paintable using good quality primers and water-based acrylic topcoats. Paint manufacturers' instructions should be followed.

Dirt, grease and any loose material must be cleaned off so the surface is clean and dry prior to the first coat being applied.

However, it is important to note the ZINCALUME® coated steel warranty does not cover failure caused by post paint systems. Where painted roofing or cladding is desired New Zealand Steel recommends the use of COLORSTEEL® specified for the environmental category of the building project.

Corrosion resistance

ZINCALUME® coated steel has long term, corrosion resistance in many atmospheric conditions.

Test sites from around the world have provided a wealth of information over the past 50 years on the comparative performance of galvanised versus ZINCALUME® coated steel products.

Corrosion rates are determined by exposing samples of ZINCALUME® coated steel and galvanised steel on standard test racks and regularly monitoring the coating performance over a number of years.

Though corrosion rates vary according to the severity of conditions, ZINCALUME® coated steel out-performs galvanised coatings in almost all environments.

Flashings and accessories

Flashings and ridge capping should be manufactured from the same coating system as used for the main roof. Extended ridge caps, soft zinc, or practices such as cutting and notching are recommended.

Where penetration flashings are required, neoprene or silicone rubber, EPDM, aluminium or soft zinc all give excellent performance. Lead is not compatible with ZINCALUME® coated steel and COLORSTEEL® so must not be used as it will promote corrosion.

Marking

Black lead pencils must never be used for marking ZINCALUME® coated steel or COLORSTEEL® products. The carbon in the pencil promotes corrosion that will etch the surface, leaving a permanent mark.

Where not to use

- Formwork in contact with wet concrete
- Embedded in concrete
- Animal shelters where ammonia levels are constantly high
- Fertiliser storage sheds and containers
- Culverts, or where the product is buried in the ground
- Water tanks
- Highly alkaline environments (e.g. cement manufacture)
- Coolroom products.

Agricultural Use

ZINCALUME® coated steel and COLORSTEEL® can be used for roofing and cladding in most agricultural buildings. However, some intensive animal farming methods used for animals such as poultry, calves or pigs result in the animals being enclosed for significant periods of the year.

These conditions will result in the development of an alkaline environment due to the ammonia generated by the animal waste. In these conditions, ZINCALUME® coated steel or COLORSTEEL® prepainted steel should not be used. Contact New Zealand Steel Limited for specialist advice.

Other farming methods involve the occasional shedding of animals for a limited period. Buildings involved in these processes include cow sheds, shearing sheds and covered yards. Typically these buildings house animals for only short periods of the year and/or include very high levels of ventilation.

In a non-intensive environment the build up of ammonia is essentially non-existent. Under these conditions ZINCALUME® steel and COLORSTEEL® products will perform as well or better than galvanised steel. For information about warranties and your shed, contact New Zealand Steel Limited.

Top dressing chemicals are generally a mixture of lime (calcium carbonate) and fertiliser (superphosphate). Limestone is alkaline and superphosphate is acidic. The reaction with ZINCALUME® steel and COLORSTEEL® products is therefore dependent on the combination of chemicals applied.

Maintenance

All roofing and cladding products are subject to the cumulative effects of weather, dust and other deposits. Normal rain washing will remove most accumulated atmospheric contaminants from roofs. Refer to the Environmental Categories & Product Maintenance Recommendations Brochure for more information.

UNWASHED AREAS

ZINCALUME® coated steel and COLORSTEEL® performs well in most areas not regularly washed by rainwater. However, as with any steel based product, regular washing of areas not naturally rain washed is essential to ensure that a satisfactory life is realised from the product.





Working with ZINCALUME® and COLORSTEEL®

PROTECTION AT CUT EDGES

At the cut edge, ZINCALUME® coated steel provides similar protection to galvanised coatings. The zinc/aluminium alloy coating of ZINCALUME® coated steel provides galvanic protection to bare steel exposed at cut edges and by deep scratches.

PASSIVATION

Surface passivation enhances the protection of the ZINCALUME® coated steel product during storage, forming, handling and fixing. It largely eliminates the need for rollforming oils, offers improved wet stack corrosion resistance and generally makes the product more mark resistant during handling and fixing.

HANDLING AND STORAGE

If ZINCALUME® coated steel or COLORSTEEL® becomes wet during storage, the product should be immediately separated, wiped with a clean cloth and placed in a position where it can completely air dry.

FORMING

ZINCALUME® coated steel is suitable for all but the most severe forming operations. With ZINCALUME® coated steel, the passivation system acts as a dry lubricant and in most cases will eliminate the need for additional lubrication in most forming operations. Solvent-based lubricants must not be used.

With COLORSTEEL®, tight tension bends in the finished product should be avoided as small cracks may be formed which expose the metal substrate to the atmosphere. For optimum corrosion performance no visible microcracking should be present in the finished product. There are many factors, substrate, paint, bend diameter and forming practice, that affect the tendency to microcrack. Therefore, it is not practical to have a fixed bend diameter that guarantees no microcracking. Most products, formed in well designed and operated equipment, will not have microcracks at tension bends. Solvent-based lubricants must not be used. It is important that visual

checks for microcracking be made on the finished product to ensure a high quality standard is maintained. Products with microcracking on the tension bends will show earlier signs of corrosion when used in unwashed areas in severe environments. The use of corrugated profiles in severe and 'special conditions' (e.g. Geothermal) will help to ensure greater durability.

JOINING AND SEALING

ZINCALUME® coated steel and COLORSTEEL® cannot be soldered. To join use a neutral cure silicone sealant in conjunction with mechanical fasteners such as blind rivets. Care should be exercised in the choice of rivets. Aluminium rivets are recommended. Monel, stainless steel and carbon steel rivets must not be used. Edge sealing of COLORSTEEL® products is not recommended.

FASTENERS

The fastener durability should equal or exceed that of the roofing or cladding product. Fasteners provided by external suppliers should conform with the requirements of AS3566 (and Amendments) "Screws – Self Drilling for the Building and Construction Industries". Fasteners should be suitable for the environment and comply with the following conditions:

- Stainless steel fasteners should not be used with ZINCALUME® or COLORSTEEL® coated steel in any environment
- Lead headed nails must not be used
- Use low carbon (<15%) non-conductive sealing washers
- Fasteners with heavy zinc or zinc-tin coatings or zinc alloy coated heads complying with AS3566 Class 3 and 4 are fully compatible with all products.
- Fasteners used on COLORSTEEL® products should be factory coated to provide an accurate colour match with COLORSTEEL® finishes.

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

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