

Home Anti-Corrosion Guide



**Anti-Corrosion Products & Building Advice To
Rust Proof Your Home, Car and Boat.**



Introduction

In compiling this guide, Action Corrosion Pty Ltd have drawn on many years of domestic and commercial rust removal and protection experience. Our clients include Hamilton Island, Village Roadshow (Wet n Wild), Queensland Rail (Bridge work), Sydney Aquarium and many coastal hotels and beachfront properties. We have drawn upon expert advice from our corrosion engineer and included reference material from the Australian Stainless Steel Development Association (ASSDA) in this publication.

Our experience enables us to give specialist advice in your home building or home restoration projects. The Action Corrosion range of rust removers and protective coatings were initially formulated, tested and manufactured to perform our commercial role. These products are now available to the trades and private home owners through out network of on-sellers. Please view our store locator map on our website for locations.

This guide will assist you in making informed decisions regarding the most corrosion resistant materials to use in your building project and the most appropriate products to use in restoring your most valuable assets.

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Lets Start from the Top - The Roof.

Tip: For metal roofing, coat the roofing screws with Action Clear Coat at time of installation to prevent early corrosion damage.

The use of bonded metal roofing proximate to the coast brings with it challenges with respect to corrosion. The problems don't arise from the roof sheeting itself, but stems from the screws which affix them. Roofing screws are generally galvanised and painted, however, when they are screwed down and have torque applied, cracks occur in these coatings. In coastal locations, corrosion can set in through these breaches. The following photos are of roofs under five years old.



This five year old roof is situated at Agnes Water, QLD.

When corrosion forms on the screw head, galvanic corrosion spreads to the surrounding roof sheeting, delaminating the coating and eventually rusting the roof. When we restore roofs and replace the screws, we apply our Action Clear, which provides an invisible, hard, clear UV resistant corrosion barrier. This coating protects the screw head and surrounding sheeting from corrosion.

Roof Design

If a metal roof is specified, avoid designing roofs with multi-storey overhangs. We have consistently found these designs have the greatest issues with corrosion as natural rain fall cannot rinse down the screw heads. It is also usually impractical to rinse down these inaccessible areas as part of regular maintenance schedule, that can void your roofing warranty. The photos below all show corrosion in metal roofing as a result of an overhang design, and are consistent with what we regularly find with metal roofing near the coast. If this type of design is unavoidable, we recommend coating the screw heads with our heavy duty coating Action Clear Xtreme.



This Pavilion design with roof overhang, prevents rain water washing down screw heads, allowing salt to settle and rust to take hold. Remember rain runs down the valleys of the roofing, leaving the screws generally untouched. This roof is five years old and the screws are too rusted to be removed. You can see rust appearing in the sheet surrounding the screw head. Whilst the metal roofing has a warranty, it does not extend to damage as a result of screw heads.



Another example of roof damage due to a overhanging roof design, note the dirt build up in this sheltered area which natural rainfall doesn't reach and which cannot be routinely rinsed down due to it's inaccessible location.



This photo was taken four years after construction at Kingscliff. As you can see, the problem associated with rusted screws is quite common along the coast for homes four to five years old. The roofing screws would fare much better with the simple application of Action Clear, which along with providing excellent corrosion protection, is totally clear and will not change the roof colour.

Rusted Gutter Support Brackets

We recommend using hot dip galvanised gutter support brackets. These brackets should be coated with an anti-corrosion coating such as Action Clear Liquid which provides a greater film build than the aerosol form. The brackets depicted are from two different properties which are five and three years old respectively. If brackets become rusted, use Action Gel to dissolve the rust. Once rinsed off and dried, the bracket is ready for coating.



Down-Pipe and Saddle Selection.

Tip: Opt for plastic or stainless steel downpipe saddles. If stainless saddles and downpipes are specified, apply Action Clear prior to installation.



In this photo a stainless steel downpipe and saddle already have 'Tea staining corrosion.' The lower section of this pipe was easily cleaned by brushing on Action Gel. Once cleaned Action Clear Coat would protect against further corrosion. If there is rust staining to the wall as shown below, Action Gel can be brushed on to remove rust in minutes leaving the paint intact.



Standard metal down-pipe saddles quickly rust in a coastal location and bleed rust down the walls as shown. We always recommend using plastic or stainless steel saddles wherever possible, as shown right. The plastic saddles can be painted as required.

Stainless Steel Grade, Finish and Design.

Tip: Choose a highly polished finish where possible. If satin finish is preferred, coat stainless with an anti-corrosion coating such as Action Clear and rinse down regularly.

Grade Selection

Stainless steel is a very popular choice for both inside and outside fittings and fixtures. If Stainless steel is specified for a coastal project, it will require routine maintenance to prevent tea-staining corrosion. Regardless of the grade or finish we recommend our Action Clear Coat for all coastal stainless steel.

The most popular grades of Stainless Steel are 304 and 316 (marine grade) the differences between stainless steel grades are chromium content and the addition of nickel and molybdenum to 316 grade. 316 generally has greater corrosion resistance than 304, however there is added expense for this grade.

Finish Selection

“In aggressive environments, the smoother the surface, the better the corrosion resistance. A smoother surface is less susceptible to an accumulation of deposits, which may become focal points for localised corrosion.”(ASSDA)
It has been our experience that this statement is very true when building near the coast. We have found that the finish is as important as the grade of stainless steel used. Electropolishing is the process of highly polishing stainless steel, bringing chromium to the surface and smoothing the finish by 30%. This makes it more difficult for salt and impurities to attach.



This balcony has highly polished handrail and satin finish supports.

The handrail is unaffected, however, the satin finish supports have corrosion even though they are the same grade of 304. We used Action Rust Removal Cream, a gentle safe cream formula to restore the supports and Action Clear Coat to protect it from future corrosion.



We recommend having a highly polished finish on all external stainless steel where practical. We also recommend using Action Clear Coat to protect from corrosion on all stainless steel regardless of the grade and finish.

Stainless Steel Design: Crevices and Corrosion.

“Many metals and alloys are susceptible to crevice corrosion, but in stainless steel, crevices are the first and most common place for corrosive attack to begin. With a little understanding, crevice corrosion can either be avoided or minimised.”

(ASSDA)



The spigot design left, has a number of crevices and sharp edges. Corrosion will be an ongoing issue for this design as these areas invite corrosion. Another concern is that the required dry film thickness (DFT) cannot be achieved for any anti-corrosion coating on these sharp edges.

Many of our beachfront clients have opted for the rounded cylindrical design (right) which provides an easy to maintain alternative without the same corrosion issues.

We recommend regular rinsing down of all external stainless steel once a month, however, stainless steel fittings and fixtures under roof (i.e not rinsed down by natural rain water) are particularly susceptible to corrosion from salt and grime build up. It is for this reason that alternatives other than stainless steel products be considered for these areas if a regimented cleaning schedule is not adopted.

Swimming pools are a highly corrosive area due to the presence of chlorine, salt and other chemicals in the pool water. If stainless steel is specified, only use high polished marine grade finish. A cheaper maintenance free option is powder coated aluminium.



Keep acids and chlorine away from electricals in the pool pump shed. These chemicals will corrode anything proximate to them so the garden shed may be a better option than the pool pump shed.

Structural Issues

Tip: Paint your Arch Bars before they are installed, especially the ends where it will be checked into the wall. This area will rust first, due to contact with moisture in the wall. This area cannot be painted once installed.

Archbars (Lintels)

These are galvanised flat bars which are recessed into the wall above doorways, garages and windows to support the weight of a masonry wall. The galvanised coating does a very good job in preventing rust, however the porous masonry walls hold moisture, meaning that the sections of flat bar which are recessed into the wall, will almost always rust first. In this series of photos, you can see that rust has started in the corners, which is consistent with what we find in the field along the east coast of Australia.





We recommend sealing the new arch bars (lintels) with Action Clear Xtreme this will create a heavy clear moisture barrier for the steel. Once cured, top coat with your chosen coating. These simple steps will protect your lintels.



Our products are available in most locations Australia wide. Please go to our website www.actioncorrosion.com.au and click on the store locator to find your nearest stockist.

Steel Support Posts and Beams.

The photo below is a prime example of what happens when a post has a hot dipped galvanised finish and the fixing plate is welded on site with a non galvanised mild steel plate. Rust begins at the weld and spreads over the plate while the hot dipped galvanised post itself remains sound. Where possible insist posts are hot dip galvanised with plate attached as one unit. It may prove a little more expensive but you'll be glad you spent the money in the long run.



To address this problem Action Gel was brushed on thick and left for an hour and washed off to remove the rust. To protect the plate apply Action Clear Xtreme to seal and topcoat with your chosen coating.



Correct Screws and Fixings.

Tip: Any screws or hardware which accompany external walls lights, spot-lights, handles, street numbering or any other items purchased to attach to a wall, throw in the bin. Generally, the screws provided are of poor quality, they will rust and stain your walls. Take the time to purchase and use quality stainless steel screws, preferably 316 grade.



This is the usual outcome when poor quality hardware is used to affix lights and other fittings to a masonry wall. In this instance remove fitting, replace screws with stainless steel and coat with Action Clear Coat. To remove rust staining from wall use Action Gel as shown below.



Fan Selection

Tip: Opt for timber bladed fans with an alloy motor/hub for a more durable and low maintenance alternative.

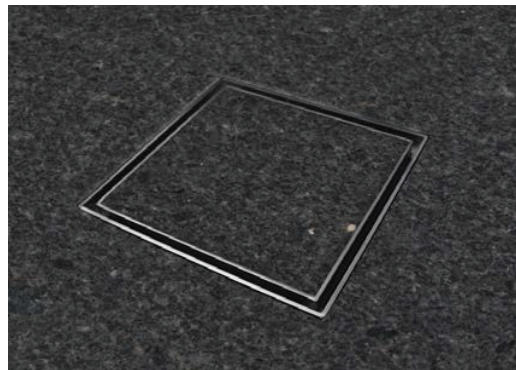


We don't endorse the use of metal bladed fans anywhere near a coastal location. Salt and dust tends to settle on top of metal blades and accelerates the corrosion process. We have had many instances where fans have not been used over the winter months and when turned on in summer, all the surrounding walls are sprayed with rust, requiring a full removal, preparation, undercoat and repaint of the walls. If you do have rusted metal bladed fans, use Action Gel to remove rust and Action Clear Coat to protect them. Timber bladed fans only require the centre alloy hub to be coated.

Bathroom

Tip: Reduce the amount of metal in this high humidity area.

Floor Grate Selection



Bathrooms are a high humidity area which promote corrosion. Limit the amount of metal used in these areas. Consider the use of a tile insert style of floor grating and not the standard metal type pictured. Reduce the number of metal handles in vanities by having them recessed in the cabinetry. Consider using non metal hand towel/towel holders. Metal cupboard hinges and handles should be wiped over with a protective oil such as the Action Lanospray.



Dissimilar Metal Issues

Tip: Wherever possible, especially in a corrosive environment, try to have the same metals in contact with each other. If this isn't possible, insulate the metals from each other with nylon washers or brush on Action Clear Xtreme (non conductive insulant)

When two different metals are in contact and subjected to a corrosive environment, there is a current flow between them. This flow causes corrosion of the least corrosion resistant metal (active) to increase, and corrosion of the more corrosion resistant (inactive) metal to decrease.



Keep metals which are in contact the same wherever possible. If this is not possible, ensure that they can co-exist by referring to the Galvanic Corrosion Tables (following page). The zinc plated striker plate in this picture didn't stand a chance butted up against aluminium in a coastal environment.

Galvanic Corrosion Tables

This table will help you make sound decisions in respect of fastener material. The simple table shows the reactivity of metals when they come into contact with each other. If a reactive metal combination is unavoidable, use a nylon spacer to separate them, or apply two coats of Action Clear Xtreme to between the metal surfaces. Action Clear Xtreme provides a non-conductive barrier between the metal surfaces to reduce corrosion as a result of dissimilar metals.

Figure 1

	Zinc	Galvanized steel	Aluminum	Cast iron	Lead	Mild steel	Tin	Copper	Stainless steel
Zinc	None	Low	Medium	High	High	High	High	High	High
Galvanized steel	Low	None	Medium	Medium	Medium	High	High	High	High
Aluminum	Medium	Medium	None	Medium	Medium	Medium	Medium	High	High
Cast Iron	High	Medium	Medium	None	Low	Low	Low	Medium	Medium
Lead	High	Medium	Medium	Low	None	Low	Low	Medium	Medium
Mild steel	High	High	Medium	Low	Low	None	Low	Medium	Medium
Tin	High	High	Medium	Low	Low	Low	None	Medium	Medium
Copper	High	High	High	Medium	Medium	Medium	Medium	None	Low
Stainless steel	High	High	High	Medium	Medium	Medium	Medium	Low	None



BBQ Maintenance

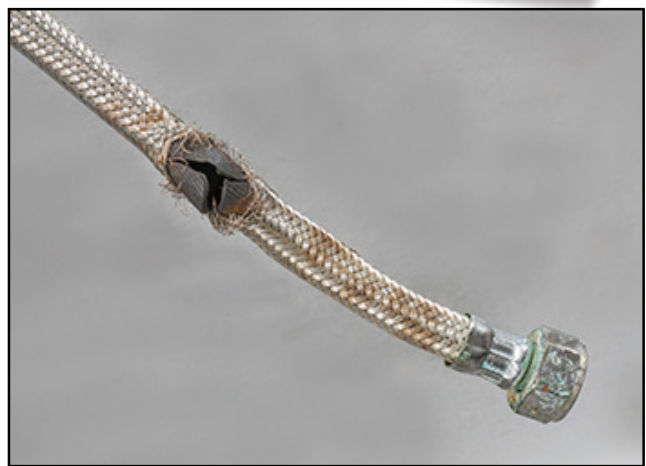
Tip: Before you put the BBQ away. Give it a Lanospray.

This BBQ was half restored using our BBQ Rescue Kit which is a combination of Action Gel to remove rust and grime and Lanospray to highlight the stainless and give excellent corrosion protection. If your BBQ is new, simply spray and wipe over with Lanospray to maintain a clean corrosion free appearance.



Braid Plumbing Hose Failure

Tip: Coat braid water hose with Action Clear Coat upon installation. Inspect and replace hose when corrosion is visible. If it bursts while your not at home, the water damage will be devastating.



We have seen many homes devastated by water damage through braided hose failure. There is research to support corrosion damage to these hoses creates a weak spot for failure. We strongly recommend coating the braided hose with Action Clear. These hoses require regular inspections and or replacement. If you have concerns about the age of hoses, ensure you turn your water off at the mains if going on holidays. Corrosion to braided plumbing hose is, in our view, the greatest danger to your home.

Stainless Steel Cable

Tip: Use a penetrating oil such as Action LanoSpray to coat the fibres and protect wire cable from corrosion. We recommend using Stainless Steel cable for your garage door.



Stainless wire is difficult to protect due to the intertwined fibres that are difficult to coat. We have found a penetrating oil such as Action LanoSpray to be most effective. To remove pre-existing rust, brush on a thick coat of Action Gel, leave for half an hour and wipe off with a scourer to bring back original shine instantly. Coat with lanospray once dry. If a garage door cable has corrosion, it is weakened and can snap. We always recommend upgrading to stainless steel cable proximate to the beach.

Electrical Corrosion Protection.

Tip: Keep your T.V, Home Theatre, Stereo and Computers away from windows and sliding door near the coast. Remember there is no warranty for corrosion damage on appliances.



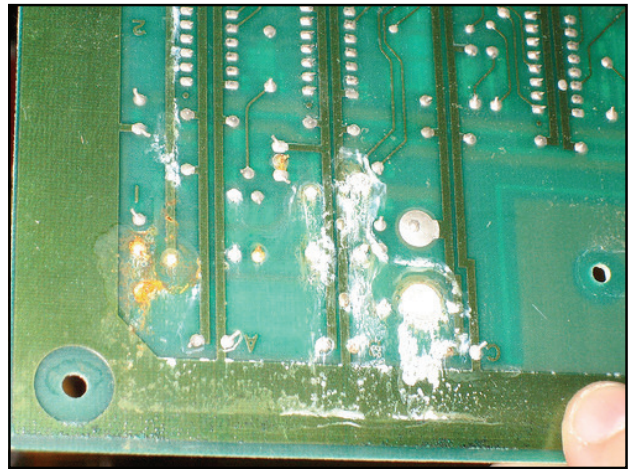
The terminals of this television have corrosion due to its proximity to the sliding door. Internally it will have similar issues. New age T.V's generate more heat and have many ventilation holes in the rear which provides an easy access point for salt and dust. Wipe down these areas and treat with an electrical corrosion inhibitor.

As well as all appliances, there are other areas of the home which require an electrical corrosion inhibitor. The wiring in your meter box, down-light connections, alarm systems, power point connections garage door motors are just some of the areas in need of protection.

Within the pool pump enclosure there are usually electronics including chlorinators, ionisers and power points which are in need of protection due to their proximity to the pool. Keep acid and chlorine out of the pool house.

Air-Conditioning Corrosion Protection

Tip: Ensure your installer sprays the internal PC Boards of your unit with Action Clear. They are the most expensive component to replace when damaged by corrosion.



(Left) Coil guards, coils, electrical boards, fan guards and the cabinet can all be coated by Action Clear Coat to prevent corrosion. (Right) a combination of high humidity and moisture within the unit can quickly corrode PC Boards. Action Clear will waterproof the board and provided excellent corrosion protection. Action Clear also prevents vermin and their excrement from shorting out boards.



Coil fins corrode and fall away if not treated. Clogged or damaged fins are unable to exchange heat effectively. This creates a very inefficient unit, which will require more power to cool.

Below, use a nylon spacer or similar as shown to get the feet of the unit off the ground and out of the water the unit creates.



We recommend using Action Clear for new installations. Action Clear comes in liquid to brush over the cabinet and aerosol to coat coils and PC boards. The product is non conductive so will not short out boards and does not affect heat exchange at the coil.

Maintaining Your Stainless Steel Kitchen Appliances

Tip: Action Cream will keep it clean, LanoSpray will keep the sheen.



Action Cream will remove built up grime and corrosion from your kitchen appliances including dishwasher, range hood, stove top and fridge. LanoSpray will give it a brilliant shine with excellent protection against corrosion.

4WD's, Boats and Other Toys.

Tip: Coat your 4WD and boat trailer with Rustproof Clear, unlike fish-oil it repels sand and gives awesome protection with a hard clear non smelly finish.





Motorcycle petrol tanks, tools and car parts can be easily de-rusted with Rust Bucket Rust Removal Bath. The product is eco friendly so after your finished it can be easily disposed of. (See before and after of rusted tools below and half de-rusted can above.)



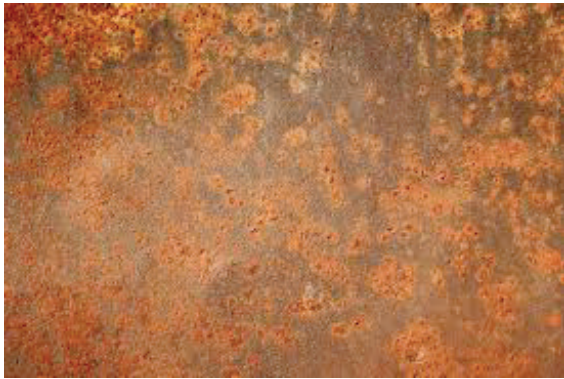


Boat maintenance is made easy with Action Corrosion Products. Action Gel will remove heavy rust. Action Rust Removal Cream will keep your stainless steel looking like new and Action Clear will protect it all with a mirror finish. Moving parts and stainless cable can be protected, lubricated and waterproofed with Action LanoSpray. Simple.



Maintain Rusted Patina.

Tip: Want to keep a rust look on artwork or other metal items? Brush on general purpose thinners first to dry up any moisture in the flakes then apply our products as soon as it dries.



Many artists specialise in pieces with a rusted patina and have used Action Clear and Action Clear Xtreme to encase the surface and prevent rust flaking onto the ground. For smaller surfaces we recommend brushing on Xtreme. For larger surfaces where a spray gun is required apply three coats of stand Action Clear in liquid form.

If you have a 4WD with chronic rust and want to hold it at bay. Apply thinners to dry up moisture and apply two heavy coats of Xtreme to prevent further deterioration.

D.I.Y Kits in our Range.



We thank you for taking the time to read through this booklet. We hope it has been helpful in giving you useful tips in the most durable material choices in your building project. We also hope it will assist you in maintaining your existing home and vehicles.

For further product information please go to,

Web: www.actioncorrosion.com.au

E: sales@actioncorrosion.com.au

Address: 3/18 Industry Drive, Tweed Heads South, NSW. 2486.
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Our products are available in most locations Australia wide. Please click on the store locator to find your nearest stockist.

When you buy Action Corrosion you are buying from an Australian Company, with Australian workers using Australian raw materials.

Want to be a Action Corrosion stockist? Simply email sales@actioncorrosion.com.au to discuss.