

We had a look at your house on Thesens recently and we noticed...

How many of the homes were suffering from a debilitating problem....

RUST !!!

We were recently called to Thesens Island in Knysna to have a look at a Stainless Steel Braai that was “cleaned” with a cleaner provided by a local hardware

shop....and noted the number of gate latches and hinges that were showing this “disease”



The interesting thing about the problem is that most people do not really understand what rust is and how it works.

Well if you would allow me to enlighten you on the evils of rust, the reasons why it happens and the many ways people try and prevent it from occurring, spreading, and even some misperceptions that there are about what can be used as solutions.

WHAT IS RUST ?

Rust has another name being "corrosion due to oxidization". What that means is that steel and more particularly the iron in the steel will react with oxygen (normally when in contact with water) and will start to discolour...you know that brown initial colouration you see on your car or outside gate or even on your boat trailer. The iron then begins to decay and in its breaking down allows the oxidization to travel further and further into the iron and thus weaken and eventually destroy the material.

A backup reference from Wisegeek defines it as:

Rust is scientifically called [oxidation](#), which occurs when [oxygen](#) comes in long-term contact with certain metals. Over time, the oxygen combines with the metal at an atomic level, forming a new compound called an oxide and weakening the bonds of the metal itself. If the base metal is iron or steel, the resulting rust is properly called iron oxide. Rusted [aluminum](#) would be called aluminum oxide, [copper](#) forms copper oxide and so on.

The main [catalyst](#) for the rusting process is dihydrogen oxide, but we know it better as water. Iron or steel structures may appear solid, but water molecules can easily penetrate the microscopic pits and cracks in any exposed metal. The [hydrogen](#) atoms present in water can combine with other elements to form acids, which will eventually cause more metal to be exposed. If [sodium](#) is present, as is the case with saltwater, [corrosion](#) will likely occur more quickly. Meanwhile, the oxygen atoms combine with metallic atoms to form the destructive oxide compound. As the atoms combine they weaken the metal, making the structure brittle and crumbly.

Some pieces of iron or steel are thick enough to maintain their integrity even if rust forms on the surface. Others are protected by water-resistant paints or other chemical barriers such as oil. The thinner the metal, the better chance rusting will occur. Water alone does not cause steel to rust, but the acidic reaction allows oxygen to attack vulnerable exposed metal. Placing a steel [wool](#) pad in water and exposing it to air will cause almost-immediate rusting. The air around the pad will actually feel several degrees warmer. Eventually the individual iron bonds will be destroyed from the heat and the entire pad will disintegrate. Rust formation cannot be stopped easily, but metals can be treated to resist the most damaging effects

SO WHAT DOES THE AVERAGE PERSON DO TO FIX RUST ?

I know this because I also did this before I studied the phenomenon of "metal rot".

On seeing the decay start we will grab a piece of sandpaper, wipe down the affected part until it is shiny and then paint on a primer to "seal" the metal. Then we coat the piece with paint and believe we have fixed the rust problem....Well I am sorry to tell you, but all you have done is assist the rust process in it's mission,

WHY - well what did you do ? You exposed the steel part to air, added some heat via the sanding process, waited a few minutes before applying the primer and these are just what rusts wants, heat to speed up the oxidization process. Fresh air to get onto the surface with all of its water and carbon dioxide molecules and in most cases a host of other air borne acids and molecules that propogate rust growth.

So lets think about this for a second - why do they spray your car in a booth with air drying systems and dust extraction systems in place ???



DID I HEAR YOU SAY - Well in most cases all we can do is try and slow down the decay and keep the goods looking good....

WRONG !!!

Once rust is in the metal, all that coating it does is hide the problem so that it can carry on its evil work under the coating.

SO I WILL GALVANIZE THE THING !!

Well here again is a common misconception that we have been led to believe, galvanizing will prevent rust, or better still, anything that has been galvanized will not rust.

The first question that you need to ask is:

HOW DOES PLACING A COATING ON TOP OF IRON STOP IT RUSTING ? ALL THAT IT DOES IS SLOW DOWN THE POSSIBILITY OF THE OXIDISATION OCCURING BECAUSE IT NOW NEEDS TO BREAK THROUGH THE PROTECTIVE SKIN YOU HAVE ADDED ONTO THE SURFACE.

WANT PROOF - DRILL A HOLE IN ANYTHING THAT HAS BEEN GALVANISED AND LEAVE IT FOR A WEEK

Then look around the hole and see the rust starting to attack the steel underneath. Now that it is in the steel it will begin rusting from inside the steel.



So did I hear you say: "I WILL NOT DRILL ANY HOLES IN THE GALVANISING !"

OK, but what about the odd bump and scratch that occurs during normal use ?

Yes, not drilling holes into a galvanized product will allow the piece to last a lot longer but it can never make anything rust proof. One small crack in the galvanizing surface, a badly galvanized end to the pipe or a surface scratch that happened during transport back from the galvanizers and in go the little oxide villians !! Take a look at the picture of a gate that was galvanized by the best galvanizers in the area and over the last three years has begun to show signs of surface wear and rust inception.



So what is galvanizing ?

reference from Wisegeek defines it:

Galvanized metal is simply steel in some form that has received a thin coating of [zinc](#) oxide. The purpose of the zinc is to protect the steel from elements that normally would lead to [oxidation](#), [corrosion](#) and the eventual weakening of the steel. In this sense, the zinc coating acts as what is called a sacrificial anode. In other words, the zinc will protect the steel from corrosion by acting as a barrier between the steel and the corrosive agent, at least until the zinc coating has been completely oxidized. Galvanized metal can be made into supports, girders and even into sheets of metal that can be used in all sorts of construction and building projects.

The other major problem that can be mentioned is that the entire product is hardly ever galvanised....what I mean by that is the inside of your pipe, tube, frame, gate will possibly not get a good coating in the galvanising bath...and it can not be seen so it cannot be checked...here again, rust inside the pipe starts doing its deed unnoticed until it pops out on the good side where there is a layer of galvanising...TOO LATE the product is rust rotten !!

SO WHAT IS THE POINT OF ALL THIS INFORMATION ?

Well one of the only products that can stand its ground against rust and stay beautiful for years is STAINLESS STEEL. The main reason is that it is high in chromium and nickel, both of which do not rust.

We have done extensive research in Knysna and surrounding areas and have on record hundreds of cases of homes where rust is active and will soon be causing problems on things like gates, light fittings, braai fittings, trailers. We have also only worked in stainless for the past seven years and have learned about it extensively from local and international experts.

We have now designed and built a range of fittings for homes in this amazing material that will take these problems away from your biggest investment for ever, and we will do it for you so that it relieves you of all the stress of seeing your home rust away.

I would like to propose that we will do an assessment of all of the potential “danger points” around your home and send you a report with the solutions we can provide. We have tried to match common latch, lock and hinge sizes so as not to have to re-drill your fittings. It is merely a case of changing over the fittings. If we do have to redo any fittings we have a team who will be able to patch and re-instate your home to its former glory during the replacement process.

We also offer a cleaning service for your existing stainless steel and will happily quote you to provide an initial cleanup and then place you on a regular cleaning routine to maintain your stainless steel, and keep it looking the same as when it was installed.

BUT DIDN'T YOU SAY IT DID NOT RUST ???

Indeed I did but it still will show traces of surface marking and possible signs of what appears to be rust on the surface, particularly if your home is close to or exposed to sea air. The problem with sea air is that its main component is....you guessed it...SALT, and if you remember your school science Salt is made up of Sodium Chloride

When salt lands on your metal goods and is exposed to rain or moisture the bonds break down and form Sodium, which has a natural colouration of yellow, and the other part is chlorine which is stainless steel's worst friend.

The net reaction is that the rain causes the sodium to run across the surface of the stainless steel leaving yellow rust looking residue, especially in any grooves or hollows in the stainless. The Chlorine breaks down the surface protection of the stainless and deposits a white film onto the surface, which begins attacking the steel, that will, if left uncleaned result in pitting of the surface over time.