



Rust Conversion Restoration and Thermal Coating System



Future Proofing | Asset Protection | Preventative Maintenance



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Rust Conversion restoration coating system

Project Site: PROBIOTEC PTY LTD

Project Address: 83 Cherry Lane – Laverton North

EXECUTIVE SUMMARY:

The Probiotec complex was suffering from widespread advanced surface rusting. If left untreated full replacement of the complex roof sheeting would be highly likely in upcoming years due to the irreparable corrosion.

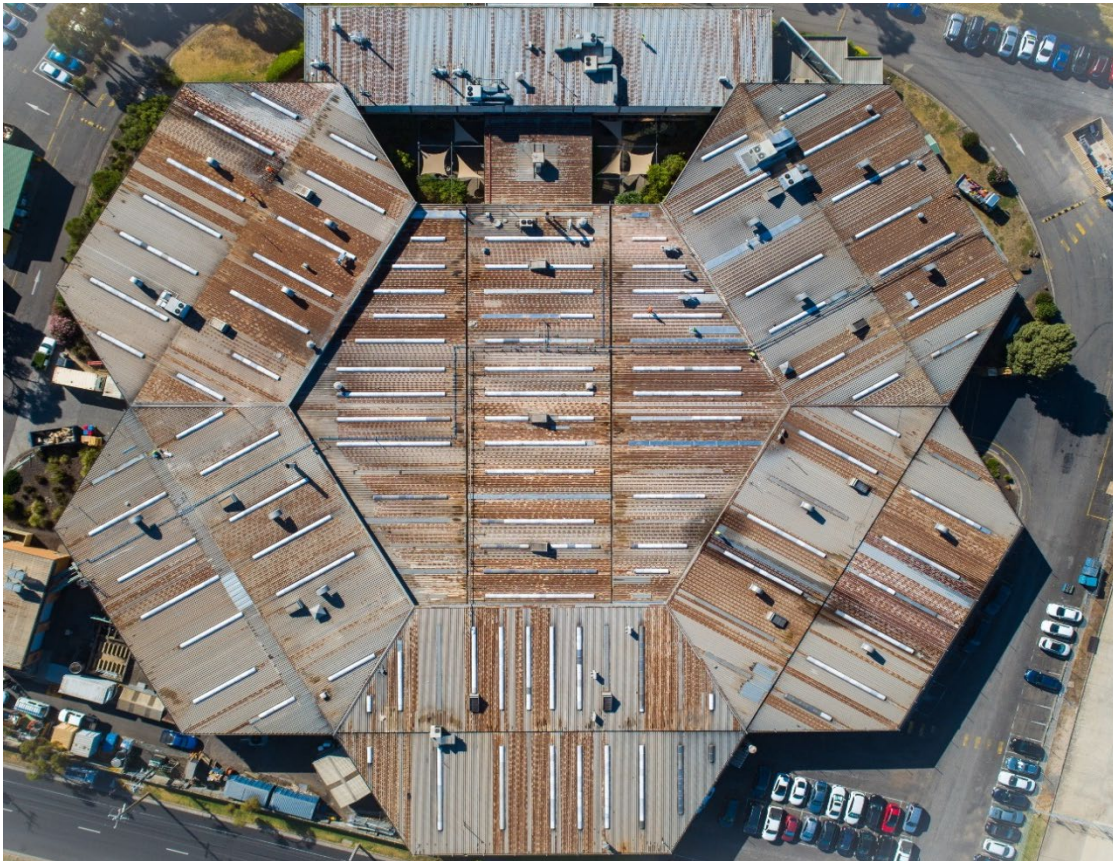
It may take 20+ years for rust bloom on galvanised steel to first appear but once present the rate of deterioration is exponential. In recent years the sheet rusting had become noticeably worse and urgent attention was required if the coating option were to be chosen over full roof replacement.

The strongly preferred option was the rust conversion restoration coating system due to significantly less health and safety risks as well as being a cost saving benefit.

Despite being a costly and dangerous task for removal and installation, a new roof could have a life span of up to 20-30 years. With the long-term future of the Probiotec site this could also be viewed as a major over capitalisation of investment.

This report will start with an image summary showing “before & after” examples, followed by the full process undertaken to restore the Probiotec complex to a renewed site.

ORIGINAL ROOF



RUST CONVERTER plus RUST INHIBITOR ETCH PRIMER



FIRST COAT THERMOSHIELD



SECOND COAT THERMOSHIELD – COMPLETED ROOF



SURFACE PREPARATION

Possibly the most important component of the overall process, but most certainly the most difficult and time consuming.

The power washing and overall surface preparation took approximately 4 weeks.

All grime and rust flakes were removed under high pressure water to ensure the rust converter made contact to the rust itself, not rust flakes or a layer of dirt.

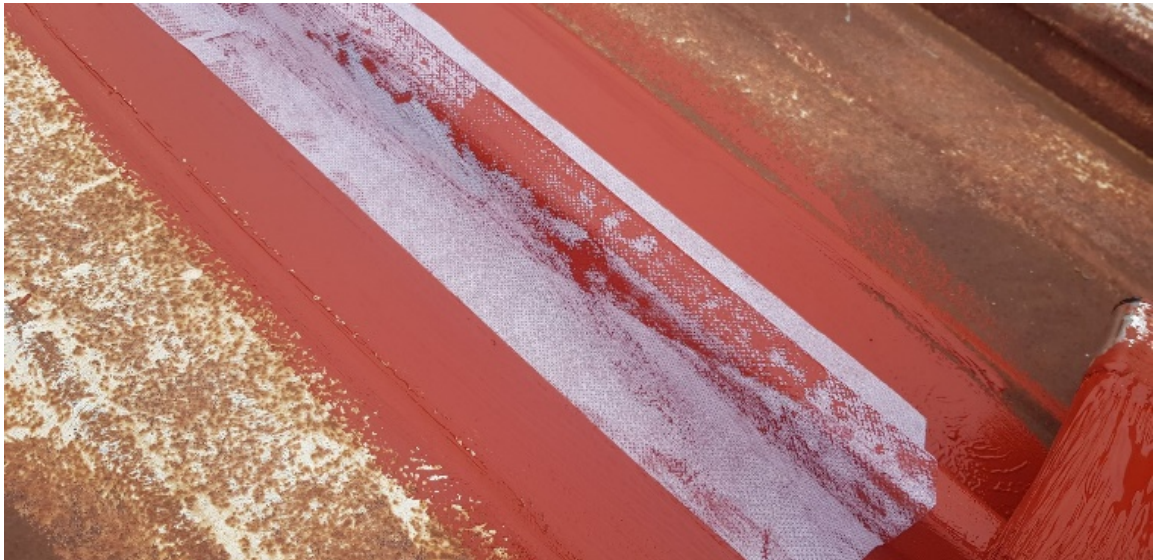
You can see from the below photographs there is a clear line showing where the dirt/grime layer has been removed and bare metal is exposed.



SURFACE PREPARATION / continuation



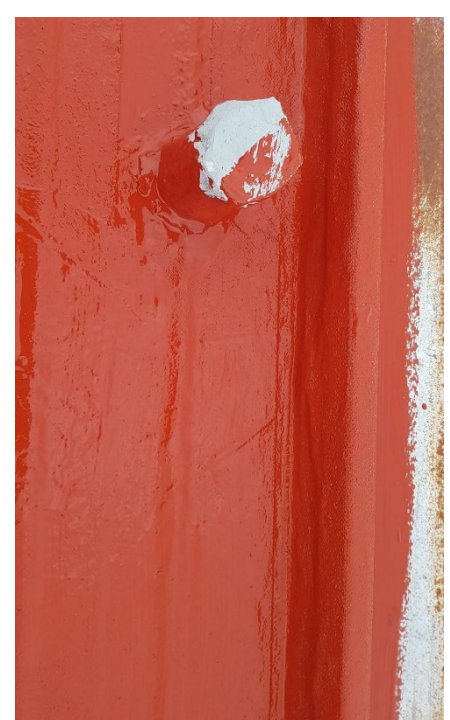
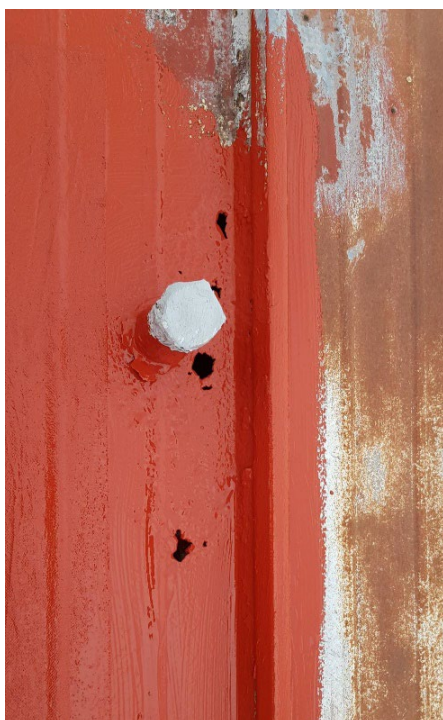
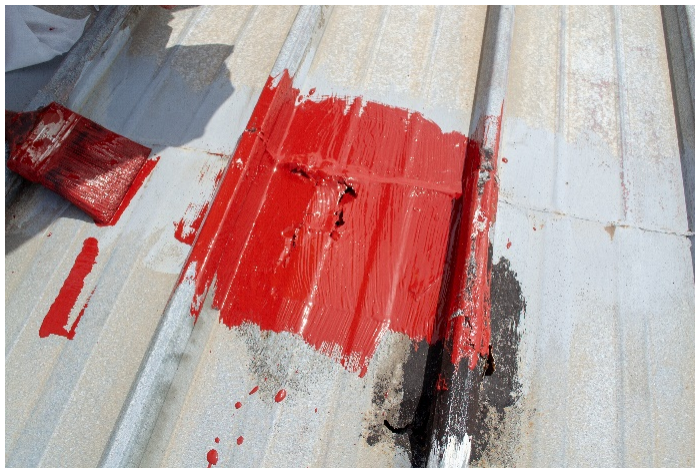
REMEDIAL REPAIRS prior to rust conversion



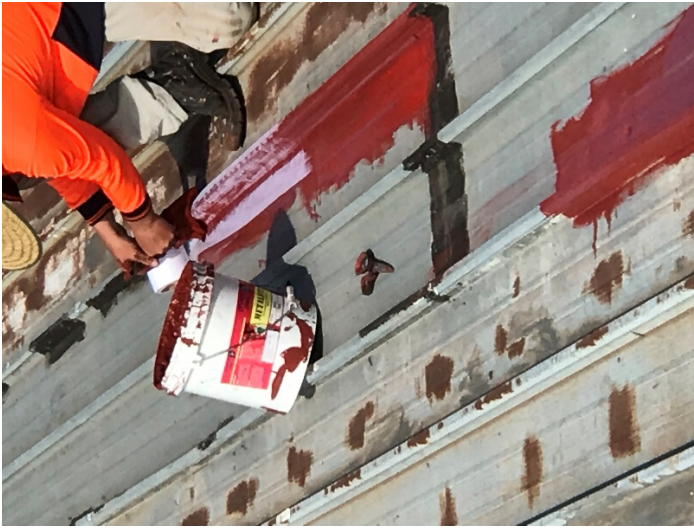
REMEDIAL REPAIRS / continuation



REMEDIAL REPAIRS / continuation



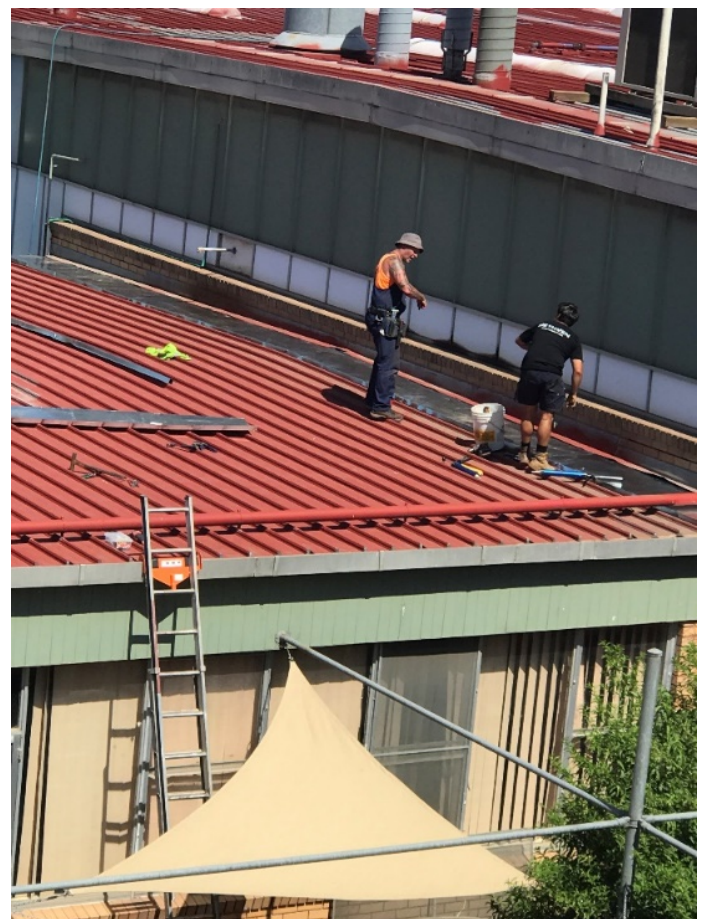
REMEDIAL REPAIRS / continuation



REMEDIAL REPAIRS / continuation



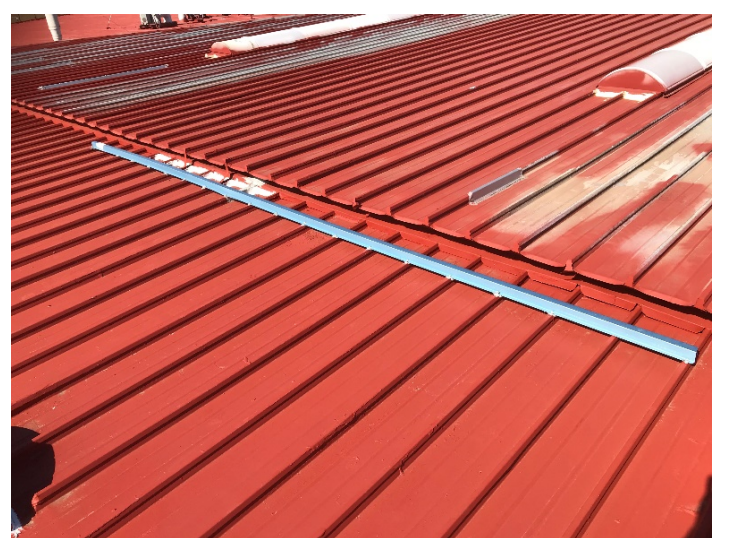
ROOF PLUMBING (roof flashing over corroded areas)



CORKING WORKS



REINFORCING WORKS



REINFORCING WORKS / continuation



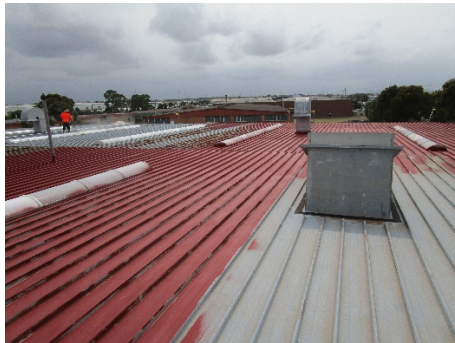
RUST CONVERSION:

Following the high-power cleaning, rust conversion commenced.

The rust convertor is applied to rusted steel only and not clean steel.

Our rust converting primer of choice has a lower pH and this enables it to be applied directly over rusted steel where the converting action turns all the rust (namely the mixed iron oxides and hydrated oxides) into a stable metal phosphate whilst simultaneously forming a tough protective coating over the converted steel.

This is an irreversible reaction which leads to a permanent rust conversion if correct surface preparation and application occurs.



Rust Conversion / continuation



Rust Conversion / continuation



Rust Conversion / continuation

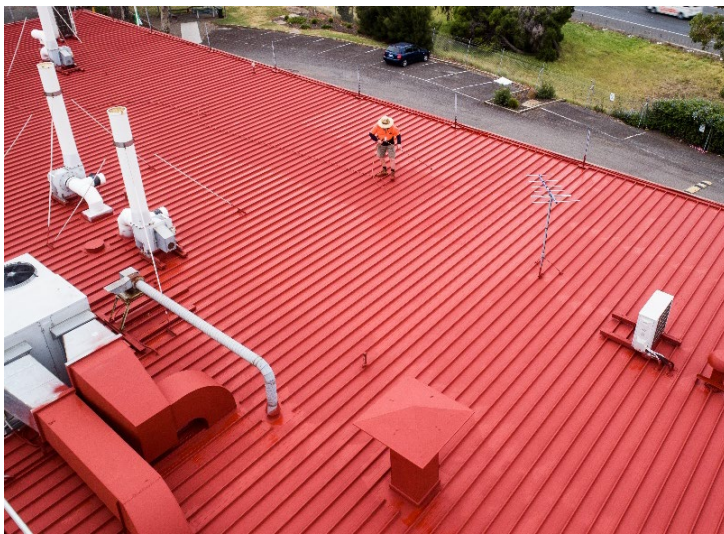


BELOW ARE A SERIES OF PHOTOGRAPHS SHOWING THE APPLICATION STAGES OF RUST INHIBITOR

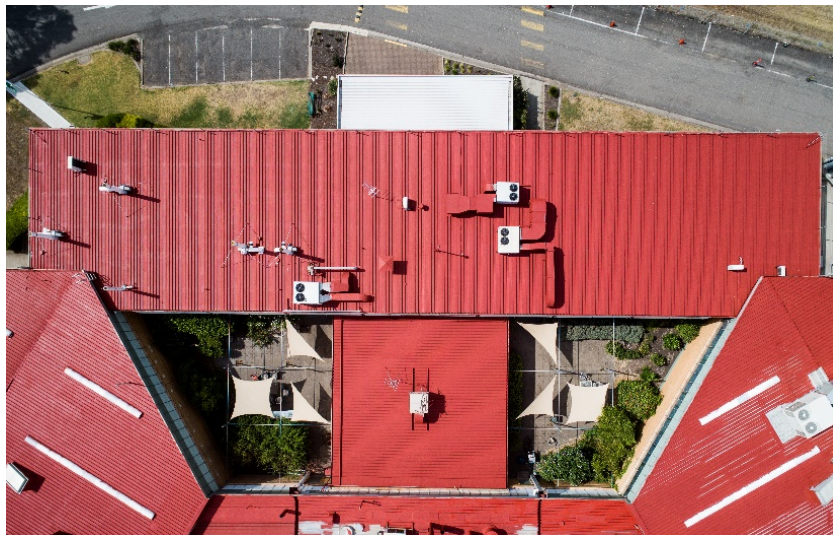
Once rust has been converted to a stable metal phosphate within the paint film, a rust preventative primer coat is then applied.

This product is the “twin sister” to the rust converter which is designed mainly for application over well rusted steel. When the primer cures into an abrasion resistant skin it is impervious to further rust.

The primer coat, like the rust converter, is an acrylic based primer and is designed for application over the rust conversion layer to form a compatible finish. The primer (inhibitor) is applied to ALL METAL SURFACES (not just the rusted areas) prior to the protective topcoats of Thermoshield.



RUST INHIBITOR / continuation



RUST INHIBITOR / continuation



THERMOSHIELD – PROTECTIVE CERAMIC MEMBRANE

Following rust conversion and primer (inhibitor) the acrylic Thermoshield adhesion to the acrylic rust converter and inhibitor is outstanding. All products contain phosphating action when drying.

All products within the coating system are highly compatible.

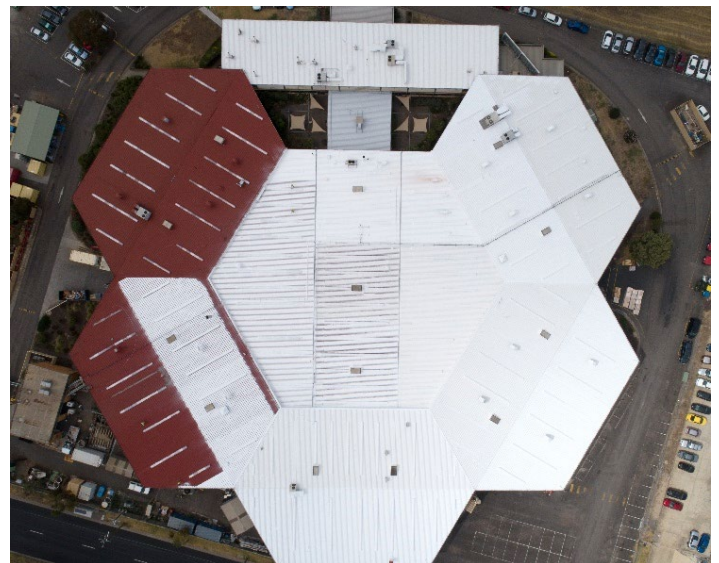
Thermoshield thermal ceramic coating creates a thick non permeable membrane that acts to encase the converted metal, eliminating any and all environmental exposure.

Corrosion ultimately requires water and oxygen. Following permanent rust conversion, the metal is sealed beneath the thick 'blanket' of the Thermoshield ceramic coating eliminating water and oxygen exposure to the metal.

Thus, essential elements for rust/corrosion have been eliminated from the equation.

FIRST COATING OF THERMOSHIELD

FIRST COATING OF THERMOSHIELD / continuation

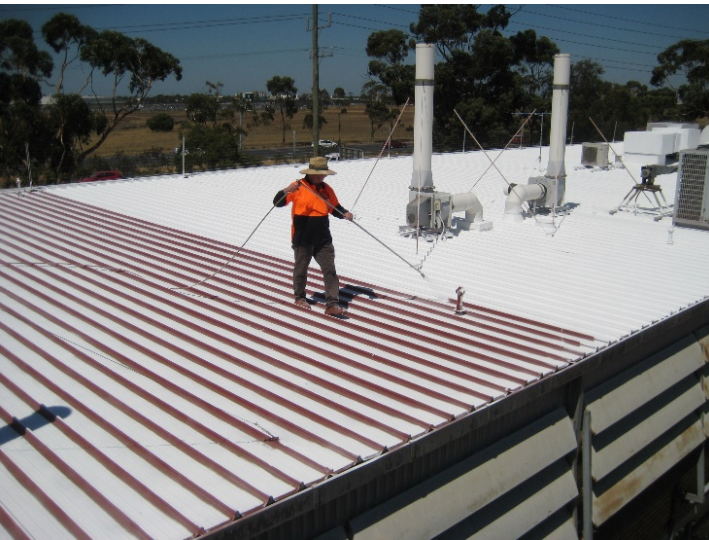


SECOND COAT THERMOSHIELD

The second coat was applied.

The product is extremely viscous, and this enables underlying colours, in this case the vivid red, to be completely covered.

This ensures maximum protection and evenness of membrane protection without weak links.



SECOND COAT THERMOSHIELD / continuation



SECOND COAT THERMOSHIELD / continuation



SECOND COAT THERMOSHIELD / continuation



SECOND COAT THERMOSHIELD / continuation



SECOND COAT THERMOSHIELD - COMPLETED ROOF



ADDITIONAL AREA / CANTEEN ROOF

It was decided as this roof is lower than the rest of the building and all the offices surround the canteen roof, that the reflection would be too great in the summer, therefore the decision was made to tint Thermoshield to Shale Grey to minimise the glare.



ADDITIONAL AREA / CANTEEN ROOF / continuation



ADDITIONAL AREA / CANTEEN ROOF / continuation



ADDITIONAL AREA / CANTEEN ROOF / continuation



CONCLUSION:

After a gruelling 6 weeks, where the elements were not kind to us on some days, the job was completed.

This comprised of :-

- thorough surface preparation (high pressure power washing) ,
- remedial plumbing repairs;
- rust converter to rusted areas;
- rust inhibitor (primer) to all areas;
- 2 coats of Thermoshield;
- 10-year Warranty.

For further information regarding the completed works please contact Thermoshield Australia.

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