

# CORROSION

## CONTACT WITH TIMBER

### TECHNICAL BULLETIN CTB-13

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This issue supersedes all previous issues

Green or unseasoned timber should not come into contact with galvanized steel, ZINCALUME® zinc-aluminium alloy coated steel or TRUECORE® steel, due to acidic substances in the timber which have a corrosive effect on the metallic coating. The use of kiln dried or appropriate dried timber species is therefore recommended for any situation where intimate contact between the metallic coated steel and timber is considered.

**NOTE** - *testing has shown that increased time of wetness is a major contributor to the accelerated corrosion of metallic coated steel when placed in contact with timber. As such, galvanised steel, ZINCALUME® steel and TRUECORE® steel must not be placed in contact with green/unseasoned timbers or timbers that are likely to retain moisture as a result of the surrounding environment.*

Some preservative treatments for wood can have an adverse effect on the metallic coated steel with which it is in contact. Timber treated with acidic preservatives of copper chromium arsenic type can be severely corrosive to the majority of the metallic building components. The presence of soluble salts (eg sodium sulphate) derived from the treatment process, will contribute to the corrosion mechanism by increasing ionic conductivity. The time of wetness of the metal surface contributes to the overall corrosion mechanism. The further development of micro galvanic cells (ie dissimilar metal corrosion) at the metal surface may occur due to the plating of metallic copper arising from the timber treatment. Such deposition will significantly contribute to the corrosion of bare steel, galvanized steel, ZINCALUME® steel zinc/aluminium alloy-coated steel, TRUECORE® steel, and aluminium materials both treated and untreated.

Corrosion of metals (ie fasteners) embedded in timber is known to take place when the timber moisture content exceeds 17% moisture. This situation is likely to occur as a result of humid tropical environments leading to entrapped condensation (ie wet timber). It can also arise from sub-standard detailing during construction, green/unseasoned timber or timber which is constantly moist.

Copper/chrome/arsenic (CCA) timber cladding used in a run-off situation, can result in a corrosive leachate from the timber containing copper, which if it contacts galvanized, ZINCALUME® or TRUECORE® steel will promote corrosion. BlueScope Steel Limited specifically recommend against the use of treated timbers of this type for high moisture situations such as roof and ceiling battens, composite fence constructions and built up flooring or external decking which may utilise a metallic coated steel structural support system.

If CCA treated timbers must be used then the timber and/or steelwork should be sealed by fully painting the material prior to installation.

**NOTE** - *there are a large number of treated timbers available and as such BlueScope Steel are not in a position to comprehensively test all timbers. Therefore, BlueScope Steel are unable to advise of the suitability for use with BlueScope Steel products and would recommend against their use unless the timber treatment is examined closely for possible detrimental effects on metallic coupled items prior to general specification and application of the material.*

Nail plates are commonly used to fabricate wooden truss components. BlueScope Steel recommend that the timber must be seasoned or kiln dried prior to use. Some end use environments will require the use of heavier coating mass or more corrosion resistant coatings to prevent long term degradation.

**Figure 1:** Example of Corrosion that results from contact of CCA Treated Timber with Galvanized Purlins



The information and advice contained in this Bulletin is of a general nature only, and has not been prepared with your specific needs in mind. You should always obtain specialist advice to ensure that the materials, approach and techniques referred to in this Bulletin meet your specific requirements.

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