

Contact with timber

Green or unseasoned timber should not come into contact with galvanised steel, COLORBOND® steel, ZINCALUME® 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 appropriately 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, COLORBOND® 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 (e.g. 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 (i.e. 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, galvanised steel, COLORBOND® steel, ZINCALUME® steel, TRUECORE® steel and aluminium materials both treated and untreated.

Corrosion of metals (i.e. 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 (i.e. wet timber). It can also arise from sub standard detailing during construction, green/unseasoned timber or timber which is constantly moist.

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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 galvanised steel, COLORBOND® steel, ZINCALUME® steel or TRUECORE® steel will promote corrosion. BlueScope 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 are not in a position to comprehensively test all timbers. Therefore, BlueScope are unable to advise of the suitability for the 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 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 galvanised purlins.

