

# **STUDY REPORT**

**SR 241 A(2011)**

## **Corrosion of Fasteners in Treated Timber**

### **Appendix**

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The work reported here was funded by BRANZ from the Building Research Levy,  
whose logo is shown above.

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# **Corrosion of Fasteners in Treated Timber - Appendix**

## **BRANZ Study Report SR 241A**

**Z.W. Li N.J. Marston and M.S. Jones**

### **Reference**

Li ZW, Marston NJ and Jones MS. 2011. 'Corrosion of Fasteners in Treated Timber - Appendix'. *BRANZ Study Report 241*. BRANZ Ltd, Judgeford, New Zealand.



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## APPENDIX – PHOTO GALLERY

Nails and screws embedded into timbers after one-, two- and three-year exposures were tested with corrosion rate measurement and surface morphological characterisation. Based on the results obtained, BRANZ believes that a three-year exposure is not sufficient to determine the long-term durability (e.g. 15 and 50 years as required by NZBC) of fastening and/or fixing components in treated timbers. The gate-shaped structures were therefore not completely dismantled to retrieve all the components and they are exposed at Judgeford and Oteranga Bay for future characterisation.

In this section, images showing the surface condition of bolts, brackets, nail plates and flashings after three years of exposure at Judgeford and Oteranga Bay were then presented to give the readers a rough picture on their deterioration. However it must be emphasised that these photos could only show the corrosion attack to the surface directly exposed to the atmosphere. The influence of timber treatment (i.e. the condition of the surface contacting timber) could not be revealed properly.

### A.1 Metallic Fixing Components Exposed at Judgeford

The following images showing the hardware exposed at Judgeford site for three years.

#### A.1.1 Mild Steel Components

##### A.1.1.1 Untreated Timber



### **A.1.1.2 H3.2 CCA Treated Timber**



### **A.1.1.3 H4 CCA Treated Timber**







#### **A.1.1.4 H3.2 CuAz Treated Timber**



### **A.1.1.5 H4 CuAz Treated Timber**



### **A.1.1.6 H3.2 ACQ Treated Timber**







### **A.1.1.7 H4 ACQ Treated Timber**



## A.1.2 Galvanised Steel Components

### A.1.2.1 Untreated Timber





### A.1.2.2 H3.2 CCA Treated Timber





### A.1.2.3 H4 CCA Treated Timber



### A.1.2.4 H3.2 CuAz Treated Timber





### A.1.2.5 H4 CuAz Treated Timber



### A.12.6 H3.2 ACQ Treated Timber





### A.1.2.7 H4 ACQ Treated Timber



## **A.1.3 Stainless Steel Components**

### **A.1.3.1 Untreated Timber**





### A.1.3.2 H3.2 CCA Treated Timber



### A.1.3.3 H4 CCA Treated Timber





### A.1.3.4 H3.2 CuAz Treated Timber

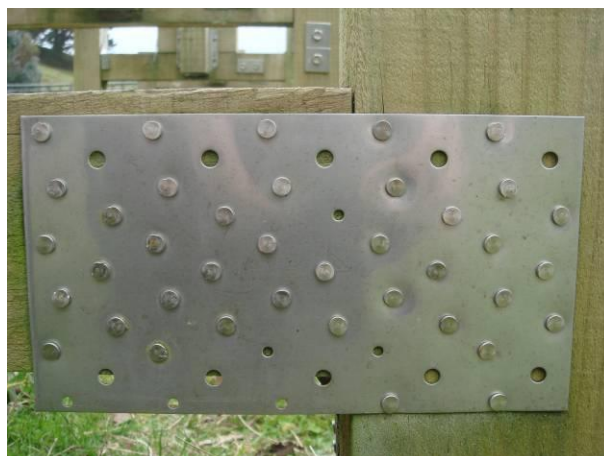


### A.1.3.5 H4 CuAz Treated Timber

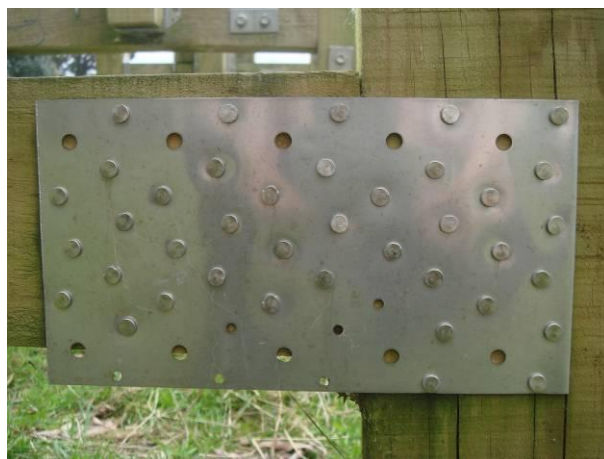




### A.1.3.6 H3.2 ACQ Treated Timber



### A.1.3.7 H4 ACQ Treated Timber





## **A.2 Metallic Fixing Components Exposed at Oteranga Bay**

The following images showing the hardware exposed at Oteranga Bay for three years.

### **A.2.1 Mild Steel Components**

#### **A.2.1.1 Untreated Timber**



#### **A.2.1.2 H3.2 CCA Treated Timber**





### **A.2.1.3 H4 CCA Treated Timber**





#### **A.2.1.4 H3.2 CuAz Treated Timber**



#### **A.2.1.5 H4 CuAz Treated Timber**





### **A.2.1.6 H3.2 ACQ Treated Timber**



### **A.2.1.7 H4 ACQ Treated Timber**





## **A.2.2 Galvanised Steel Components**

### **A.2.2.1 Untreated Timber**



### **A.2.2.2 H3.2 CCA Treated Timber**





### A.2.2.3 H4 CCA Treated Timber





#### A.2.2.4 H3.2 CuAz Treated Timber



### A.2.2.5 H4 CuAz Treated Timber





### A.2.2.6 H4 ACQ Treated Timber



## **A.2.3 Stainless Steel Components**

### **A.2.3.1 Untreated Timber**





### A.2.3.2 H3.2 CCA Treated Timber



### A.2.3.3 H4 CCA Treated Timber





#### A.2.3.4 H3.2 CuAz Treated Timber



### A.2.3.5 H4 CuAz Treated Timber





### **A.2.3.6 H3.2 ACQ Treated Timber**



### **A.2.3.7 H4 ACQ Treated Timber**

