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Four year inspection of a comparative trial of accelerated H3 decay test method

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Four year inspection of a comparative trial of accelerated H3 decay test method

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by

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Executive Summary

The registration of new wood preservatives for H3 (outdoor above-ground) requires efficacy data from field tests, and comparisons can be made with established reference preservatives when the quarter-H3 reference preservative (usually CCA) reaches less than 70% mean soundness. Currently, even in the wet tropics, it can take seven years before there has been sufficient decay to allow comparisons, which stifles innovation. The objective of this project was to find a faster and more reliable above-ground H3 test method. The trial was installed at five sites (three in Australia, two in New Zealand), where two of the 'sites' were in Accelerated Field Simulators (AFSs). Twelve test methods were examined, some established and others developed for the project. Some methods had specimens placed near-to-ground while others were raised on racks. In two methods, feeder blocks pre-inoculated with laboratory-raised fungi were placed next to test specimens in an effort to accelerate decay. The treatments examined were CCA, copper chromate, alkaline copper high quat (AChQ), copper azole, azoles, kerosene, boron, TBTN, and copper naphthenate. Untreated *Corymbia maculata* heartwood was included for natural durability. Inspection was annual for four years.

The relative order of test site severity was Innisfail (most severe), Rotorua AFS, Rotorua, Clayton AFS and Clayton. The only H3 'natural' test methods (excludes AFS or pre-inoculated tests) where quarter-H3 CCA-treated *P. radiata* had reached less than 70% soundness were at Innisfail for the rot box after 2 years, the deck-on-grass and embedded tests after 3 years, and the ground proximity, painted embedded and double layer tests after 4 years. While the rot box was fastest, it gave an unusual relative order of failure. The most reliable tests that followed the average relative order of failure for all tests at all field sites were the deck-on-grass and ground proximity tests. The most reliable 'raised' test was the embedded test. Atypical results arose from tests pre-inoculated with laboratory fungi, especially at Rotorua where *Oligoporus placenta* was used. The in-ground stake tests, and trials in the AFS's at Clayton and Rotorua, also gave atypical relative orders of failure. Caution should be applied when using these artificial methods in H3 testing for registration purposes. Tests placed near-to-ground may be more reliable than 'raised' tests because they become inoculated by a wider range of fungal species from soil/leaf debris than in 'raised' tests where conditions are harsher and fewer species establish. Also, once those species establish in 'raised' tests they can then dominate the test and impose their own peculiar tolerances upon the results. This project has potentially reduced testing times from seven to three years at Innisfail. It is still beneficial to have more than one test type or test site. The most reliable and fastest tests are the deck-on-grass, ground proximity and embedded tests. The salient findings and methods discovered by this research will be submitted to the next update of the Australasian Wood Preservation Committee's 'Protocols for Assessment of Wood Preservatives'.

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Introduction

The wood preservation and timber durability market is going through a period of rapid change, where new preservatives and protection systems need to be bought onto the market quickly. While laboratory tests and screening can be completed in a relatively short time (usually within six months), field tests are also needed to prove preservative efficacy because timber is often used in structural applications where reliable long-term performance is crucial. The designs for in-ground H4 testing are well established, involving stakes or posts partially buried vertically in the soil, or horizontally under the soil in fire prone areas (Lenz et al., 1992). A variation for H4 decay testing is the Accelerated Field Simulator (AFS), which is a humid heated room containing troughs of soil in which the stakes can be placed for exposure to a higher decay hazard (Cookson et al., 2000).

There is much greater variety in outdoor above-ground H3 decay testing (Fougerousse, 1976; De Groot, 1992), with three designs listed in the Australasian Wood Preservation Committee's (AWPC) protocols for preservative evaluation in Australia and New Zealand (decking, L-joint and flat panel tests) (AWPC, 2007). According to the AWPC, the H3 decay field test should include a reference preservative at its H3 approved, half and quarter retentions. Comparison with the candidate preservative can be made when the quarter retention of the H3 reference preservative, such as CCA, has significant biodeterioration (less than 70% mean soundness). To shorten field test durations, high hazard test sites are usually selected. In Australia, the highest hazard for above-ground decay occurs in the wet tropics of Queensland, where for example, Innisfail experiences an average rainfall of some 3.6 metres per year. Nevertheless, H3 decay trials are the slowest of the test procedures listed in the AWPC protocols, and even at Innisfail can take 6-7 years before the necessary level of decay will occur in the quarter retention of the reference preservative. Such a long testing duration can stifle innovation, and impedes commercial interest in the development of the H3 market.

One of the main issues to be aware of in H3 decay testing is the wide range of exposures that can occur within that hazard class. The extremes are probably best illustrated by considering window joinery and decking. Window joinery and mill work is usually painted and joints detailed to shed water, while decking is usually exposed and unpainted. The effect is highlighted with preservatives based on tributyl-tin (TBT), which have given good service life to window joinery, but concern when exposed in decking trials (Cookson and Hedley, 2005). TBT suffers degradation from ultraviolet radiation (Jermer et al., 1983; Archer and Meder, 1987), which can be alleviated to some extent by painting. This feature explains why at Hilo, painted TBTO-treated L-joints performed well, while similar unpainted timber did not (Archer et al., 1989).

Another difference is that basidiomycete fungi have greater relative importance in H3 than H4 exposure (Preston et al., 2000). H4 in-ground and cooling tower timbers are often significantly affected by soft rotting fungi as well. Many basidiomycetes respond well to laboratory culturing and cause rapid mass loss. Therefore, the soil-block decay test is useful for giving some information on the comparative performance of H3 preservatives, and can act as a screen to exclude some of the weaker preservative candidates from further testing. However, care is needed when interpreting laboratory decay tests and they are not a substitute for field testing. The soil-block test does not include natural weathering or UV exposure (so TBT performs well). Also, as pure mycelial cultures are mostly used, some fungi can decay treated timber more readily than when they are in a natural environment and in competition with other fungi. Therefore, copper-based preservatives often perform worse against copper-

tolerant fungi in laboratory bioassays than in the field, where inoculation may need to occur from spores that are more copper sensitive (Choi et al., 2002). Nevertheless, there is the potential to artificially accelerate decay in the field by including inoculation with laboratory grown basidiomycetes.

One example of the use of pure basidiomycete cultures in a 'field' trial is for the H1.2 hazard that occurs in New Zealand. This hazard is for interior wall framing that becomes excessively wet through rain penetration of the building envelope. The 'wall frame cavity test' simulates this exposure (Hedley et al., 2002). It involves a model stud wall built from test timbers, which is clad on either side to model an external wall. The unit is then inundated with water, and fungal inoculum placed inside the wall cavity. This is a relatively short term test, requiring a minimum of 12 months testing. While not a true H3 test, it shows that there may be some potential for the pre-inoculation of H3 field tests.

This research aims to develop and compare a range of H3 decay test methods likely to cause accelerated decay. The most likely way of accelerating decay is by maintaining dampness in test samples for longer periods. This may be achieved by increasing the proportion of water-trapping surfaces surrounding the test specimens. Another method for retaining moisture can be by painting and sealing several faces of the test specimens, although a problem here is that the choice of coating becomes a variable, and the effect of UV and weathering is reduced. Test units could be sprayed with water, although at some test sites this is impractical. 'Above-ground' test specimens in the AFS can be watered regularly, and could be placed outside over summer to obtain natural weathering (Cookson, 2010). As mentioned, acceleration could also be achieved by inoculating the test system with known wood decay fungi, rather than simply waiting for natural incursions.

This report describes the final, four year inspection of this accelerated H3 decay trial at five locations, Innisfail, Rotorua, Clayton, and AFS's at Clayton and Rotorua.

Methodology

Test sites

The test sites are:

1. Innisfail, at the Aeronautical and Maritime Research Laboratory, Palmerston Highway, Queensland. This is a wet tropical site.
2. Clayton near Melbourne, a cool temperate site.
3. Rotorua in New Zealand, a cool temperate site.
4. The AFS at Clayton, where incubation conditions are 28^{o}C and 85% relative humidity.
5. The AFS at Rotorua. This facility includes the 'termite house' where there is a constant temperature of 25^{o}C and 95% relative humidity. The termite house was used for the above ground exposures. There is also a region called the 'fungus cellar' where the temperature is 27^{o}C and relative humidity 85%. The fungus cellar was used for the in-ground stake trial at Rotorua.

Each year the exposures in both AFS's for the above-ground trials (not the in-ground stakes) will alternate between 9 months exposure inside the AFS, followed by 3 months field exposure during summer when test specimens will be subjected to natural weathering. In the first year however, timing was different as test specimens were ready for installation near the start of summer. If the pre-inoculated tests were placed directly outside during summer, the fungi may have died from desiccation. Therefore, AFS specimens were kept in the AFS for several weeks at Rotorua, and for 4.5 months at Clayton, before being placed outside on 5th December 2007 at Rotorua and 12th March 2008 at Clayton. These test specimens were returned to the AFS at Clayton on 3rd July 2008 and the AFS at Rotorua on 7th March 2008. Thereafter, the AFS exposed specimens at both sites were placed outdoors for the three months of summer, before being returned to the AFSs.

Test timbers and treatments

The main timber substrate used was *Pinus radiata*, obtained from Pine Solutions in Dandenong as MGP10 stock, 90 x 35 mm in 4.2 m lengths. It had a mean air dry density of 472 kg/m^3 (range 374-609 kg/m^3). The timber lengths were sorted and test specimens machined so that they contained sapwood only. Untreated *Corymbia maculata* heartwood was included in the trial, and was obtained from Burnetts Sawmill, Cran St, Bundaberg. It had a mean air dry density of 1080 kg/m^3 (range 930-1201 kg/m^3). Specimens with density less than 1000 kg/m3 tended to have paler colour to the higher density samples.

Pine clothes pegs, made in China, were bought from Bunnings Hardware in a pack of 150 pegs. The timber species was identified by Dr Jugo Ilic as being *Pinus massoniana* (Masson pine).

Test specimen dimensions varied according to the test exposure method employed:

- Flat panel test, 75 x 25 x 200 mm long (70 mm wide for *C. maculata*).
- Deck-on-grass, 75 x 25 x 300 mm long (70 mm wide for *C. maculata*).
- Raised deck placed approximately 1 metre above ground, 75 x 25 x 300 mm long (70 mm wide for *C. maculata*).
- Embedded test, 35 x 35 x 200 mm long.
- Embedded test, 35 x 35 x 200 mm long. Exposed surfaces painted.
- Embedded test pre-inoculated, 35 x 35 x 200 mm long.
- Rot box, 75 x 25 x 200 mm long (70 mm wide for *C. maculata*).
- Rot box pre-inoculated, 75 x 25 x 200 mm long (70 mm wide for *C. maculata*).
- Ground proximity test, 75 x 25 x 200 mm long (70 mm wide for *C. maculata*).
- Double layer test, 75 x 25 x 300 mm long (70 mm wide for *C. maculata*).
- In-ground stake test, 35 x 35 x 200 mm long.
- Peg test, pine clothes pegs, 72 mm long.

An overview of some of the trials installed is shown in Figures 1-2.

Figure 1. General view at Rotorua of double layer, decking and embedded tests upon installation.

Figure 2. General view at Rotorua of rot boxes, ground proximity (covered with black shade cloth) and flat panel tests (top right) on 5 December 2007, after rot boxes from the termite house were moved to the graveyard test area for summer exposure.

Moisture content

Three sets of untreated *P. radiata* test specimens were also exposed at Clayton, so that a set could be periodically removed and sectioned to determine their moisture content. There were 30 untreated specimens in the flat panel, embedded, rot box and ground proximity tests. Ten replicates from each test were removed during winter (9 months), a dry summer (15 months), and a wet summer (3.3 years).

To determine moisture content, each specimen was docked at their 50, 100 and 150 mm lengths to produce four quarters. Quarters were numbered consecutively from 1 to 4, where 1 was the metal tag end of the test specimen. Specimens were not removed from their frames unless they could be immediately docked and weighed to determine their initial wet masses. The quarters were then oven dried for two days, and their moisture contents determined. For the 3.3 year analysis, some of the quarters were also split in half, to give dorsal ('a') and ventral ('b') pieces, so that the moisture content of wood closest to the water-trapping regions of test frames could be determined. For the flat panel test, the bottom end (quarter no. 4) was split, to test the dorsal piece which rested against the water-trapping lip on the frame. In the ground proximity test, one of the inner quarters (no. 2) was split, so that the moisture content of the ventral piece resting directly on concrete block could be determined. A similar procedure was used for the rot box, although only those test specimens (one in each box) in the top layer was examined, as the other test specimens were fully enveloped by water-trapping surfaces. No additional sectioning was made to embedded test specimens, as the entire bottom quarter (no. 4) was already fully enveloped by water-trapping surfaces.

Test treatments

The majority of the trial examined an 'A' list of timbers and treatments, which were: Untreated heartwood of *C. maculata* (class 2 in-ground natural durability), water-treated *P. radiata* sapwood, and *P. radiata* sapwood treated with high flash kerosene (HFK) or one-quarter H3 retentions of CCA, AChQ (Alkaline copper high quat), azole LOSP and TBTN.

The 'B' list of treatments for exposure in the embedded tests at Innisfail and Rotorua only was: H3 retentions or potential H3 retentions of CCA, AChQ, Tanalith E, copper naphthenate (CuN), copper chromate (CC), boron (Solubor) and azole LOSP.

HFK was included as an example of a light oil treatment, and was obtained from Arch Wood Protection. The drum was labeled Mexcut H, and is a Shell product. It had a specific gravity of 0.80 at 15^{o}C, and a flash point at 78^{o}C. It contained 80% paraffins and napthenes, and 20% aromatics. A comparison of the specifications compared to AWPA P9 Type A is provided in Table 1.

Table 1: Comparison of AWPA P9 Type A oil and high flask kerosene (HFK).

Property	AWPA P9 Type A	HFK
50% volume distilling point (ASTM D-86)	254^{o}C min	245^{o}C min
90% volume distilling point (ASTM D-86)	307^{o}C min	360^{o}C min
Flash point (ASTM D-93)	>66^{o}C	>65^{o}C
Viscosity	3.46 cSt@38^{o}C min	3.524 cSt@40^{o}C min

The CCA used was Tanalith O (oxide), obtained from Arch Wood Protection. ICP analysis showed that it contained 9.2% Cu, 15.2% Cr and 12.4% As = 36.8% m/m TAE. For the quarter retention treatments, 32.27 g Tan O was made up to 20 L with tap water.

AChQ was obtained from Osmose, in two separate containers, i.e. 2 L of CAC (copper ammonium carbonate) and 1.5 L of DDAC (didecyl dimethyl ammonium chloride). The DDAC solution was analysed by Qld DPI&F and contained 40.5% m/m DDAC. To make 100 L of the one-quarter H3 treating solution, 360 ml CAC and 227 ml DDAC was made to 100 L. The elemental copper content of this treating solution was analysed and contained 0.31% m/m copper. The H3 treating solution was made by making 320 ml CAC and 200 ml DDAC up to 20 L. The DDAC concentration in the treating solution was much higher than anticipated, hence the higher quat loading and the reason for calling it AChQ rather than ACQ. Wood treated from several 'charges' or separate treating runs were chemically analysed (Table 2) to confirm that a mistake had been made in the quat retention. Although over-treated with DDAC, the AChQ-treated specimens were still acceptable for this project as the aim was to compare test methods rather than re-confirm ACQ performance.

The LOSP azole solution was Vacsol Azure provided by Arch Wood Protection. Chemical analysis showed that it contained 0.48% w/v tebuconazole, 0.47% w/v propiconazole and 0.33% w/v permethrin. That is, it contained 9.5 g/L total azoles.

TBTN was provided by Osmose. The product was Osmose Lifewood H3 (235WR), and contained TBTN (5%, or 1.2% m/v tin), permethrin (2%), white spirit (>90%) and dichlofluanid (5%). The solution provided for this project was 235WR, diluted by Osmose to contain 0.38% m/v tin. Therefore, the other ingredients were also diluted to the same extent. This diluted treatment solution provided by Osmose was used directly to treat the test specimens.

Concentrated Tanalith E was obtained from Arch Wood Protection, and contained 12.4% m/m copper and 0.49% m/m tebuconazole, so that total active ingredients were 12.89% m/m. The H3 treating solution was prepared by diluting 222.07 g Tan E concentrate to 20 L with tap water.

Copper naphthenate was supplied by Arch Wood Protection, and contained 5.5% m/m elemental copper, but no insecticide, resin or waxes. This CuN product met AWPA standards (synthetic naphthenics were absent). The H3 treating solution contained 2.182 kg of the concentrated CuN stock solution made up to 15 kg with white spirit.

Copper chromate (CC) was prepared by adding 77.5 g of $CuSO_4.5H_2O$ with 77.5 g $K_2Cr_2O_7$ and making the solution up to 20 L with tap water (therefore, 41.8% = Cu and 58.2% = Cr). Chemical analysis showed that the treating solution contained 0.098% m/m elemental copper. CC is not an approved treatment in Australia, although a recent review showed that there is sufficient efficacy data demonstrating its effectiveness, except perhaps for H3 exposure in softwoods (Cookson, 2001). CC was tested at similar total active elements to H3 CCA.

The boron treatment used Solubor (= Timbor), which is $Na_2B_8O_{13}.4H_2O$ and contains 21% elemental boron. The treatment solution was made by adding 208.375 g Solubor to 20 L water. Chemical analysis of the treatment solution showed that it contained 0.22% m/m boron. Boron is not approved for outdoor exposure. It was included in the trial to quantify its performance compared to 'non-leaching' preservatives. It was tested at the approved H2 retention.

Treatment schedules

The metal treatment tray used was 102 x 31 x 29 cm high. Test specimens had a moisture content of about 10.5% before treatment. Test specimens were weighed immediately before and after treatment to determine solution uptakes and retentions.

The LOSP treatment cycle for azoles, CuN and TBTN was mostly an initial vacuum of -55 kPa for 5 minutes, introduction of preservative while maintaining vacuum (usually taking 10 mins), release of vacuum and immediately open the cylinder door to drain the solution, and then apply a final vacuum of -90 kPa for 30 mins. Note that the test specimens were raised about 40 mm on a wire rack during the final vacuum, to keep them above any treatment solution removed during the final vacuum. The mean LOSP uptake was 60 kg/m^3 (75 L/m^3). A similar treatment cycle was used for HFK, except that the initial vacuum was -80 kPa for 5 minutes. The mean HFK uptake was 115 kg/m^3.

The water based preservatives and treatments (tap water, boron, CCA, AChQ, Tan E, CC) were applied using an initial vacuum of -95 kPa for 30 mins, one hour at 1400 kPa, and no final vacuum. Specimens were removed from the treatment solution and lightly surface

blotted before weighing. Specimens that floated were noted, and were generally excluded from the field exposure trials. Mean solution uptakes were 650 kg/m^3 (150-160% m/m).

Clothes pegs were treated by threading those required onto a length of wire, and placing them in the treatment tray with other test specimens. They were not weighed before or after treatment. A set of 10 pegs from each treatment has been kept in the laboratory, and could be used for chemical analysis if required.

Some 5110 timber *P. radiata* specimens were treated, from which the required 2300 *P. radiata* test specimens were selected. The water-borne preservative treated test specimens chosen for exposure had retentions mostly within 10% of the nominal retentions. Greater variety of uptake was obtained with the LOSP treatments (due to reduced solution uptakes rather than 'saturation' treatments), so that retentions mostly within 15-20% of the nominal retentions were accepted for exposure, although for HFK variation was up to 25% even though 2.2 times as many specimens were treated as needed (805 specimens treated from which 370 specimens were selected). There were ten replicate test specimens of each timber and treatment at each site and for each exposure method.

Chemical analyses of treated wood

Three or five spare treated specimens were selected for chemical analysis. The specimens selected were usually those with solution uptake retentions just higher than those used for the exposure trials, so were well treated. Retentions similar to each other were also selected, to reduce variability. The specimens for analysis were sent to Queensland DPI&F, who pooled the specimens belonging to each set, and conducted the analyses (Table 2). Additional AChQ treated specimens were sent to Osmose in Buffalo, USA for chemical analysis as well.

Numbering and painting

One set of embedded test specimens (35 x 35 x 200 mm long) were painted. On 15-16 September 2007, one end was masked temporarily with 47 mm wide packaging tape (end to be embedded). One coat of British paints 'All in One' sealer primer undercoat was applied, followed by two coats of Dulux Weathershield, vivid white low sheen acrylic.

After preservative treatment, air drying and painting, test specimens were numbered by imprinting the numbers onto stainless steel Dymo tape (without adhesive, 12 mm x 6.4 m rolls). These tags were nailed with brass boat nails near one end of each test specimen. In Australia, test specimens were generally positioned with the outer growth rings of the tree facing down and therefore exposed to any water entrapment provided by contact with timber in the test frames.

All treatments and test specimen preparation occurred at CSIRO.

Table 2: Raw data for chemical analysis by Qld DPI&F.

Treatment	Size	Spec no.	Retn based on solution uptake TAE % m/m	Analysed retention % m/m		Variance from solution uptake %
Boron	200x35x35	B27	0.37			
		B31	0.42	B	0.326	
		B32	0.40			
		Mean	0.397	TAE	0.326	-17.9
Cu Cr	200x35x35	C1	0.36	Cu	0.171	
		C2	0.41	Cr	0.235	
		C50	0.39			
		Mean	0.387	TAE	0.406	+4.9
AChQ H3	200x35x35	D26	0.216 Cu, 0.50 DDAC			
		D30	0.213 Cu, 0.50 DDAC			
		D31	0.218 Cu, 0.51 DDAC			
		Mean	0.216 Cu, 0.50 DDAC		0.247 Cu, 1.04 DDAC	+14.4 Cu, +108% DDAC
AChQ q Charge 1	200x75x25	E171	0.063 Cu, 0.147 DDAC			
		E184	0.064 Cu, 0.149 DDAC			
		E226	0.064 Cu, 0.151 DDAC			
		Mean	0.064 Cu, 0.149 DDAC		0.063 Cu, 0.273 DDAC	-1.2 Cu, +83% DDAC
AChQ q Charge 2	200x35x35	E489	0.057 Cu, 0.134 DDAC			
		E496	0.057 Cu, 0.134 DDAC			
		E503	0.058 Cu, 0.135 DDAC			
		Mean	0.057 Cu, 0.134 DDAC		0.058 Cu, 0.336 DDAC	+1.8% Cu, +151% DDAC
AChQ q Charge 3	200x35x35	E605	0.058 Cu, 0.135 DDAC			
		E673	0.057 Cu, 0.133 DDAC			
		E688	0.058 Cu, 0.135 DDAC			
		Mean	0.058 Cu, 0.134 DDAC		0.057 Cu, 0.270 DDAC	-1.8% Cu, +101% DDAC
AChQ q	Mean of 3 charges					-0.4% Cu, +112% DDAC

Table 2 (continued): Raw data for chemical analysis by Qld DPI&F.

Treatment	Size	Spec no.	Retn based on solution uptake TAE % m/m	Analysed retention % m/m		Variance from solution uptake %
TBTN q	200x35x35	F460	0.05			
		F647	0.06			
		F651	0.05			
		F853	0.05			
		F861	0.05	Tin	0.041	
		Mean	0.052	TAE	0.041	-21.2
CCA q	200x35x35	G439	0.11			
		G517	0.11			
		G647	0.12	As	0.026	
		G686	0.11	Cr	0.045	
		G690	0.11	Cu	0.03	
		Mean	0.112	TAE	0.101	-9.8
CCA H3	200x35x35	H45	0.43	As	0.131	
		H55	0.43	Cr	0.183	
		H56	0.43	Cu	0.1	
		Mean	0.430	TAE	0.414	-3.7
Tan E H3	200x35x35	K12	0.26			
		K42	0.26	Cu	0.211	
		K53	0.26	teb	0.013	
		Mean	0.260	TAE	0.224	-13.8
Azoles q	200x35x35	L422	0.02			
		L564	0.02			
		L596	0.02			
		L618	0.02	Teb	0.01	
		L638	0.02	prop	0.008	
		Mean	0.020	TAE	0.018	-10.0
AzolesH3	200x35x35	M4	0.07			
		M17	0.07	Teb	0.025	
		M59	0.07	prop	0.022	
		Mean	0.070	TAE	0.047	-32.9
Cu N	200x35x35	U692	0.12			
		U717	0.12			
		U719	0.12	Cu	0.109	
		Mean	0.120	TAE	0.109	-9.2

Pre-inoculation

Pre-inoculated and colonized untreated *P. radiata* blocks were included in one aspect of the embedded and rot box tests. In Australia, half of the blocks were grown with the brown-rotting fungus *Gloeophyllum abietinum* (DFP 13851) and the other half with the white-rotting fungus *Perenniporia tephropora* (DFP 7904). In New Zealand, only brown-rotting fungi were

used, *G. abietinum* (a different isolate to the Australian *G. abietinum*) and *Oligoporus placenta*.

In Australia, fungi were grown in 12 stainless steel trays 370 x 225 x 95 mm high. A solution containing 1.2L of 2% agar and 1% malt extract was poured into each tray, covered with aluminium foil and autoclaved for 30 minutes. The trays were then placed in a sterile air bench to cool overnight. Each tray was inoculated with about 15 plugs of the appropriate fungus on 17 September 2007, and incubated at 25^{o}C.

Blocks for decay were 75 x 25 x 45 mm long and 35 x 35 x 45 mm long. Defects were allowed in these decay blocks. The blocks for decay, and plastic mesh, were sterilized by gamma irradiation.

After the fungi had grown sufficiently, a plastic mesh was placed upon the fungal mat. Sterilised blocks were placed end grain down upon the mesh and close packed within the trays on 24 September 2007. Pre-inoculated blocks were removed after five weeks (after four weeks for NZ grown fungi). *G. abietinum* showed good growth, with some mycelium on the top surfaces of blocks. Mycelium from *P. tephropora* was generally only 10 mm high on the sides of the blocks. For the Innisfail trials, pre-inoculated blocks were placed in two plastic bags according to fungal type and transported for installation with test specimens.

Bing^{TM} testing

Before installation, the Australian test specimens were packaged and sent to Queensland Department of Primary Industries and Fisheries (DPI&F) at Indooroopilly for sonic Bing^{TM} testing. The Australian test specimens were also Bing^{TM} tested after six months exposure (21-24 April 2008 at Clayton, 28 April-30 May 2008 at Innisfail), and after one, 1.5 and two years. Test specimens were Bing^{TM} tested just prior to them being probed with a knife for inspection. The results for this work are provided by Norton (2009).

Exposure methods

Flat panel test

Test panels were 75 x 25 x 200 mm (70 mm wide for *C. maculata*), and had a key hole cut before any treatment, which was an 8 mm diameter hole 40 mm from an end joined to a 4 mm wide slot 10 mm long.

Panels were hung from protruding flat head galvanized nails through the ‘key hole’, on a cross-batten (70 x 20 mm) of untreated spotted gum (*C. maculata*) or merbau (*Instia bijuga*) decking. Untreated ash eucalypt heartwood seasoned boards 65 x 19 mm were screwed to form an L-shape with similar timbers 31 x 31 mm, so that the bottom ends of panels rested in a trough (34 x 31 mm) upon the 31 x 31 mm timbers. In Australia, hardwood rather than pine was used to make the L-shaped troughs as while both timbers encourage brown and white rotting fungi (pine more so for brown rot) the hardwood lengths last longer on the frames. The frames were inclined at 45^{o} with the panels facing north for maximum UV exposure, although while exposed in the Clayton AFS the frames were laid flat. Panels were placed 10 mm apart within rows. At Innisfail, the timbers were attached to Dexion metal frames, while at the other locations they were attached to treated pine frames.

At Innisfail, test specimens were installed on 19 November 2007. Half (35) of the test specimens were placed on a relatively new frame installed six months earlier ('new frame'), while the other 35 panels were placed on a frame 4 y 9 months old ('old frame', Figure 3). There were five rows on each frame, and each row held one replicate of each A-list treatment, placed in random order.

Figure 3. Flat panel test installed at Innisfail on 'old frame'. The seven columns of test specimens on the right side of the frame are the test specimens for this project.

At Clayton (outdoors), test specimens were installed on 29 October 2007. The A-list panels were exposed on a ten year old frame (Figure 4). There were 14 specimens in each row, with two replicates of each treatment per row. A smaller new frame was made to accommodate the untreated *P. radiata* specimens that were to be used for moisture content determinations (Figure 5).

Figure 4. Flat panel test installed of A-list specimens at Clayton, on existing ten year old frame.

Figure 5. Flat panel test installed of water monitoring specimens at Clayton, on new frame.

At Rotorua, test specimens were installed on 16 November 2007 (Figure 6). Test specimens were attached through the keyhole with screws onto new H3 CCA-treated *P. radiata* 50 x 19 mm battens. The bottom ends of the test specimens rested on an L-shaped rebated rail of new untreated *P. radiata*, the rebate being approximately 50 x 20 mm. The samples were randomly arranged in two rows, with five samples from each treatment group in each row.

Figure 6. Flat panel test installed at Rotorua.

For Clayton AFS exposure there were four frames 600 mm wide and 740 mm deep. These could house seven panels in each row (Figure 7). For the A-list timbers in the AFS, one replicate was placed in each row. The tenth row of replicates was placed on the middle row of the fourth frame. The frames were installed in the AFS on 1 November 2007, and laid flat (Figure 8). They were placed outside on a concrete pad at Clayton on 12 March 2008, and bracing attached so that they were at 45^{o} and facing north. These test specimens were returned to the Clayton AFS on 3 July 2008, and laid flat.

Figure 7. One of the flat panel test frames installed at Clayton AFS.

Figure 8. Embedded test (foreground), rot box and flat panel test installed within steel troughs in the Clayton AFS.

Deck-on-grass

For the decking trials, each frame consisted of a middle bearer of 90 x 90 mm H4 CCA-treated *P. radiata*, and two side bearers 90 x 45 mm of H4 CCA-treated *P. radiata*. The bearers were kept in place with treated pine decking 70 x 20 mm nailed onto their ends. Test specimens rested upon a central 90 x 20 mm untreated *P. radiata* timber nailed onto the central bearer, and two 70 x 20 mm H3 ACQ-treated *P. radiata* timbers nailed onto the side bearers (Figure 9). The end grain of the test specimens abutted untreated 70 x 20 mm *P. radiata* nailed on edge. The test specimens were not pre-drilled for fixing. They were separated by about 5 mm with the aid of galvanised roofing nails (3-4 mm diameter), that should also prevent the test specimens from dislodging from frames during high winds. To allow test specimens to be removed for inspection, the two side pieces of untreated 70 x 20 mm *P. radiata* can be unscrewed from the side bearers, and test specimens slid from under the roofing nails.

Figure 9. Mock up of decking trials in Australia.

At Innisfail, test specimens were installed on sloping ground on 21 November 2007. There were two frames that each held two rows of test specimens (Figure 10). One longer row held 20 test specimens in random order (within sets of 7 timbers/treatments), and the shorter row held the remaining 15 test specimens.

Figure 10. Deck-on-grass, after three months at Innisfail.

At Rotorua, the decks on ground were installed 15 November 2007 on a relatively flat grassy area. Two 100 x 75 mm outer bearers and a central 100 x 100 mm bearer were placed on the ground, and spacers 100 x 50 mm nailed to each end. Boards 75 x 19 mm were nailed to the top of the bearers. On the outer 100 x 75 mm bearers these were H3, CCA-treated *P. radiata*. On the central 100 x 100 mm bearer they were untreated *P. radiata*, one either side of a 50 x 19 mm strip of untreated *P. radiata*, which was fixed on edge. A 70 x 20 mm H3 CCA-treated *P. radiata* batten was nailed along the outer side of the 100 x 75 mm bearers with the top edge at approximately the same height as the upper surface of the decking specimens.

The test specimens were installed in two rows with five samples from each treatment group randomly arranged in each row. The samples were loosely held in place on the central bearer with 75 mm long galvanised "springhead" (roofing) nails and on the outer bearer with 50 mm galvanised "hex headed" screws. The samples were 5-6 mm apart with the fastenings in the spaces between samples (Figure 11).

Figure 11. Deck-on-grass installed at Rotorua.

Raised deck

The frames for raised decks at the respective sites were constructed in the same manner as for the decks on ground.

At Innisfail, test specimens were installed on 21 November 2007. Two sets of decks (each with two rows) were placed on Dexion frames (Figure 12). Due to the slope at Innisfail, the ends of one frame were 94 and 117 cm above ground, while the ends of the second frame were 120 and 137 cm above ground.

Figure 12. Raised decking trial (on left), and embedded test (on right) after three months at Innisfail.

Frames at Rotorua were installed 15 November 2007, and the decks were approximately 1 m above the ground (Figure 13).

Figure 13. Raised deck installed at Rotorua.

Embedded test

The embedded test has similarities to the modified L-joint test described by Van Acker and Stevens (2003). A test specimen 35 x 35 x 200 mm long is embedded deeper than usual into untreated feeder boards of *P. radiata* (to encourage brown rot) and a non-durable hardwood such as *Eucalyptus regnans* (to encourage white rot), and to increase water trapping surfaces. The feeder boards were 90 x 35 timber lengths (stud size), with a deep rebate (60 x 18 or 19 mm) cut along one edge so that when bolted together they formed a deep U-shaped groove within which the test specimens were inserted (Figure 14). The galvanised bolts were 75 mm long and 6-8 mm in diameter, and five were needed when U-shaped holders were 2.4 m long. The bolt head was countersunk into the hardwood using a 25 mm diameter drill. These bolts can be loosened during inspections. Two untreated separators 35 x 35 x 45 mm long of *P. radiata* were inserted into the groove, one upon the other with grain horizontal, between each test specimen so that the bottom 60 mm or more of the test specimen was fully enclosed by untreated wood. In New Zealand these separators were single pieces 70 x 35 x 45 mm long.

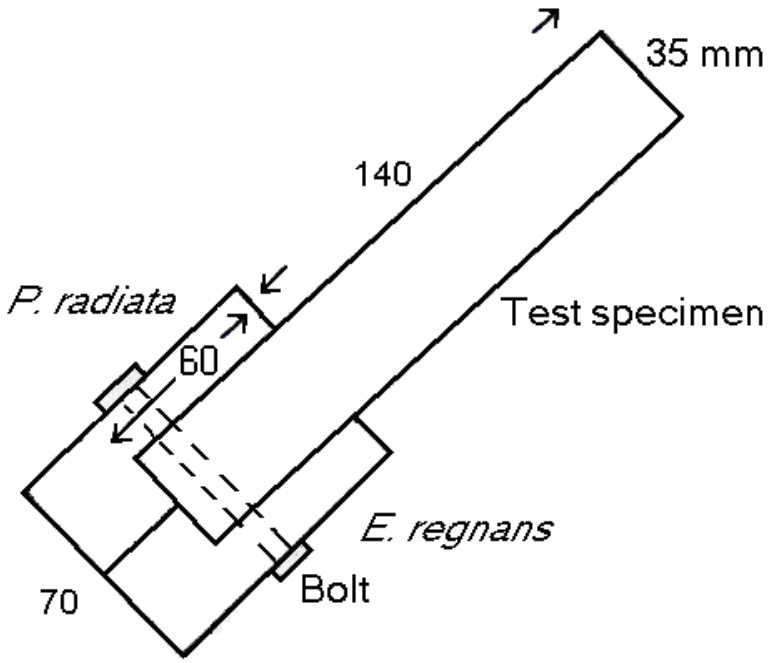

Figure 14. Profile of embedded test.

Two U-shaped holders rested within each V-shaped frame made from a 90 x 90 mm horizontal beam (100 x 100 mm at Rotorua) of H4 CCA-treated *P. radiata*. To support the U-shaped holders, two lengths of 300 mm wide fibre cement sheet 4.5 mm thick were nailed onto the beams using galvanised clouts. At Innisfail and Clayton, timber supports 70 x 19 x 250 mm long were nailed over the cement sheet at right angles to the beam, to support the weight of the cement sheet. The U-shaped holders rested at 45 degrees, so that rain would drain into the joint area. Because of the tilt, the hardwood piece was below the softwood. Alternatively, test specimens could be positioned vertically if the test area is limited, as

occurred in the AFS's at Clayton and Rotorua. The painted test specimens were inserted with the painted ends exposed, so the unpainted ends were hidden within the U-shaped holders.

At Innisfail, the frames were installed on 20 November 2007, and were 2.1 m long. They were fitted about one metre above ground on Dexion frames (Figure 15). The A-list, B-list and painted test specimens were randomised together within each frame.

Figure 15. Embedded test installed at Innisfail, painted specimens randomized with A- and B-list test specimens

At Clayton one frame was 2.4 m and the three other frames were 0.6 m long. They were placed directly on a concrete pad for exposure on 29 October 2007 (Figure 16).

Figure 16. Embedded test installed at Clayton., 2.4 m long

At Clayton AFS the holders were 0.6 m long, and were installed in the AFS on 1 November 2007. They were placed outside on a concrete pad at Clayton on 12 March 2008, but not in V-shaped holders. The test specimens were therefore orientated vertically. These test specimens were returned to the Clayton AFS on 3 July 2008.

It was found that the top edges of the U-shaped holders began to flair with weathering, so the enclosure of the test specimens was not as snug as sought. Therefore, after 3-4 months at Clayton, both the outdoor (19 March 2008) and AFS (12 March 2008) embedded test frames had their bolts moved halfway up the U-shaped holders (i.e., new holes were drilled through the bottom separators as well). At Innisfail, this change was made on 19 August 2008.

At Rotorua, the frames were installed in the field on 22 November 2007 and were mostly 2.4 m long. The V-shaped frames were checked into posts approximately 1 metre above the ground (Figure 1). A 15 mm thick batten was also fixed along the upper edges of the fibre cement on the inside of the "V", upon which the top ends of test specimens could rest. Plywood triangles 10 mm thick were nailed to the ends of the beams and the battens along the top edge of the fibre cement sheet. These have drain holes cut on two sides. The test specimens were exposed in U-shaped holders made from locally grown *E. regnans* and *P. radiata* sapwood. Half of the holders were set in the racks with the *P. radiata* strip upwards while the others have the *E. regnans* strip upwards. The U-shaped holders were placed under water spray for 1.5 hours prior to positioning on the exposure frames. The painted test specimens were placed in separate frames to the unpainted test specimens.

At Rotorua AFS, the U-shaped holders were 1.2 m long and were placed under water spray for 1.5 hours prior to positioning on the exposure frames in the termite house on 22 November 2007 (Figure 17). On 5 December 2007 the holders were removed from the termite house and installed in the graveyard racks for three months summer exposure. They were returned to the termite house on 7 March 2008.

Figure 17. Embedded tests on racks in Rotorua AFS.

Pre-inoculated embedded test

The separators placed between test specimens in the U-shaped holders for the pre-inoculated embedded test were two rows of 35 x 35 x 45 mm long untreated *P. radiata* at all sites. The bottom (deepest) row of separators was those that had been pre-inoculated. At Innisfail and Clayton AFS the fungi were *P. tephropora* and *G. abietinum*, while at Rotorua *P. tephropora* was replaced with *O. placenta*. These fungi were alternated within the holders, so that each test specimen was exposed to two different fungal species (Figure 18). Inoculated frames were installed separately to the uninoculated frames.

Figure 18. Pre-inoculated embedded test to be installed in the Clayton AFS. Top holder shows bottom layer of separators pre-inoculated with BR (brown rot) or WR (white rot). Lower holder shows the same specimens (photo cut and pasted), but with the top layer of uninoculated separators positioned.

At Innisfail, the frames were installed on 20 November 2007, and were 2.1 m long. They were fitted about one metre above ground on Dexion frames (Figure 19).

Figure 19. Pre-inoculated embedded test three months after installation at Innisfail, separate to uninoculated frames.

At Rotorua, the frames were installed in the field on 22 November 2007 and were mostly 2.4 m long. The U-shaped holders were placed under water spray for 1.5 hours prior to positioning on the exposure frames (Figure 20).

Figure 20. Rot boxes and embedded tests (pre-inoculated or not) at Rotorua under water spray for 1.5 hours prior to placement in the AFS or field.

The U-shaped holders for Clayton AFS were 0.6 m long, and were stacked in layers with test specimens vertical, within a stainless steel trough. They were not placed within V-shaped frames. When placed for outdoor summer exposure, the U-shaped holders were placed in the

same orientation directly upon the concrete pad. The specimens were placed in the AFS on 1 November 2007, outdoors on 12 March 2008, and returned to the AFS on 3 July 2008.

Figure 21. Pre-inoculated embedded test at Rotorua AFS when installed for summer exposure in graveyard on 5 December 2007. Note mycelium from the pre-inoculated blocks spreading up over the surface of the holders.

At Rotorua AFS, the U-shaped holders were 1.2 m long and were placed under water spray for 1.5 hours prior to positioning on the exposure frames in the termite house on 22 November 2007. On 5 December 2007 the holders were removed from the termite house and installed in the graveyard racks for three months summer exposure (Figure 21). They were returned to the termite house on 7 March 2008.

Rot box

The rot box was designed to both maximize water entrapment and to surround each test specimen with untreated wood that would encourage the establishment of decay fungi. Test specimens do not touch other test specimens directly, except perhaps at their corners. The sides of the open-topped box was made with by nailing two rough sawn H3 CCA-treated *P. radiata* (H4 CCA in NZ) 150 x 24 x 650 mm long to two pieces 445 mm long. The box needed to be large enough to accommodate swelling by the test specimens. In New Zealand, the internal dimensions of the boxes were 575 x 445 mm. Untreated merbau (kwila, *I. bijuga*) decking or H3 ACQ-treated *P. radiata* decking 70 x 20 mm was then nailed to the bottom, with 5-10 mm gaps between the decking to allow for drainage. Inside the box was lined with loose 20 mm thick untreated *P. radiata*, with pieces 140 mm wide on the sides and 70 mm wide on the floor (Figure 22).

Figure 22. Rot box lined with untreated *P. radiata*, prior to placement of test specimens.

The test specimens 75 x 25 x 200 mm long were installed with seven in each layer, in two rows, four in one row and three in the other. In each layer test specimens and untreated *P. radiata* feeder blocks of similar size were alternated so that test specimens were only in immediate contact with untreated *P. radiata* (Figure 23). The layout in the layers was also alternated so that test specimens were in contact with untreated *P. radiata* in the layers above and below. There was one test specimen from each A-list treatment group, randomised in each layer. Each box contained five layers, or 35 test specimens and 35 feeder blocks. There were two boxes at each site, and another two if pre-inoculated blocks were to be exposed as well. At Clayton, some of the untreated *P. radiata* feeder blocks were to be used for moisture content determinations.

Figure 23. Rot box installed at Clayton.

In Australia, some rot boxes became too tight when specimens swelled so that the top layer buckled slightly. Therefore, some of the side lining pieces of 20 mm thick untreated *P. radiata* were replaced with 15 or 10 mm thick untreated *P. radiata*. In future design, the boxes should be made a little larger again.

One end of each box (except during the AFS exposures) was raised slightly. As the top layer would receive the majority of UV exposure, and the lower layers should have greater moisture, the top layer will be rotated to the bottom after each annual inspection. The lower layers of timber became quite damp (perhaps excessively damp), so after the first year inspection, a sheet of nylon flywire was used to separate each layer slightly (a practice suggested by Prof. Holger Militz).

Rot boxes were installed on concrete pads at Clayton on 29 October 2007 (Figure 23), and Innisfail on 19 November 2007 (Figure 24). The Clayton AFS rot boxes were installed in the AFS on 1 November 2007 (Figure 25), outdoors on 12 March 2008, and back in the AFS on 3 July 2008.

Figure 24. Rot boxes installed at Innisfail. Left box is pre-inoculated.

Figure 25. Rot box installed at Clayton AFS, resting upon a flat panel frame. Showing bottom rows in trough upon which other tests will be stacked.

At Rotorua the ground was covered with plastic weed mat and 6 mm thick sheets of fibre cement. The boxes were placed on top of the fibre cement sheets on 5 December 2007 with a 45 mm thick bearer at one end to provide a slight slope, so that water could drain more readily out of the boxes (Figure 26). Rot boxes were installed in the Rotorua AFS termite house on 22 November 2007, placed outdoors on 5 December 2007, and returned to the termite house on 7 March 2008. At Rotorua, the rot boxes were watered for 1.5 hours prior to installation.

Figure 26. Rot boxes installed at Rotorua. The two boxes on the right were pre-inoculated.

Pre-inoculated rot boxes

In the pre-inoculated rot boxes the 75 x 25 mm untreated *P. radiata* separators between test specimens were only 110 mm long. A 75 x 25 mm block, 45 mm long was placed at either end of each separator. In Australia, the blocks were pre-inoculated with *P. tephropora* at one end and *G. abietinum* at the other. The arrangement of the two decay fungi blocks was alternated through each layer and between layers (Figures 27-28). In NZ, *O. placenta* replaced *P. tephropora.*

Figure 27. Bottom layer of test specimens and pre-inoculated blocks for Clayton AFS rot box. WR = white rot and BR = Brown rot.

Figure 28. Second bottom layer of test specimens and pre-inoculated blocks for the Clayton AFS rot box, alternating with the bottom layer. WR = white rot and BR = Brown rot.

Pre-inoculated rot boxes were installed on a concrete pad at Innisfail on 19 November 2007 (Figure 24). Pre-inoculated rot boxes were installed in the Clayton AFS on 1 November 2007 (in a separate trough to those not inoculated), outdoors on 12 March 2008, and back in the AFS on 3 July 2008. At Rotorua the ground was covered with plastic weed mat and 6 mm thick sheets of fibre cement were placed on top of that. The boxes were placed on top of the fibre cement sheets on 5 December 2007 with a 45 mm thick bearer at one end to provide a slight slope, so that water could drain out of the boxes. Rot boxes were installed in the Rotorua AFS termite house on 22 November 2007, placed outdoors on 5 December 2007 (Figure 29), and returned to the termite house on 7 March 2008. At Rotorua, the rot boxes were watered for 1.5 hours prior to installation.

Figure 29. Pre-inoculated rot box from the Rotorua AFS after moving to the graveyard for summer exposure. Mould patches and *O. placenta* mycelium have developed on untreated separators and some of the test specimens.

Ground proximity test

In Australia, the ground proximity test utilised Hebel blocks from CSR. These are light weight 600 x 200 x 100 mm thick blocks, and were coloured white. Twelve blocks at each site (Innisfail and Clayton) gave pads 1.2 x 1.2 m. At Innisfail, there were five rows each holding 13 test specimens, and a sixth bottom row holding five test specimens (total of 70 test specimens). At Clayton, the 70 A-list test specimens were interspersed with the 30 untreated *P. radiata* water monitoring test specimens (total of 100 test specimens). On the main 1.2 x 1.2 m pad, there were 15 test specimens per row. There was also a smaller pad 0.6 x 0.8 m at Clayton, needed to hold the additional specimens. These additional Hebel blocks were coloured pink.

The test specimens were placed upon the concrete block pads, and approximately 5-10 mm separated each test specimen. Shade cloth (70% UV shade rating) was then positioned over the exposure pad, and nailed to the top edge of a frame made from 150 x 25 mm H3 CCA-treated *P. radiata*. The shade cloth was therefore about 25 mm above the test specimens. The Clayton specimens were installed 29 October 2007 on flat ground (Figure 30), and the Innisfail test specimens were installed 22 November 2007 on sloping ground (Figure 31).

Figure 30. Ground proximity test installed at Clayton (shade cloth covers removed).

Figure 31. Ground proximity test after three months at Innisfail.

The ground proximity test at Rotorua was installed 15 November 2007 on a relatively flat grassy area adjacent to the flat panel rack. Plastic weed mat was placed over the ground (not done in Australia) and two layers of 40 mm thick pumice/cement slabs (390 x 190 mm) were placed on the mat. The samples were arranged in five rows of 14 samples, two samples from each treatment group randomly arranged in each row (Figure 32). There was a 5-10 mm wide gap between all samples. The test was covered by 70% plastic shade cloth on a 150 mm high, H3 CCA-treated *P. radiata* frame.

Figure 32. Ground proximity test at Rotorua, with shade-cloth frame removed.

Double layer test (modified)

In the double layer test all replicates of the same treatment are close stacked together, rather than being randomised with other treatments (Rapp and Augusta, 2004). The double layer test requires 11 specimens per treatment, with 6 on the bottom row and 5 staggered by half a width on the top row (Figure 33). In this trial, the eleventh specimen (lacking a metal number tag) was one of the rejected outliers in the batch used to obtain test specimens. The test specimen dimensions used here are different to what is recommended for the double layer test, to minimise the number of test block sizes in this comparative trial. Weed mat was placed on the ground under the frames to prevent grass growing through, which differs to the deck-on-grass trial. Bricks 100 mm thick were placed on the weed mat, onto which was laid a frame of three 90 x 90 mm H4 CCA-treated *P. radiata* bearers. H3 CCA-treated *P. radiata* 150 x 25 mm was nailed to the bearer ends to maintain their positions (Figure 34). Untreated *P. radiata* 70 x 20 mm were nailed on their edge to the CCA-treated bearers. The test specimens were placed directly on the CCA-treated bearers, with their end grain abutting the untreated pine. Each set of test specimens were separated using one untreated 75 x 25 x 300 mm *P. radiata* separators in the bottom row, and two as a continuation of the top row.

Figure 33. Mock up of double layer test, showing 11 specimens (10 test specimens, and one spare).

Figure 34. Double layer test after three months at Innisfail.

To accelerate decay, the test specimens were covered with shade cloth. The shade cloth frame was made of two sets of 150 x 25 mm H3 CCA-treated *P. radiata* (total height 300 mm). Shade cloth (70% UV shade rating) was nailed to its top edge. At Innisfail, this test was installed on 20 November 2007 (Figure 35).

Figure 35. Double layer test installed at Innisfail.

The double layer test was installed at Rotorua on 15 November 2007 (Figure 36). Two 100 x 75 mm outer bearers and a central 100 x 100 mm bearer of H4 CCA-treated *P. radiata* were placed on nine 90 mm thick concrete blocks on the weed mat. CCA-treated *P. radiata* spacers 100 x 75 mm were nailed between the bearers at each end and in the centre, in line with the supporting concrete blocks. Untreated *P. radiata* strips 75 x 20 mm were nailed to the bearers on edge, one in the centre of the 100 mm square bearer and one adjacent to the outside edge of each of the outer 100 x 75 mm bearers. A short 75 x 25 mm strip, on edge, was nailed across the ends of the longitudinal strips.

The test specimens were placed in two rows on the bearers, four treatment groups in each row, the eighth group being untreated *E. pilularis* heartwood from a 20-year old local plantation stand. The treatment groups were separated by a single untreated *P. radiata* sample in the bottom layer and by two similar samples in the top layer. At each end of each row there were one and a half untreated pine samples in the bottom layer, two in the upper layer. The whole assembly was covered by 70% plastic shade cloth fixed to a 300 mm deep H3 CCA-treated *P. radiata* frame around the outside of the test.

Figure 36. Double layer test installed at Rotorua (plastic strips nailed on bearers removed soon after installation, to be similar to the Innisfail frame).

In-ground stakes

Test stakes 35 x 35 x 200 mm long were inserted into the soil to a depth just covering their metal tags, so that about 40 mm of stake was above ground.

Stakes were installed in the Clayton AFS on 26 October 2007, all in the one soil trough (Figure 37). The soil was Toolangi forest loam, which has a high water holding capacity of about 65%. There were ten columns each containing seven stakes. One replicate of each A-list treatment was placed randomly within each column. The stakes were watered to maintain damp soil (about every two weeks).

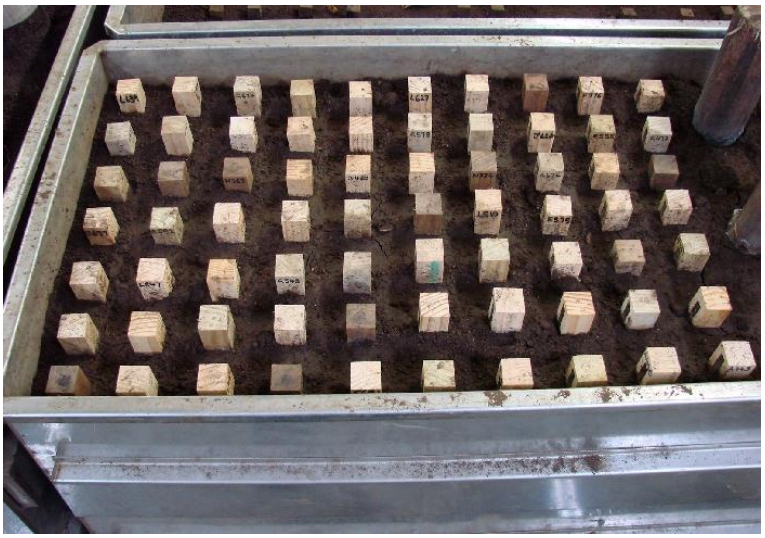

Figure 37. In-ground stakes installed in the Clayton AFS.

At Innisfail, the in-ground stakes were placed in a clearing within the rainforest exposure site on 22 November 2007 (Figure 38). They were placed in ten rows, with each row containing one replicate of the A-list treatments, in random order.

Figure 38. In-ground stakes in rainforest clearing at Innisfail, six months after installation.

Stakes were installed in the Rotorua AFS (southern chamber of the fungus cellar) on 23 November 2007, in seven plastic tanks (Figure 39). The temperature in this part of the AFS is 27°C and humidity is approximately 85%. The stakes were randomly arranged in the tanks, with at least one stake from each treatment group in each tank. The soil in the tanks was about 250 mm deep and was taken from old compost heaps adjacent to the nursery area at the Scion Rotorua campus. This soil contained a considerable amount of decayed wood debris from old seedlings and other plant material dumped from the nursery several years ago. The soil was lightly compacted around the stakes and the tanks were lightly watered after installation. The tanks and adjacent fungus cellar soil beds are watered lightly each week to keep the surface of the soil damp.

Figure 39. Stake test installed in Rotorua AFS (fungus cellar). Soon after this photo was taken, more soil was added and stakes pushed deeper, so they were the same depth as those in Australia.

Peg test

A test of treated pegs was included to see how small specimen size might affect time to failure. It was thought that the H3 result would contrast with in-ground H4 testing where thin stakes give faster results. Pegs could be inspected by simply squeezing them (pass or fail

strength test), and the effect of wood preservative on the metal hinge could also be noted. The pegs were not selected for sapwood, therefore some contained heartwood and defects such as small knots. If adopted, higher replicate numbers (e.g., 100) could be exposed than used in this preliminary trial, and the performance of preservatives in wood that includes defects could be readily obtained. The ten replicate pegs of each treatment were threaded together on a wire through their hinge. The pegs at Innisfail were installed 21 November 2007 (Figure 40), and those at Clayton on 29 October 2007 (Figure 41).

Figure 40. Clothes peg test after three months at Innisfail.

Figure 41. Clothes peg test installed at Clayton.

Inspection

The trial was inspected annually. The four year inspection at Rotorua occurred on 1-2 December 2011, Rotorua AFS on 2 December 2011, Clayton on 18 November 2011, Clayton AFS on 28 October 2010 and Innisfail on 3-5 November 2011.

Test specimens were removed from the exposure frames or soil and probed with a knife to determine the extent of decay (and termite attack for the in-ground stake trial at Innisfail). Specimens were given a performance rating of 8-0 (Thornton et al., 1991) based on the amount of cross-section lost (Tables 3-4). A rating of 8 means the test specimen is sound, while 0 is fully destroyed. A specimen rating 3 is considered to be unserviceable (it is not completely decayed or destroyed, and may have a central core of sound wood, but even so it would probably fail if flexed or trodden on). Test specimens were returned to the same position and orientation after each inspection. Table 19 gives an example of ratings for 75 x 25 mm specimen profiles in the flat panel test.

Table 3: Rating scale used to assess 75 x 25 mm test specimens.

Rating	Flat surface		Depth of end decay, mm. (add depths from both ends)	Description of decay
	Cross-section lost	Depth of decay or weathering from one (usually top) surface, mm		
8	No loss, sound	0	0	No decay
7	Up to 15%	0-3.75	0-5	Light decay
6	15–30%	3.75-7.5	5-10	Light-moderate decay
5	30–45%	7.5-11.25	10-15	Moderate decay
4	45–60%	11.25-15.0	15-20	Moderate-heavy decay
3	60–75%	15.0-18.75	20-25	Heavy decay
2	75–90%	18.75-22.5	25-30	Severe decay
1	90–99%	22.5-24.5	30-35	Severe-destroyed
0	100%	25.0	35+	Destroyed

The test specimen will be assigned the worst decay rating obtained from either the flat surface or end.

As an example in the flat panel test, the first signs of decay usually arise in the bottom edge of the panel that rests within the water trap rebate (lower flat face and end). In this edge, decay usually starts from the end grain rather than flat face, however, when the reverse happens and for ease of reporting, the greatest depth of decay from either the end or flat face is reported as lower end decay. Decay may also occur in the top end, and if this occurs, the depth is added to the lower end depth when deciding the panel's rating. The development of decay in several regions of the panel (e.g. top and bottom ends) shows that the treatment is failing rather than perhaps being influenced by an unnoticed defect at one end, which is why this information is retained by adding the two depths together to give a total end grain decay depth. The bottom end is considered to be like a joint, so rather than requiring 'destroyed' to be decay of the full 200 mm length of the test specimen, destruction is considered to have occurred when 35+ mm decay of the 'joint' has occurred. The 35 mm depth was chosen as representative of joint failure because in flat panel tests (test method long used at CSIRO), that is the depth

(approximately) of the trough of untreated ash eucalypt against which the bottom end of the test panels rest and where decay is most intense. Also, a depth of 35 mm allows 5 mm increments in an 8-point scoring system. It is also noteworthy that two ends of decking joined over a joist (or two joists joining over a bearer) would fail if both lost 35 mm from their ends. The top flat face can also suffer decay. When this 'decay' is just 1-2 mm deep, it can be difficult to distinguish macroscopically from surface weathering/defibration and for reporting purposes no distinction is attempted. The sides and flat underside are slow to decay, unless associated with end grain decay, so are not reported separately. The rating given according to the condition of the top flat face uses the system followed for in-ground stakes, according to percentage cross-section lost. The worst rating obtained from either region (top flat face, or ends) is the rating assigned to the panel.

Table 4: Rating scale used to assess 35 x 35 mm test specimens.

Rating	Flat surface or sides		Depth of end decay, mm. (add depths from both ends)	Description of decay (and termite attack for Innisfail in-ground stakes)
	Cross-section lost	Depth of decay or weathering from one (usually top) surface, mm		
8	No loss,	0	0	No decay
7	Up to 15%	0-5.25	0-5	Light decay
6	15–30%	5.25-10.5	5-10	Light-moderate decay
5	30–45%	10.5-15.75	10-15	Moderate decay
4	45–60%	15.75-21.0	15-20	Moderate-heavy decay
3	60–75%	21.0-26.25	20-25	Heavy decay
2	75–90%	26.25-31.5	25-30	Severe decay
1	90–99%	31.5-34.65	30-35	Severe-destroyed
0	100%	35.0	35+	Destroyed

Results and Discussion

This accelerated H3 decay trial was designed to compare 11 above-ground decay test methods (Table 5, not including in-ground stakes or 'B'-list). An in-ground stake trial was also included to allow comparison between H3 and H4 testing. The trial was installed in the field at Innisfail on 19-22 November 2007, Clayton on 26-29 October and Rotorua on 15-22 November. The trial was also installed in the Accelerated Field Simulators at Clayton on 1 November 2007, and Rotorua ('termite house' and 'fungus cellar') on 22-23 November 2007.

The main part of the trial examined an 'A' list of timbers/treatments: untreated heartwood of *Corymbia maculata* (class 2 in-ground natural durability), water-treated *Pinus radiata* sapwood, and *P. radiata* sapwood treated with high flash kerosene (HFK), or one-quarter (or potential one-quarter) H3 retentions of CCA, AChQ (alkaline copper high quat), azole LOSP and TBTN. The 'B' list of treatments was also installed in the embedded test only at Innisfail and Rotorua, and were H3 retentions (or potential H3 retentions) of CCA, AChQ, Tanalith E, copper naphthenate (CuN), copper chromate (CC), boron and azole LOSP.

A summary of the test methods and locations of installation are given in Table 5.

Table 5. Locations where each test method was installed.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel	Yes	Y	Y	Y	
Deck-on-grass	Y	Y			
Raised deck	Y	Y			
Embedded test	Y	Y	Y	Y	Y
Embedded test painted	Y	Y		Y	
Embedded test inoculated	Y	Y		Y	Y
Rot box	Y	Y	Y	Y	Y
Rot box inoculated	Y	Y		Y	Y
Ground proximity	Y	Y	Y		
In-ground stakes	Y			Y	Y
Double layer test	Y	Y			
Peg test	Y		Y		
Embedded test, 'B' list treatments	Y	Y			

A set of untreated *P. radiata* test specimens were also exposed at Clayton, so that they could be removed and sectioned for the determination of moisture content and moisture gradients.

Chemical analysis

Chemical analysis by Qld DPI&F according to AS 1605-2000 of the treated test specimens showed that on average, the retention obtained was 9% less than expected from solution uptake, if the DDAC results are excluded (Table 6). Presumably, not all of the active ingredients can be removed from the wood during extraction for analysis, or there is some degradation and loss during the preparation stages for chemical analysis. The range was 32.9% less for H3 azoles, and a gain of 14.4% for copper in the high retention AChQ treatment. Treatments with closest match between solution uptake and chemical analysis were H3 CCA and copper chromate. The DDAC retention obtained from chemical analysis was approximately twice that expected from solution uptake, and is probably due to 'stripping', where DDAC is preferentially absorbed into wood out of solution (Tascioglu *et al*., 2005). Treating solution analyses are given in the Materials and Methods section.

Table 6. Retention of actives achieved in test specimens according to solution uptake and chemical analysis by Qld DPI&F, % m/m oven dried basis.

Treatment		Retention based on solution uptake, % m/m		Retention based on chemical analysis of treated wood, % m/m		
		Mean	Range	Mean	Range	% variance from soln uptake
Water		155	114-200		Not determined	
Boron		0.357	0.325-0.409	0.293	0.267-0.336	-17.9
Cu Cr		0.358	0.330-0.411	0.376	0.346-0.431	+4.9
AChQ H3	Cu	0.219	0.183-0.243	0.250	0.209-0.278	+14.4
	DDAC	0.508	0.425-0.564	1.057	0.884-1.167	+108.0
AChQ quarter-H3	Cu	0.049	0.043-0.056	0.048	0.042-0.055	-0.4
	DDAC	0.116	0.100-0.131	0.232	0.200-0.262	+112.0
TBTN quarter-H3		0.053	0.039-0.063	0.042	0.031-0.049	-21.2
CCA quarter-H3		0.094	0.080-0.110	0.085	0.072-0.099	-9.8
CCA H3		0.375	0.338-0.426	0.361	0.326-0.410	-3.7
HFK		25.3	19.0-31.1		Not determined	
Tan E H3		0.233	0.204-0.253	0.201	0.176-0.218	-13.8
Azoles quarter-H3		0.015	0.012-0.018	0.014	0.011-0.016	-10.0
Azoles H3		0.061	0.049-0.070	0.041	0.033-0.047	-32.9
Cu N		0.107	0.078-0.123	0.097	0.071-0.112	-9.2
Average, excluding DDAC results						-9.1

Moisture contents at Clayton

The moisture content (mc) of an additional set of untreated *P. radiata* specimens exposed at Clayton in the flat panel, rot box, embedded and ground proximity tests was determined during a winter (July 2008), a very hot summer (January 2009), and a mild wet summer (February 2011) (Table 7). In July 2008 there was 72 mm of rainfall and the mean maximum temperature was 13.3^{o}C. In January 2009 there was 0.8 mm of rainfall and the mean maximum temperature was 28.6^{o}C. In February 2011 there was 212 mm of rainfall and the

mean maximum temperature was 24.4^{o}C. The test specimens were docked into quarters and consecutively numbered with quarter no. 1 being the metal tag end.

In winter, the region of the flat panel adjacent to the water trap (quarter no. 4) had a slightly higher mc (33.6%) than the more exposed regions of the panel (22% mc). During the dry summer, the entire flat panel was uniformly dry with mean mc of 10.3%. During the wet summer, the region of the flat panel adjacent to the water trap had a slightly higher mc (17.0%) than the more exposed regions of the panel (12-15% mc). When this region (quarter no. 4) was examined in more detail by splitting in half, the ventral piece directly against the water trap had a mean mc of 19.4% (Table 8).

The water trap in the embedded test was more effective, as the embedded end of test specimens had a mean mc of 64.3% during winter. However, the specimens had dried out during the dry summer with mean mc of only 6.4%. This was the lowest mc in the tests, perhaps as frames rested directly on a concrete slab that may have been hotter (absorbed more heat) than frames on the ground (ground proximity) or raised (flat panel). During the wet summer, the bottom end of test specimens was 60.3% mc (Table 7).

As the ground proximity test specimens laid flat upon cement blocks, each quarter section had similar mc (although the top faces were observed to be drier than the face touching the cement blocks), with a mean of 69.1% during winter. Again, test specimens dried to a mean mc of 11.2% during the dry summer. During the wet summer the mean mc was 55.5% (Table 7), and when inner blocks were split in half the ventral portion had a mean mc of 70.6% (Table 8).

The wettest specimens were in the rot box, where the mean mc was 87.4% during winter, 69.0% during the dry summer and 119.3% during the wet summer (Table 7). When the layers in the rot boxes are considered separately, those specimens in the top exposed layer were driest (mean mc's 45.7% during winter, 10.6% during dry summer and 44.1% during wet summer). However at Clayton, the rot box design has kept test specimens too wet for significant decay to occur, with mean mc in the middle layer reaching 144% during the wet summer (Table 7).

Table 7. Moisture content of untreated *P. radiata* test specimens at Clayton after 9 months, 15 months and 3.3 years of exposure.

Test method	Position in specimen	9 months (July)	15 months (Jan) Hot dry summer	3.3 years (Feb) Mild wet summer
		Mean mc (sd)[1]		
Flat panel	1 (metal tag end)	22.2 (3.3)	10.5 (9.4)	12.3 (0.9)
	2	22.4 (2.6)	11.8 (11.6)	14.3 (1.7)
	3	23.3 (2.9)	10.6 (14.2)	15.2 (2.1)
	4 (water trap end)	33.6 (4.3)	8.1 (5.3)	17.0 (3.6)
	All	25.4 (5.8)	10.3 (10.3)	14.7 (2.8)
Embedded	1 (metal tag end)	18.3 (1.7)	6.0 (0.2)	12.5 (2.0)
	2	19.5 (1.7)	6.6 (0.4)	17.9 (4.5)
	3	24.1 (2.8)	5.8 (1.3)	24.6 (6.1)
	4 (embedded end)	64.3 (12.5)	6.4 (0.4)	60.3 (16.0)
	All	31.5 (20.2)	6.2 (0.7)	28.8 (20.7)
Ground proximity	1 (metal tag end)	74.2 (12.7)	10.2 (0.8)	57.6 (22.4)
	2	64.5 (12.1)	12.3 (1.1)	52.7 (18.8)
	3	63.1 (10.3)	12.2 (1.1)	53.2 (18.2)
	4	74.5 (9.1)	10.0 (0.8)	58.4 (26.6)
	All	69.1 (12.0)	11.2 (1.4)	55.5 (21.1)
Rot box	1 (metal tag end)	101.9 (30.7)	69.5 (57.2)	121.3 (44.2)
	2	80.8 (31.9)	67.2 (54.9)	111.5 (40.2)
	3	74.4 (33.2)	68.5 (57.7)	110.7 (39.6)
	4	92.4 (31.9)	71.0 (64.6)	133.5 (54.9)
	All	87.4 (32.5)	69.0 (56.4)	119.3 (44.4)
	Position in box	Mean mc (sd)[2]		
Rot box	Layer 1 (top)	45.7 (16.5)	10.6 (1.6)	44.1 (7.1)
	Layer 2	107.1 (9.1)	27.8 (7.3)	131.6 (12.7)
	Layer 3 (middle)	118.3 (30.9)	141.5 (23.5)	144.0 (6.2)
	Layer 4	92.2 (28.1)	127.9 (14.3)	143.9 (42.3)
	Layer 5 (bottom)	73.6 (2.7)	37.4 (13.5)	132.8 (13.6)

[1]Mean of 10 replicates
[2]Mean of 2 replicate specimens per layer

Table 8. Moisture content of untreated *P. radiata* test specimens at Clayton after 3.3 years of exposure, in the dampest (water-trapped) regions of the test specimens.

Test method	Position in specimen	Mean (standard deviation)
Flat panel[1]	4b (bottom ventral)	19.4 (4.8)
Embedded[1]	4 (bottom end)	60.3 (16.0)
Ground proximity[1]	2b (inner ventral)	70.6 (27.0)
Rot box[2]	Layer 1 (2a, top, dorsal)	24.3 (3.5)
Rot box[2]	Layer 1 (2b, top, ventral)	61.7 (23.7)
Rot box[2]	Layer 2	131.6 (12.7)
Rot box[2]	Layer 3 (middle)	144.0 (6.2)
Rot box[2]	Layer 4	143.9 (42.3)
Rot box[2]	Layer 5 (bottom)	132.8 (13.6)

[1]Mean of 10 replicates
[2]Mean of 2 replicate specimens per layer

Four year inspections

A selection of photos from the four year inspections are provided in the following pages as illustration of the tests involved (Figures 42-61). Photos of some frames when installed are shown in the Materials and Methods section.

Figure 42. Flat panel test at Rotorua after four years.

Figure 43. Flat panel test on new frame at Innisfail after four years, underside. Left to right = E32 ACQ rating 0, J25 HFK rating 0, F707 TBTN rating 4, G30 CCA rating 7, N27 *C. maculata* rating 8, A38 water rating 0, L733 azoles rating 7.

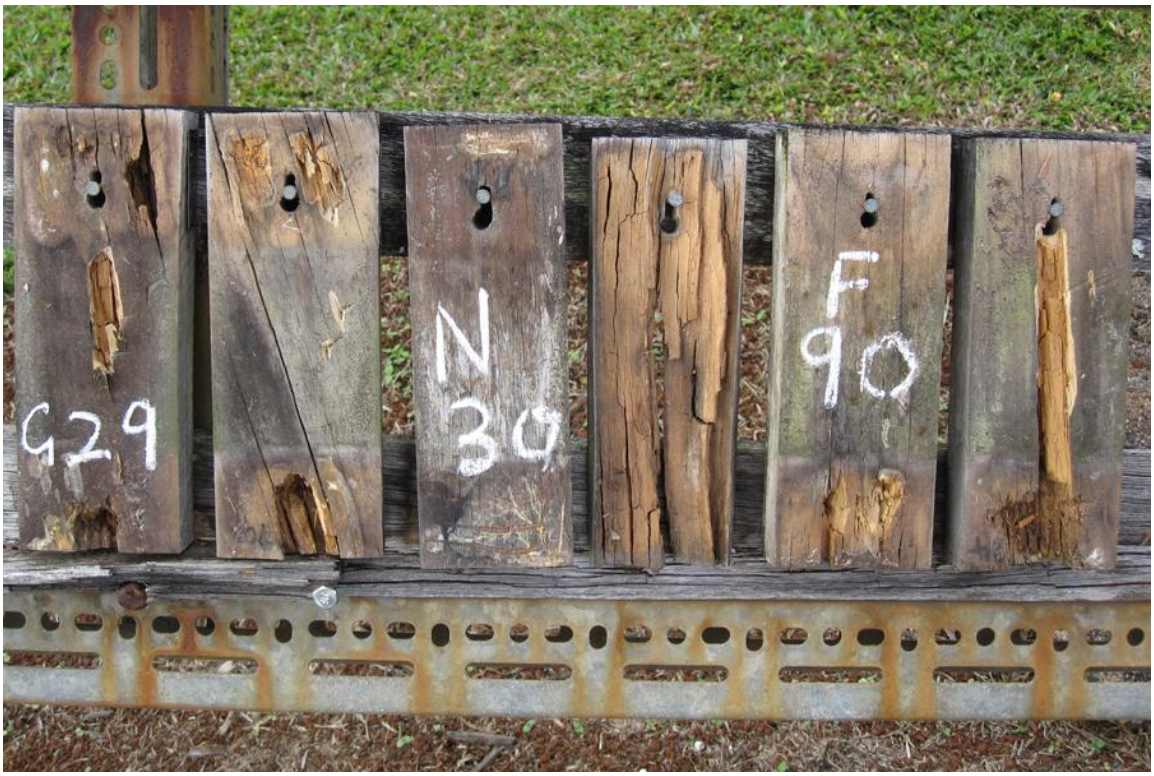

Figure 44. Flat panel test on old frame at Innisfail after four years, underside. Left to right = G29 CCA rating 0, L701 azoles rating 0, N30 *C. maculata* rating 8, J633 HFK rating 0, F90 TBTN rating 3, E24 ACQ rating 0.

Figure 45. Decking tests at Rotorua after four years. Left, deck-on-grass. Right, raised deck.

Figure 46. Deck-on-grass at Innisfail after four years. Left photo, note dead grass accumulated along centre board on top of specimens. Right photo, left to right undersides = G352 CCA rating 0, E408 ACQ rating 1, F373 TBTN rating 0, N169 *C. maculata* rating 8, A230 (top side) rating 0, L320 azoles rating 0.

Figure 47. Raised deck at Innisfail after four years, underside. Left to right = F343 TBTN rating 8, J711 HFK rating 1, A229 water rating 0, F383 TBTN rating 8, N177 *C. maculata* rating 8, G395 CCA rating 8, E339 ACQ rating 8, L357 azoles rating 0.

Figure 48. Raised deck (left) and embedded test (right) at Innisfail after four years.

Figure 49. Embedded test at Innisfail after four years, frame H. Left to right = H15 CCA (H3) rating 8, A517 water painted rating 0, F586 TBTN rating 0, M40 azoles (H3) rating 8, F650 TBTN painted rating 0, A511 water rating 0, J778 HFK painted rating 0, N359 *C. maculata* rating 8, C52 CuCr ('H3') rating 8, D6 ACQ (H3) rating 8, G547 CCA painted rating 6.

Figure 50. Embedded test in AFS at Clayton after four years, frame 18. Left photo, showing mycelium growing over base holder (white areas). Right photo, left to right = N320 *C. maculata* rating 8 (with fruiting body on side), E598 ACQ rating 0, A323 water rating 0, A389 water rating 0, E690 ACQ rating 0, G649 CCA rating 6.

Figure 51. Embedded tests at Rotorua after four years. Left photo, painted specimens. Right photo, frame No. 5 in AFS (not inoculated), left to right J790 HFK rating 0, E631 ACQ rating 0, N261 *C. maculata* rating 7, L630 azoles rating 0, F530 TBTN rating 7, A496 water rating 0, G659 CCA rating 0.

Figure 52. Rot box No 12 at Innisfail after four years, second top row, feeder bait blocks alternate with test specimens. Left to right = E219 ACQ rating 5, N124 *C. maculata* rating 7, F309 TBTN rating 4, G204 CCA rating 0, L287 azoles rating 3, A156 water rating 0, J162 HFK rating 0.

Figure 53. Inoculated rot box No. 14 at Innisfail after four years, top row, inoculated feeder bait blocks alternate with test specimens. Left to right = G274 CCA rating 4, J92 HFK rating 0, L207 azoles rating 7, A62 water rating 0, F232 TBTN rating 5, N61 *C. maculata* rating 7, E218 ACQ rating 6.

Figure 54. Rot boxes in AFS at Rotorua after four years (during summer exposure outdoors). Right Box No. 8 pre-inoculated showing brown rotted feeder blocks between test specimens. Left Box No. 5 not inoculated, left to right = F127 TBTN rating 7, feeder, G120 CCA sound, feeder, L760 azoles rating 6.

Figure 55. Ground proximity test at Innisfail after four years. Left to right = G292 CCA rating 6, N128 *C. maculata* rating 7, F224 TBTN rating 0, J224 HFK rating 0, L232 azoles rating 0, A122 water rating 0 (nearly disintegrated), E161 ACQ rating 0.

Figure 56. Ground proximity test at Clayton after four years. Left to right underside = F171 TBTN rating 7, E320 ACQ rating 7, G291 CCA rating 8, L790 azoles rating 8, A154 water rating 7, E287 ACQ rating 8, J88 HFK rating 4.

Figure 57. Ground proximity test at Rotorua after four years, underside. Left to right = N147 *C. maculata* rating 7, F263 TBTN rating 2, A196 water rating 2, J276 HKF rating 1, E104 ACQ rating 7, J279 HFK rating 6, G267 CCA rating 8.

Figure 58. Double layer test at Innisfail after four years. Right, bottom right column shows set of darker *C. maculata* specimens rating 7 or 8, middle right column azoles (jumbled) all rating 0. Left, bottom layer of E specimens (ACQ) all rating 0, and A specimens (water) all rating 0 (spare blocks separating treatments removed for photo).

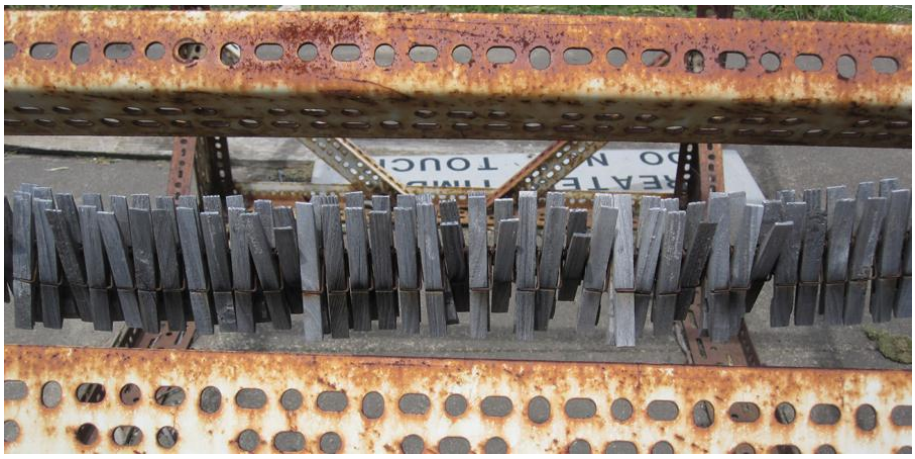

Figure 59. Peg test at Clayton after four years, no peg would break when opened.

Figure 60. Peg test at Innisfail after four years, some pegs broken or missing (except for their wire hinges).

Figure 61. In-ground stake in Clayton AFS after four years. Left to right = A451 water rating 0, L666 azoles rating 5, F847 TBTN rating 3, E582 ACQ rating 3, N370 *C. maculata* rating 7, G451 CCA rating 3, J514 HFK rating 0.

The mean ratings for the A-list treatments according to test method are given in Tables 9-15. Not all tests were installed at all sites (Table 5).

At Innisfail, water-treated *P. radiata* had failed (mean rating of 3 or less) in all tests except the peg test (Table 9, Figure 62). At Rotorua failure had occurred in the painted embedded test, ground proximity test, double layer test, and those tests pre-inoculated with *Gloeophyllum abietinum* and *Oligoporus placenta*, that is, the pre-inoculated embedded and rot box tests. Clayton was the least active of the field test sites, although water-treated *P. radiata* in the embedded test has now failed. Last year, Clayton field was the slowest site, whereas this year Clayton AFS was slower than Clayton field. In the Clayton AFS water-treated *P. radiata* had failed in the painted embedded, pre-inoculated (rot box and embedded) and stake tests. The Rotorua AFS was more active than the latter two sites, with failures of water-treated *P. radiata* occurring in all its tests, which were the pre-inoculated tests, as well as the embedded and rot box tests (not pre-inoculated) and the in-ground stake test.

Table 9: Mean ratings (sd) for water-treated *P. radiata* after four years (8=sound, 0=destroyed).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	0.0 (0.0)*	7.8 (0.4)		7.6 (0.7)	
Flat panel old frame*	0.0 (0.0)*		5.3 (2.8)		
Flat panel summary	0.0 (0.0)	7.8 (0.4)	5.3 (2.8)	7.6 (0.7)	
Deck-on-grass	0.0 (0.0)	5.8 (2.2)			
Raised deck	0.0 (0.0)	7.7 (0.7)			
Embedded test	0.4 (1.3)	4.1 (2.7)	1.7 (2.8)	3.1 (3.0)	0.2 (0.6)
Embedded test painted	0.3 (0.9)	1.7 (2.4)		1.6 (2.2)	
Embedded test inoculated	0.0 (0.0)	0.0 (0.0)		0.0 (0.0)	0.0 (0.0)
Rot box	0.0 (0.0)	4.9 (1.7)	7.2 (0.8)	7.5 (0.5)	2.3 (2.8)
Rot box inoculated	0.0 (0.0)	0.4 (1.3)		0.0 (0.0)	0.0 (0.0)
Ground proximity	0.0 (0.0)	2.8 (2.4)	6.3 (0.5)		
Double layer test	0.0 (0.0)	3.0 (2.5)			
Peg test	4.0 (2.2)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			0.9 (1.3)	0.0 (0.0)

*Five replicates

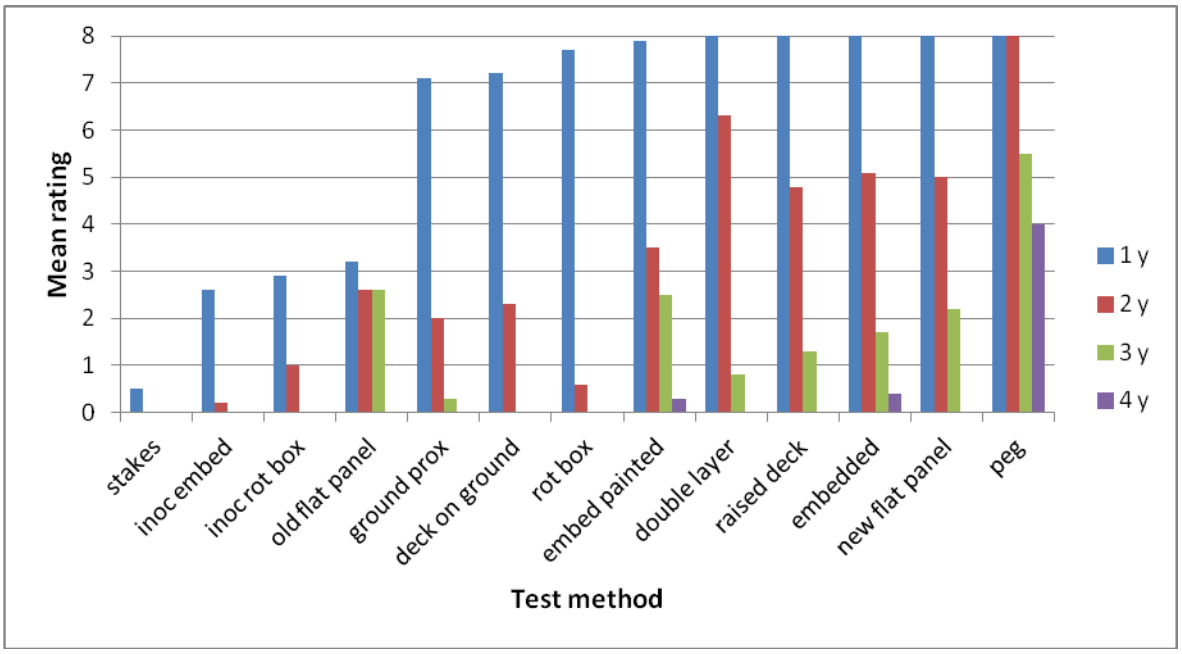

Figure 62. Relative performance of water-treated *P. radiata* at Innisfail after one to four years.

Of the in-ground stake trials, Innisfail was most active against water-treated *P. radiata*, with damage being caused mainly being white rot, although some stakes were damaged by termites as well. The Clayton AFS stake test was slower, with a mean rating of 0.9. The Rotorua AFS stake test was in a more active 'forest nursery compost' and the mean rating was 0.0 for water-treated *P. radiata*.

The most striking change after the first year inspection was the sudden failure in the rot boxes (not inoculated) at Innisfail at the two year inspection, and the rating there for water-treated *P. radiata* is now 0.0. At Innisfail during the two year inspection, a previously used 'old' flat panel test frame behaved like a pre-inoculated test, as a brown rotting fungus (*Fomitopsis lilacinogilva*) caused extensive decay with a mean rating of 2.6 (5 replicates), while on the newer frame the mean rating was 5.0. After four years the ratings were 0.0 on both frames for water-treated *P. radiata* (Table 9).

HFK was the next most susceptible treatment (Table 10, Figure 63), and generally followed the pattern of decay found for water treatment. For example, HFK-treated *P. radiata* in the embedded test at Clayton had a mean rating of 2.2 compared to 3.1 for water-treated *P. radiata*. Exceptions appear to be where solvent evaporation would have been inhibited, which was shown in the earlier rather than later inspections. For example after two years, the pre-inoculated rot box at Clayton AFS caused only moderate decay (mean rating 5.8) to HFK-treated *P. radiata* compared to a mean rating of 0.0 for the water treatment. Being surrounded by soil also appeared to reduce solvent evaporation, as after one year at Innisfail the mean ratings for stakes treated with HFK or water were 4.6 and 0.5 respectively.

Table 10: Mean ratings (sd) for HFK-treated *P. radiata* (8=sound, 0=destroyed) after four years.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	3.6 (3.5)*	6.3 (2.7)		7.8 (0.6)	
Flat panel old frame*	2.4 (3.4)*		7.0 (1.6)		
Flat panel summary	3.0 (3.3)	6.3 (2.7)	7.0 (1.6)	7.8 (0.6)	
Deck-on-grass	0.0 (0.0)	5.8 (2.9)			
Raised deck	2.0 (2.3)	7.7 (0.5)			
Embedded test	1.5 (2.0)	3.9 (2.5)	3.9 (3.9)	2.2 (3.6)	1.0 (2.3)
Embedded test painted	1.5 (1.9)	3.8 (1.9)		3.2 (3.6)	
Embedded test inoculated	0.0 (0.0)	1.3 (1.7)		0.3 (0.9)	0.0 (0.0)
Rot box	0.0 (0.0)	6.7 (1.2)	7.8 (0.4)	8.0 (0.0)	5.0 (1.8)
Rot box inoculated	1.1 (2.1)	0.2 (0.6)		4.9 (2.9)	0.1 (0.3)
Ground proximity	0.0 (0.0)	4.9 (1.7)	6.5 (1.1)		
Double layer test	0.2 (0.6)	4.6 (2.5)			
Peg test	5.5 (2.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			2.2 (1.8)	0.2 (0.6)

*Five replicates

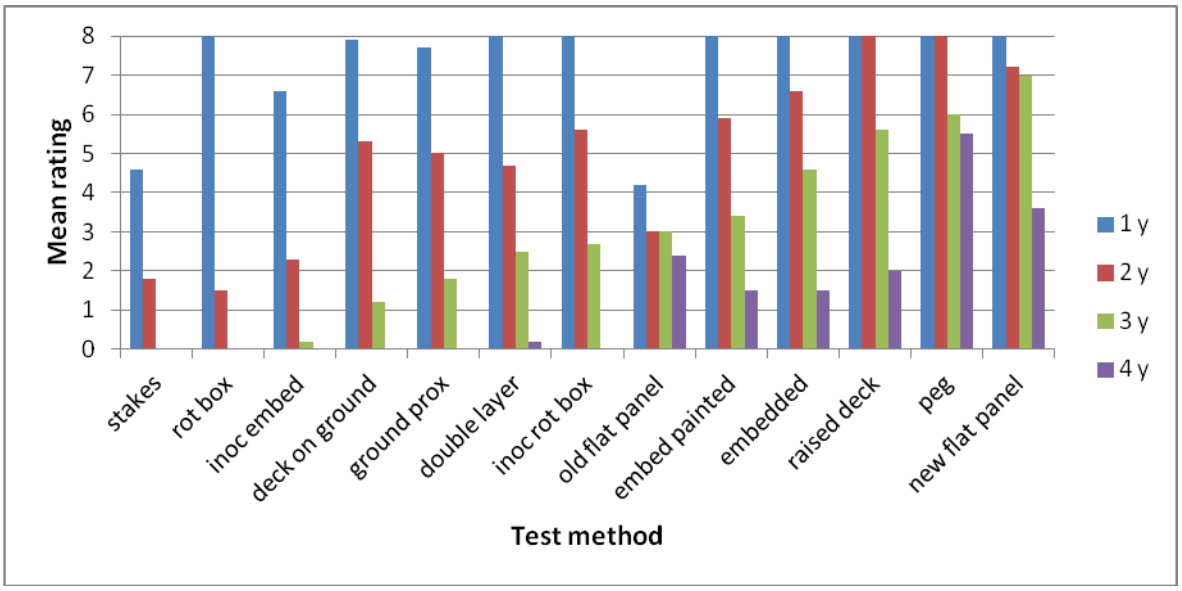

Figure 63. Relative performance of HFK-treated *P. radiata* at Innisfail after one to four years.

At Innisfail after four years, quarter-H3 AChQ-treated *P. radiata* (Table 11, Figure 64) had failed (mean rating 3.0 or less) in the deck-on-grass, ground proximity, double layer and in-ground stake tests. No treatment failures in the field had occurred at Rotorua or Clayton. However, the treatment had failed in the AFS's at Clayton and Rotorua in the embedded tests and in-ground stake tests. Oddly, there was a sudden failure of this treatment in the double layer test at Innisfail when the mean rating fell from 6.0 (2 years) to 0.7 after three years (Figure 64). It is surprising that AChQ did not perform even better given the very high quat retention used in this trial, suggesting there is a limit to how much additional quat is useful to the ACQ formulation.

Table 11: Mean ratings (sd) for quarter-H3 AChQ-treated *P. radiata* (8=sound) after four years.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	6.0 (3.4)*	7.5 (1.1)		8.0 (0.0)	
Flat panel old frame*	6.0 (3.4)*		8.0 (0.0)		
Flat panel summary	6.0 (3.2)	7.5 (1.1)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	1.5 (2.0)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	4.4 (3.6)	6.9 (1.0)	5.1 (2.6)	2.0 (2.9)	2.0 (3.0)
Embedded test painted	5.2 (3.3)	5.2 (2.1)		4.1 (3.2)	
Embedded test inoculated	5.1 (2.2)	6.3 (0.9)		5.4 (3.0)	2.3 (2.5)
Rot box	5.4 (2.3)	7.7 (0.7)	8.0 (0.0)	8.0 (0.0)	7.5 (0.7)
Rot box inoculated	4.5 (2.8)	7.5 (0.7)		7.5 (1.3)	7.4 (1.0)
Ground proximity	0.8 (1.9)	6.1 (1.3)	7.4 (0.5)		
Double layer test	0.0 (0.0)	7.5 (0.8)			
Peg test	6.0 (2.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			3.2 (2.1)	1.3 (1.2)

*Five replicates

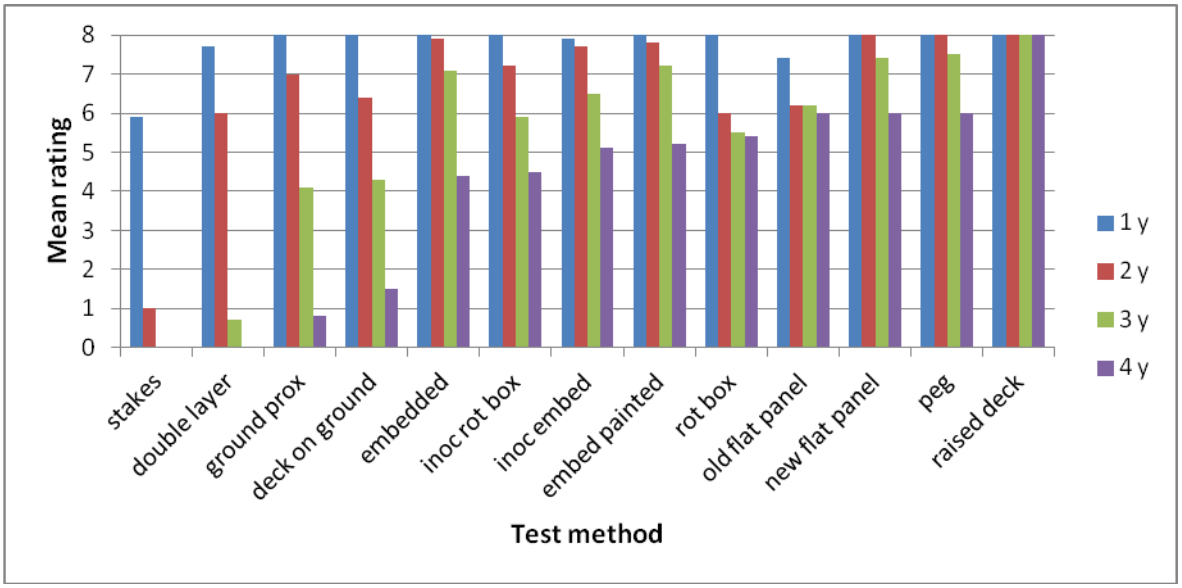

Figure 64. Relative performance of AChQ-treated *P. radiata* at Innisfail after one to four years.

CCA is the most common reference preservative used in above ground decay trials. The most severe above ground trial was the rot box (uninoculated) at Innisfail, with heavy decay after two years (mean rating of 3.8) and three years (mean rating 2.3) although little changed after four years (mean rating 2.1) for *P. radiata* treated to quarter-H3 CCA retention (Table 12, Figure 65). These test specimens were still sound after one year, showing that once significant decay started in the rot box it progressed rapidly through many of the treatments. Interestingly, quarter-H3 CCA treated *P. radiata* in the pre-inoculated rot boxes had a mean rating of 6.9 after three years, suggesting that the fungi selected had inhibited colonization by

the more aggressive local species. Decay was very limited or absent from similar test specimens in the other rot boxes (uninoculated) at the other four sites.

Useful results from field tests usually occur when the quarter-H3 CCA retention has reached a mean rating of 6.0 or lower. Field tests achieving this threshold after three years at Innisfail were the rot box, deck-on-ground, embedded test, double layer test and pre-inoculated embedded test. After four years at Innisfail additional tests reaching this mark were the painted embedded, the pre-inoculated rot box, and ground proximity tests. At the other sites a mean rating of 6.0 or less was achieved for the pre-inoculated embedded test at Rotorua (2 years), the same test at Rotorua AFS (4 years) along with the embedded test (3 years) and pre-inoculated rot box (4 years), and the painted embedded test at Clayton AFS (4 years). The quarter-H3 CCA treated *P. radiata* in-ground stakes also had significant decay, with mean ratings of 0.3, 0.9 and 2.4 for stakes placed at Innisfail, Rotorua AFS and Clayton AFS respectively.

Table 12: Mean ratings (sd) for quarter-H3 CCA-treated *P. radiata* after four years (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.6 (0.3)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	6.4 (3.6)*		8.0 (0.0)		
Flat panel summary	7.0 (2.5)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	2.3 (2.0)	8.0 (0.0)			
Raised deck	7.8 (0.4)	8.0 (0.0)			
Embedded test	4.2 (3.6)	7.8 (0.4)	6.4 (1.6)	6.1 (3.0)	4.8 (2.7)
Embedded test painted	5.2 (3.3)	7.3 (1.1)		5.3 (3.4)	
Embedded test inoculated	3.4 (3.4)	4.1 (2.1)		6.9 (1.5)	5.3 (1.6)
Rot box	2.1 (3.3)	7.9 (0.3)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	5.6 (2.6)	7.0 (0.7)		8.0 (0.0)	5.7 (1.9)
Ground proximity	4.6 (2.6)	7.6 (0.7)	7.6 (0.7)		
Double layer test	4.5 (2.7)	8.0 (0.0)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	0.3 (0.9)			2.4 (1.6)	0.9 (1.4)

*Five replicates

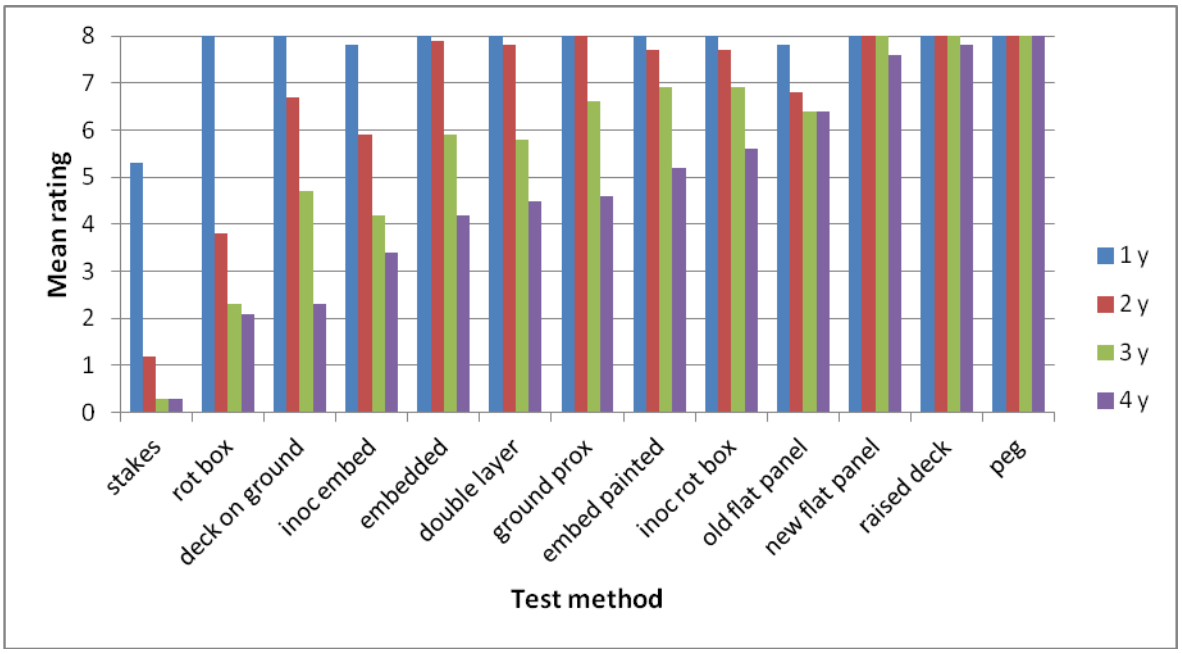

Figure 65. Relative performance of quarter CCA-treated *P. radiata* at Innisfail after one to four years.

After two years, the quarter-H3 LOSP azole-treated *P. radiata* test specimens had only moderate to no decay in the various above ground trials, except in New Zealand where rot boxes and embedded tests pre-inoculated with *O. placenta* had heavy decay. After three years at Innisfail, there was also moderate-heavy decay in the raised deck (mean rating 4.1) and double layer (mean rating 4.2) tests (Table 13, Figure 66). Decay in the raised deck was clearly due to one particular species of brown rotting fungi, later identified as a species of *Heterotextus* (Figure 67).

Table 13: Mean ratings (sd) for quarter-H3 azole-treated *P. radiata* after four years (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	3.2 (3.3)*	7.9 (0.3)		8.0 (0.0)	
Flat panel old frame*	5.6 (3.2*)		8.0 (0.0)		
Flat panel summary	4.4 (3.0)	7.9 (0.3)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	2.5 (2.0)	7.9 (0.3)			
Raised deck	2.4 (3.9)	7.8 (0.4)			
Embedded test	5.4 (2.4)	7.6 (0.7)	6.9 (1.1)	5.8 (3.2)	4.7 (3.2)
Embedded test painted	6.2 (2.4)	6.8 (1.1)		6.7 (2.1)	
Embedded test inoculated	6.4 (0.8)	4.2 (2.6)		6.4 (1.6)	2.1 (2.4)
Rot box	5.4 (2.1)	7.6 (0.5)	8.0 (0.0)	7.9 (0.3)	6.0 (2.3)
Rot box inoculated	7.3 (0.7)	1.9 (3.3)		7.8 (0.6)	1.6 (2.6)
Ground proximity	1.6 (2.3)	6.3 (0.9)	7.1 (0.3)		
Double layer test	0.0 (0.0)	7.8 (0.4)			
Peg test	6.0 (2.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			4.0 (1.2)	0.0 (0.0)

*Five replicates

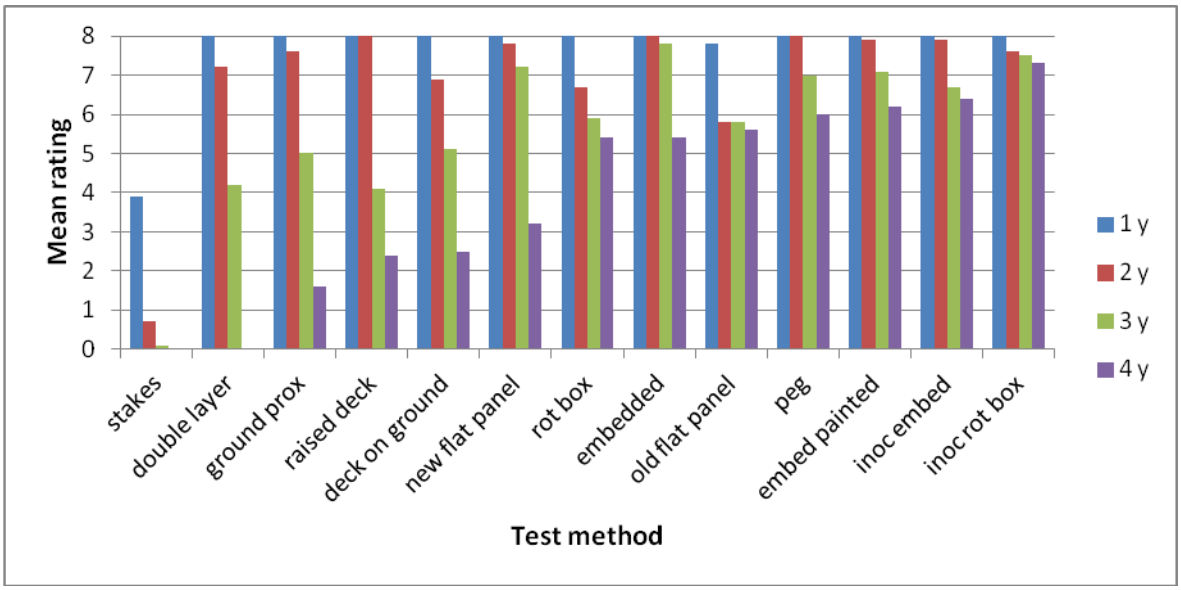

Figure 66. Relative performance of azole-treated *P. radiata* at Innisfail after one to four years.

Figure 67. Fruiting bodies of the brown rotting fungus (*Heterotextus* sp.) responsible for extensive decay in quarter azole-treated *P. radiata* test specimens in the raised deck test at Innisfail after three years.

At Innisfail, the quarter-H3 TBTN-treated *P. radiata* test specimens had failed (mean ratings below 3.0) in the deck-on-ground, embedded tests painted or pre-inoculated, ground proximity and double layer tests (Table 14, Figure 68). It should be noted that the TBTN formulation included dichlofluanid, with unknown influence on efficacy. The in-ground stakes had mean ratings of 0.0, 0.3 and 2.8 at Innisfail, Rotorua AFS and Clayton AFS, respectively (Table 14). A coating of paint has been shown previously to improve the performance of TBTN; however, no such improvement occurred in the current trial with embedded tests. Perhaps too large a surface area was left uncoated, as the bottom end and sides of painted embedded test specimens were not coated with paint. However, these surfaces were then embedded within the test frame so were not exposed directly to the sunlight.

Table 14: Mean ratings (sd) for quarter-H3 TBTN-treated *P. radiata* (8=sound) after four years.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	6.2 (2.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	5.0 (3.4)*		7.7 (0.9)		
Flat panel summary	5.6 (2.7)	8.0 (0.0)	7.7 (0.9)	8.0 (0.0)	
Deck-on-grass	1.2 (1.6)	7.9 (0.3)			
Raised deck	7.6 (1.3)	7.9 (0.3)			
Embedded test	4.1 (3.3)	6.6 (1.3)	6.7 (0.9)	6.1 (3.0)	6.7 (1.2)
Embedded test painted	3.0 (2.8)	4.8 (2.5)		6.3 (2.6)	
Embedded test inoculated	1.4 (2.4)	7.1 (0.6)		6.9 (1.6)	7.2 (0.6)
Rot box	3.6 (2.7)	6.0 (2.3)	8.0 (0.0)	8.0 (0.0)	4.7 (2.9)
Rot box inoculated	3.9 (2.2)	7.6 (0.7)		8.0 (0.0)	6.7 (1.2)
Ground proximity	1.3 (1.9)	5.4 (1.6)	7.3 (0.5)		
Double layer test	0.7 (1.9)	7.8 (0.4)			
Peg test	5.5 (2.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			2.8 (0.9)	0.3 (0.7)

*Five replicates

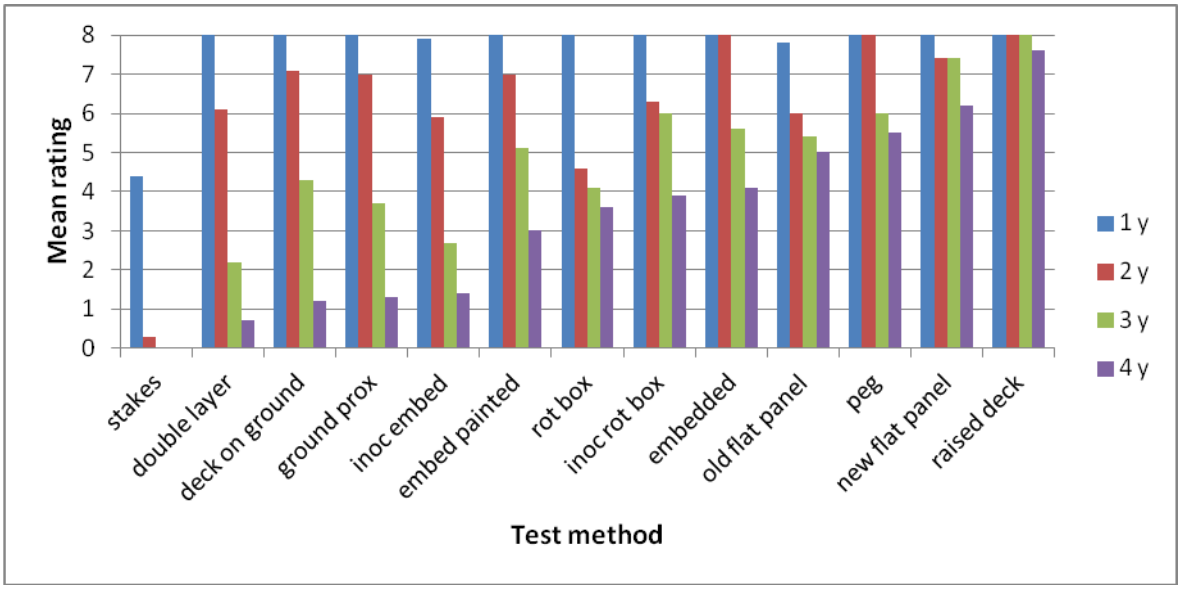

Figure 68. Relative performance of TBTN-treated *P. radiata* at Innisfail after one to four years.

The naturally durable heartwood of *C. maculata* had some decay, mainly white rot, in some tests. However, mean ratings were above 7.0 in all above ground tests at all sites, except the painted embedded and ground proximity tests at Innisfail (Table 15, Figure 69). It was also the best performing timber in the in-ground stake trial at Innisfail, with a mean rating of 6.7.

Table 15: Mean ratings (sd) for untreated *C. maculata* heartwood after four years (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.6 (0.5)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	7.2 (1.8)*		8.0 (0.0)		
Flat panel summary	7.4 (1.3)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	7.5 (0.5)	7.9 (0.3)			
Raised deck	7.8 (0.4)	8.0 (0.0)			
Embedded test	7.4 (1.0)	7.6 (0.5)	7.2 (0.6)	7.4 (1.0)	7.1 (0.6)
Embedded test painted	6.4 (2.5)	7.1 (1.5)		8.0 (0.0)	
Embedded test inoculated	7.2 (0.6)	7.7 (0.5)		7.8 (0.4)	7.3 (0.7)
Rot box	7.1 (0.3)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	7.9 (0.3)
Rot box inoculated	7.1 (0.3)	8.0 (0.0)		8.0 (0.0)	8.0 (0.0)
Ground proximity	6.6 (1.7)	7.8 (0.4)	7.2 (0.4)		
Double layer test	7.1 (0.6)	7.9 (0.3)			
Peg test					
In-ground stakes	6.7 (0.7)			7.0 (0.0)	6.9 (0.3)

*Five replicates

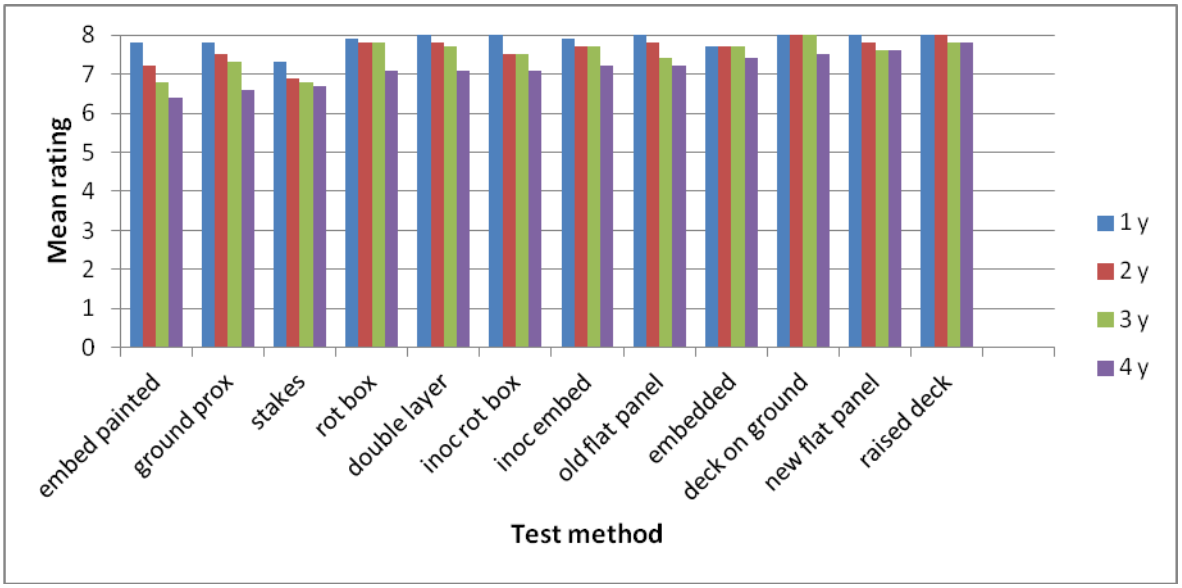

Figure 69. Relative performance of untreated *C. maculata* at Innisfail after one to four years.

The embedded tests of the 'B-list' treatments at Innisfail and Rotorua were mostly in good condition with only light or no decay (Table 16). The exception was the boron treatment with a mean rating of 0.6 at Innisfail and 5.1 at Rotorua. Copper naphthenate was also starting to separate as a less effective preservative from the other 'H3' preservatives of copper chromate (not currently approved in Australia/NZ), Tanalith E, AChQ, azoles and CCA.

Table 16: Embedded test, A and B list timber/treatments after four years, mean ratings (sd).

Treatment	Innisfail	Rotorua	Mean both sites
Water	0.4 (1.3)	4.1 (2.7)	2.3
HFK	1.5 (2.0)	3.9 (2.5)	2.7
Boron	0.6 (1.3)	5.1 (2.9)	2.9
TBTN quarter-H3	4.1 (3.3)	6.6 (1.3)	5.4
AChQ quarter-H3	4.4 (3.6)	6.9 (1.0)	5.7
CCA quarter-H3	4.2 (3.6)	7.8 (0.4)	6.0
Azoles quarter-H3	5.4 (2.4)	7.6 (0.7)	6.5
Copper naphthenate H3	6.3 (2.5)	7.4 (0.8)	6.9
Spotted gum heartwood	7.4 (1.0)	7.6 (0.5)	7.5
Copper chromate H3	7.4 (1.1)	7.6 (0.5)	7.5
Tanalith E H3	7.5 (0.5)	7.6 (0.5)	7.6
AChQ H3	7.7 (0.5)	7.8 (0.4)	7.8
Azole 'H3' (0.041% m/m)	7.8 (0.6)	7.8 (0.4)	7.8
CCA H3	7.6 (0.8)	8.0 (0.0)	7.8

Bing testing

Bing^{TM} testing is an acoustic method for evaluating the mechanical properties of wooden test specimens. It can measure the modulus of elasticity (MOE) in compression and flexure. During the first two years of this trial, researchers at the Queensland DPI&F Bing tested all of the Australian exposed test specimens every six months. Their 12 and 24 month testing could also be compared with the 'pick' test results obtained by probing with a knife. The full report on Bing testing was provided by Norton (2010). Some findings were that MOE in compression gave variable results and was not suitable for detecting decay or insipient decay reliably. However, MOE in flexure gave useful results. It predicted that the deck-on-grass, inoculated rot box and rot box at Innisfail had significant MOE^f differences after 12 months compared to when first installed. Pick testing confirmed that these were amongst the fastest tests at Innisfail. Also, the least aggressive test was predicted to be the flat panel test, and this was confirmed to be amongst the slowest tests at Innisfail along with the raised deck and peg tests after 4 years (peg test not Bing tested). The Bing test also predicted that TBTN was the worst of the quarter-H3 treatments being examined (apart from water and HFK), which was confirmed in later inspections. Bing testing therefore appears to offer a method for detecting and making decisions about decay earlier than could be made by pick testing.

Test site comparisons

Innisfail was clearly the fastest test site, while Rotorua was only slightly faster than Clayton (Table 17). This trend follows their mean annual rainfalls of 3600 mm, 1400 mm and 700 mm

respectively. It should be noted however that there were slight differences between sites in all but the ground proximity tests. Half of the flat panel test at Innisfail was on an old frame, all of the test at Clayton was on an old frame, while at Rotorua it was on a new frame. Also, the embedded tests at Innisfail and Rotorua were raised, while at Clayton they were on a concrete pad. The rot boxes at Innisfail and Clayton were on concrete pads while at Rotorua they were on weed mat on the grass. Results now suggest that such differences can have an important effect on decay rates. The ground proximity tests at each site were placed on grass and all were on new or uncontaminated masonry blocks/pavers. The ground proximity test suggests that Rotorua is a faster decay site than Clayton.

If including a comparison of the AFS's, the Clayton AFS was the slowest AFS for the embedded and rot box tests (average of 7.7) compared to Rotorua AFS (average of 4.9) and the field sites. Clayton also had the slowest stake test. The Rotorua AFS was nearly as fast as the Innisfail test site for the embedded and rot box tests.

Table 17: For those tests common to each site, average of mean ratings for the seven treatment/timber variations in each test at each site after four years.

Test	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel	4.8	7.6	7.4	8.0	
Embedded	3.9	6.4	5.4	7.4	3.8
Rot box	3.4	7.0	7.9	8.0	5.9
Ground proximity	2.1	5.8	7.1		
Average of means	3.6	6.7	7.0		
Average of embedded and rot box tests	3.7	6.7	6.7	7.7	4.9
Stakes	1.0			3.2	1.4

Fast and reliable tests

Method of comparison

The main aim of this project was to find the fastest H3 test method that would also give reliable results with broadest application. The fastest test would be judged according to how quickly the quarter-H3 CCA-treated pine reached a mean rating of 6.0 or less, a time according to the AWPC protocols when there is sufficient decay for candidate preservatives to be compared. Other 'reference' preservatives could have been used, however CCA is the most widely used and understood preservative. The other requirement was that the test should give a representative relative order of failure to the seven treatment/timber variations examined. The seven treatments/timbers used included the main preservative types currently in use, as well as a non-durable timber (water-treated *P. radiata*), a low retention 'oil' preservative (HFK) and a naturally durable heartwood (untreated *C. maculata*). The relative order of failure of these main treatments/timbers was determined by averaging the mean ratings for all H3 field tests at each site after three years (Table 18) and four years (Table 19). The three year results (Table 18) were included in the consideration as a check on consistency in the relative order of failure. Excluded from this determination of relative order were the in-ground stake tests, those tests that had been pre-inoculated, and those tests conducted in an AFS. Only H3 tests naturally infected with fungi and always field exposed were included at this stage.

Table 18: Relative order of failure determined from mean ratings at the three year inspection for all field test sites.

Test site	Test	Water	HFK	TBTN quarter	AChQ quarter	Azole quarter	CCA quarter	Spotted gum
Innisfail	Flat panel	2.4	5.0	6.4	6.8	6.5	7.2	7.5
Innisfail	Deck-on-grass	0.0	1.2	4.3	4.3	5.1	4.7	8.0
Innisfail	Raised deck	1.3	5.6	8.0	8.0	4.1	8.0	7.8
Innisfail	Embedded	1.7	4.6	5.6	7.1	7.8	5.9	7.7
Innisfail	Embedded painted	2.5	3.4	5.1	7.2	7.1	6.9	6.8
Innisfail	Rot box	0.0	0.0	4.1	5.5	5.9	2.3	7.8
Innisfail	Ground proximity	0.3	1.8	3.7	4.1	5.0	6.6	7.3
Innisfail	Double layer	0.8	2.5	2.2	0.7	4.2	5.8	7.7
Innisfail	Peg	5.5	6.0	6.0	7.5	7.0	8.0	
Clayton	Flat panel	7.8	8.0	8.0	8.0	8.0	8.0	8.0
Clayton	Embedded	4.5	6.4	7.6	7.5	8.0	7.9	7.7
Clayton	Rot box	7.6	8.0	8.0	8.0	8.0	8.0	8.0
Clayton	Ground proximity	7.8	7.8	8.0	7.8	8.0	8.0	8.0
Clayton	Peg	8.0	8.0	8.0	8.0	8.0	8.0	
Rotorua	Flat panel	7.8	8.0	8.0	8.0	7.9	8.0	8.0
Rotorua	Deck-on-grass	7.3	6.8	7.9	8.0	7.9	8.0	8.0
Rotorua	Raised deck	7.9	8.0	8.0	8.0	7.9	8.0	8.0
Rotorua	Embedded	5.8	5.3	6.9	7.4	7.7	7.8	7.6
Rotorua	Embedded painted	3.5	5.6	6.6	6.6	7.6	7.7	7.3
Rotorua	Rot box	5.7	7.4	7.0	7.9	7.6	8.0	8.0
Rotorua	Ground proximity	5.6	6.9	7.3	7.7	7.5	8.0	7.9
Rotorua	Double layer	6.3	6.9	7.9	7.8	7.8	8.0	8.0
	Mean 3 years	4.6	5.6	6.6	6.9	7.0	7.2	7.8

Table 19: Relative order of failure determined from mean ratings at the four year inspection for all field test sites.

Test site	Test	Water	HFK	TBTN quarter	AChQ quarter	Azole quarter	CCA quarter	Spotted gum
Innisfail	Flat panel	0.0	3.0	5.6	6.0	4.4	7.0	7.4
Innisfail	Deck-on-grass	0.0	0.0	1.2	1.5	2.5	2.3	7.5
Innisfail	Raised deck	0.0	2.0	7.6	8.0	2.4	7.9	7.8
Innisfail	Embedded	0.4	1.5	4.1	4.4	5.4	4.2	7.4
Innisfail	Embedded painted	0.3	1.5	3.0	5.2	6.2	5.2	6.4
Innisfail	Rot box	0.0	0.0	3.6	5.4	5.4	2.1	7.1
Innisfail	Ground proximity	0.0	0.0	1.3	0.8	1.6	4.6	6.6
Innisfail	Double layer	0.0	0.2	0.7	0.0	0.0	4.5	7.1
Innisfail	Peg	4.0	5.5	5.5	6.0	6.0	8.0	
Clayton	Flat panel	5.3	7.0	7.7	8.0	8.0	8.0	8.0
Clayton	Embedded	1.7	3.9	6.7	5.1	6.9	6.4	7.2
Clayton	Rot box	7.2	7.8	8.0	8.0	8.0	8.0	8.0
Clayton	Ground proximity	6.3	6.5	7.3	7.4	7.1	7.6	7.2
Clayton	Peg	8.0	8.0	8.0	8.0	8.0	8.0	
Rotorua	Flat panel	7.8	6.3	8.0	7.5	7.9	8.0	8.0
Rotorua	Deck-on-grass	5.8	5.8	7.9	8.0	7.9	8.0	7.9
Rotorua	Raised deck	7.7	7.7	7.9	8.0	7.8	8.0	8.0
Rotorua	Embedded	4.1	3.9	6.6	6.9	7.6	7.8	7.6
Rotorua	Embedded painted	1.7	3.8	4.8	5.2	6.8	7.3	7.1
Rotorua	Rot box	4.9	6.7	6.0	7.7	7.6	7.9	8.0
Rotorua	Ground proximity	2.8	4.9	5.4	6.1	6.3	7.6	7.8
Rotorua	Double layer	3.0	4.6	7.8	7.5	7.8	8.0	7.9
	Mean 4 years	3.2	4.1	5.7	5.9	6.0	6.7	7.5
	Mean 3 years	4.6	5.6	6.6	6.9	7.0	7.2	7.8
	Mean 3 & 4 years	3.9	4.9	6.2	6.4	6.5	7.0	7.7

The relative order of failure was the same after three and four years, and the mean for both is also given in Table 19. The mean rating for ACQ quarter H3 and azoles quarter H3 were virtually identical at 6.4 and 6.5 respectively, so these treatments are considered equivalent in the ordering. The next step was to list the individual tests and sites according to their ability to match this mean relative order of failure (Table 20).

Table 20 compares the ability of each test to meet the average relative order of failure for the whole test, or the extent to which they differed. Tests were broken into groups, such as those that met the order exactly (results # 1-7), or were out by one preservative (results 16-28) or two (results 40-43). For example, the ground proximity test at Rotorua (result 4) met the relative order of failure exactly, so is a reliable test although too slow as the quarter-H3 CCA-treated *P. radiata* was still rating 7.6 after four years. Note also that the relative order of failure was considered correct if several means were the same, such as the peg test at Innisfail where there were two means at 5.5 and two at 6.0 (result 2). Similarly, some tests had several means of 8.0 (e.g. results 5-6) so had not failed to meet the correct order at this stage. However, the reliability suggested for these tests should be viewed with caution, as it is quite likely that when mean ratings differentiate in future inspections the tests would be shown to

be less reliable. No conclusion could be drawn for the peg test at Clayton (result 46) as all means were 8.0.

Table 20: Comparison of tests according to their ability to meet the relative order of failure found for all field tests.

#	Test site	Test, 4 y result unless indicated	Desired order of failure in tests						
			Water	HFK	TBTNq	AChQq = azole q		CCAq	Sp G
Same order (or means are equal)									
1	Innis	Ground prox, 3y	0.3	1.8	3.7	4.1	5.0	6.6	7.3
2	Innis	Peg test	4.0	5.5	5.5	6.0	6.0	8.0	
3	Innis	Stakes	0.0	0.0	0.0	0.0	0.0	0.3	6.7
4	Rotorua	Ground prox	2.8	4.9	5.4	6.1	6.3	7.6	7.8
5	Clay	Flat panel	5.3	7.0	7.7	8.0	8.0	8.0	8.0
6	Clay	Rot box	7.2	7.8	8.0	8.0	8.0	8.0	8.0
7	Cl AFS	Flat panel	7.6	7.8	8.0	8.0	8.0	8.0	8.0
Same order allow + or - 0.5 from mean order (add or subtract 0.5 from 1 number only)									
8	Innis	Deck grass	0.0	0.0	1.2	1.5	2.5	2.3	7.5
9	Innis	Deck grass, 3y	0.0	1.2	4.3	4.3	5.1	4.7	8.0
10	Innis	Ground prox	0.0	0.0	1.3	0.8	1.6	4.6	6.6
11	Rotorua	Embed painted	1.7	3.8	4.8	5.2	6.8	7.3	7.1
12	Rotorua	Embed test	4.1	3.9	6.6	6.9	7.6	7.8	7.6
13	Rotorua	Raised deck	7.7	7.7	7.9	8.0	7.8	8.0	8.0
14	Cl AFS	Rot box inoc	0.0	4.9	8.0	7.5	7.8	8.0	8.0
15	Cl AFS	Rot box	7.5	8.0	8.0	8.0	7.9	8.0	8.0
Out by 1									
16	Innis	Flat panel both	0.0	3.0	5.6	6.0	4.4	7.0	7.4
17	Innis	Embed test	0.4	1.5	4.1	4.4	5.4	4.2	7.4
18	Innis	Embed painted	0.3	1.5	3.0	5.2	6.2	5.2	6.4
19	Innis	Embed inoc	0.0	0.0	1.4	5.1	6.4	3.4	7.2
20	Innis	Embed inoc, 2y	0.2	2.3	5.9	7.7	7.9	5.9	7.7
21	Innis	Rot box	0.0	0.0	3.6	5.4	5.4	2.1	7.1
22	Innis	Rot box, 2y	0.6	1.5	4.6	6.0	6.7	3.8	7.8
23	Innis	Rot box inoc	0.0	1.1	3.9	4.5	7.3	5.6	7.1
24	Rotorua	Deck grass	5.8	5.8	7.9	8.0	7.9	8.0	7.9
25	Rotorua	Rot box	4.9	6.7	6.0	7.7	7.6	7.9	8.0
26	Cl AFS	Embed inoc	0.0	0.3	6.9	5.4	6.4	6.9	7.8
27	Cl AFS	Stakes	0.9	2.2	2.8	3.2	4.0	2.4	7.0
28	Ro AFS	Embed	0.2	1.0	6.7	2.0	4.7	4.8	7.1
Out by 1 allow + or - 0.5 from mean order (add or subtract 0.5 from 1 number only)									
29	Innis	Double layer	0.0	0.2	0.7	0.0	0.0	4.5	7.1
30	Innis	Double layer, 3y	0.8	2.5	2.2	0.7	4.2	5.8	7.7
31	Innis	Raised deck	0.0	2.0	7.6	8.0	2.4	7.8	7.8
32	Rotorua	Double layer	3.0	4.6	7.8	7.5	7.8	8.0	7.9
33	Rotorua	Flat panel	7.8	6.3	8.0	7.5	7.9	8.0	8.0
34	Clayton	Embed test	1.7	3.9	6.7	5.1	6.9	6.4	7.2
35	Clayton	Ground prox	6.3	6.5	7.3	7.4	7.1	7.6	7.2
36	Cl AFS	Embed	3.1	2.2	6.1	2.0	5.8	6.1	7.4
37	Ro AFS	Embed inoc	0.0	0.0	7.2	2.3	2.1	5.3	7.3
38	Ro AFS	Rot box	2.3	5.0	4.7	7.5	6.0	8.0	7.9
39	Ro AFS	Stakes	0.0	0.2	0.3	1.3	0.0	0.9	6.9

Table 20 (continued): Comparison of tests according to their ability to meet the relative order of failure found for all field tests.

Out by 2									
40	Rotorua	Embed inoc	0.0	1.3	7.1	6.3	4.2	4.1	7.7
41	Cl AFS	Embed painted	1.6	3.2	6.3	4.1	6.7	5.3	8.0
42	Ro AFS	Rot box inoc	0.0	0.1	6.7	7.4	1.6	5.7	8.0
43	Ro AFS	Embed inoc, 1y	0.0	0.3	8.0	6.3	3.7	6.6	8.0
Out by 2 allow + or - 0.5 from mean order (add or subtract 0.5 from one number only)									
44	Innis	Stakes, 1y	0.5	4.6	4.4	5.9	3.9	5.3	7.3
45	Rotorua	Rot box inoc	0.4	0.2	7.6	7.5	1.9	7.0	8.0
No result									
46	Clayton	Peg test	8.0	8.0	8.0	8.0	8.0	8.0	

Some tests had several 0.0 ratings, so were fast tests. Again, these tests were not penalized for spanning the correct order with the same score, as shown for the Innisfail stake test (result 3) where there were five 0.0 ratings out of a possible seven. However, for test results where there were two or more 0.0 ratings, earlier inspections were examined until a clear relative order of failure could be found (from the 1, 2 or 3 year inspections). So for the Innisfail stake test only the first year inspection lacked two or more 0.0 ratings (result 44), and this result revealed that in-ground stake tests at Innisfail were quite unreliable for predicting the relative order of failure in above-ground tests. Other tests where this process was used were results 1, 9, 20, 22, 30, 43, and the inspection year used is included with their entry in Table 20.

A further variation was to determine which tests varied only slightly from the exact order required. Some tests would meet the order if an arbitrary rule was applied where one change in rating by + or - 0.5 of a rating point then bought the test into the desired relative order. For example, results 8-15 were bought into order by adding or subtracting 0.5 from (only) one of their mean ratings. The embedded painted test at Rotorua (result 11) met the desired order, except that the mean rating of 7.1 for untreated *C. maculata* was lower than for CCA-treated *P. radiata* at 7.3. By adding 0.5 to 7.1 (or subtracting up to 0.5 from 7.3) the required relative order was achieved.

A similar process was used to find those tests that differed from the desired order by only one rating after the ± 0.5 rule was applied (results 29-39), or by 2 ratings after the ± 0.5 rule was applied (results 44,45). For example, the raised deck at Innisfail (result 31) has a mean rating for azoles much lower than expected, and also the rating for ACQ (rating 8.0) is a little higher than for both CCA and untreated *C. maculata*. By subtracting up to 0.5 from 8.0, the order is restored except for the azole result. Similarly, the in-ground stakes after 1 year at Innisfail (result 44) could have 0.5 subtracted from the HFK rating of 4.6 to make it lower than for TBTN. But then, two other scores are still out (TBTN at 4.4 higher than azole at 3.9, and ACQ at 5.9 higher than CCA at 5.3).

Reliability comparisons

From Table 20 some interesting trends appear. Some results can mostly be ignored because the tests have been too slow so there are many 8.0 scores (e.g. results 5-7 and 13-15) or too fast so there are too many 0.0 scores (e.g. result 3). Otherwise, the most reliable tests were the ground proximity tests at Rotorua (result 4) and at Innisfail after three years (result 1), while in the second most reliable set of tests were the deck-on-grass after three and four years at

Innisfail (results 8,9) and the ground proximity test after four years at Innisfail (result 10). Also useful were the embedded tests at Rotorua painted (result 11) or unpainted (result 12). At the other end of the table, the most unreliable tests were the stake test at Innisfail after one year (result 44), trials in the AFSs at Clayton and Rotorua (results 36-39, 41-43), and Rotorua field exposures that were pre-inoculated (results 40,45).

These results suggest that tests positioned closer to the ground give more reliable results than raised tests, and those installed with artificial conditions applied (majority of time in the AFS or pre-inoculated) give less reliable results than natural full-time field exposures. The possible reason is that those tests close to the ground are likely to be colonized by a wider variety of fungal species due to ready inoculation from splashed soil (during rain), soil invertebrates bringing debris to the specimens and accumulated grass clippings from lawn mowing. Whereas, raised tests are in more exposed and harsher conditions for many fungal species (wider extremes in temperature and wood moisture contents) so that fewer species might become established. Indeed the peg test is slow probably because the small volume of its test specimens can dry out too quickly after wetting. When those fewer fungal species do become established in raised tests, they might then dominate that particular test frame and impose their peculiar tolerances and susceptibilities. The ground proximity test at Rotorua and especially Innisfail were fairly 'dirty' tests as ants, slaters, slugs and other invertebrates often bought a film of soil to the specimens (too much soil, and reliability for H3 preservatives can become a problem, as shown by the in-ground stake tests) and grass/weeds often grew through and between the bricks and specimens (Figures 55, 56). For the deck-on-grass test at Innisfail grass clippings especially, and some soil, accumulated within any recesses in the frames (Figure 46). A wider variety of decay types and fruiting bodies were sometimes seen in these tests than in raised tests. It is likely important that test specimens have similar amounts of debris associated with them (as was apparent in this project), and to randomise test specimen positions within the tests to minimise the impact of any localised effects (full randomisation not done in double layer or peg tests).

In comparison, the raised deck at Innisfail appeared to be dominated by perhaps one fungal species (Figure 67), which was identified as a species of *Heterotextus*, possibly *H. peziziformis* or *H. miltinus*. This genus is not particularly well known as wood decay fungi in the built environment, but was particularly savage on the azole treatment, whereas when this fungus had to compete with many other species deck-on-grass its dominance reduced so that azoles performed within the comparative order expected. Other examples are that the 'old' flat panel test at Innisfail (a 'raised' test) began as the fastest naturally inoculated H3 test (not pre-inoculated), as shown by water-treated *P. radiata* rating 3.2 after one year. But again, this 'old' frame was dominated by one particular brown rotting fungus that was later identified as *Fomitopsis lilacinogilva*. The rot box at Innisfail was the fastest H3 test of all as shown by the failure of CCA-treated *P. radiata* after two years, but here also the boxes appeared to be dominated by one fungal species that was copper-tolerant (to CCA), although it was very slow to affect AChQ-treated specimens perhaps due to the high quat loading in this treatment. This suspected copper-tolerant fungus was less able to influence the adjacent pre-inoculated rot boxes, because there was more competition from pre-inoculation with *Gloeophyllum abietinum* and *Perenniporia tephropora*. The rot boxes at Innisfail were placed on a large concrete pad rather than directly on the soil, so perhaps had some shielding (by means of distance) from the natural variety of inoculum that may have occurred if they had been placed on bare earth or grass. The double layer test at Innisfail was placed on grass, but then a large frame (with sides twice as high as in the ground proximity test) topped with shade cloth surrounded the test, effectively shielding it from grass clippings and wind-blown debris. There was also less infiltration amongst test specimens by soil invertebrates compared to the ground proximity test. A fungus particularly tolerant of AChQ appears to have become

established in the double layer test at Innisfail. Perhaps the double layer test would have given a more typical order of failure if there was no shade cloth cover.

Similarly, tests pre-inoculated with one or two laboratory test fungi gave results at odds to the average result, as their particular tolerances could dominate. Therefore at Rotorua, *O. placenta* was particularly destructive of the quarter-H3 azole retention and this capacity could not be tempered by competition from other fungi attempting to establish during field exposure, whether in pre-inoculated rot boxes placed on bare earth or in pre-inoculated embedded tests placed on raised frames.

Best tests at each field test site

At Innisfail, the most reliable and fastest tests, where the quarter-H3 CCA-treated *P. radiata* mean ratings were below 6.0, were the deck-on-grass and ground proximity tests. The embedded tests, whether painted or unpainted, were the best of the 'raised' tests, and a suggestion for improving their reliability would be to place them closer to the ground. The deck-on-grass and embedded test also gave the required result (CCA mean rating less than 6.0) after three years. The rot box was also fast, but too severe on CCA. Therefore, the recommendation for Innisfail would be to conduct deck-on-grass tests, or embedded tests that are 90-100 mm (thickness of bearers) from the soil. The ground proximity test is also useful. A risk (or perhaps an advantage) of near-to-ground tests at Innisfail is that termites may influence results. At Innisfail, H3 tests are located in the middle of a large mowed area of lawn, and are some 50 metres away from the nearest vegetation/forested area. Over the 15 years of H3 field testing conducted by CSIRO at this site, termites were found in another flat panel test only once. Termites did not affect the current test. Therefore, the distance that the boundary fence and rainforest is from the H3 tests specimens is beyond the foraging distance of the many termites species found in the Innisfail rainforest.

At Clayton in the field, where fewer test designs were placed, the embedded test was fastest (CCA mean rating 6.4) followed by the ground proximity test (CCA mean rating 7.6). The embedded test was surprisingly fast at Clayton, and it seems likely that a suitable preservative comparison could have been achieved if there was one more inspection (year 5) when the mean CCA rating would most likely be less than 6.0. The embedded test was not raised, but had been placed on a large concrete pad, so may have been even faster if placed on grass.

At Rotorua in the field, apart from the less reliable pre-inoculated tests, the lowest CCA rating obtained was 7.3 for the embedded painted test, followed by the ground proximity test (mean rating 7.6) and the embedded test (unpainted, mean rating 7.8). Again, the embedded tests may have been faster if placed nearer to the ground. It is noteworthy that Clayton had a lower rating for CCA of 6.4 in the embedded test, even though Rotorua has twice the rainfall. Perhaps this was due to the embedded test at Clayton being placed on a concrete pad, which was of greater benefit than being raised. The rot boxes at Rotorua were placed on the grass, and had more decay than those at Clayton which were on the concrete pad.

Comments on H3 testing and designs

Results from this project support the view that testing for new wood preservatives should include or start with pure culture bioassays in the laboratory. Then, the main fungal species attacking timbers in service in the built environment can be tested, along with their individual peculiar tolerances. In Australia, fungi commonly isolated from wood in service are routinely used in fungal bioassays (AWPC protocols), and can detect any unusual susceptibilities to this list of important fungi. Then, a field test could be conducted where frames are placed close to ground, to determine the likely 'average' performance under most circumstances relative to other preservatives.

There may be occasions when the results obtained by peculiar dominating fungi in the raised field tests, tests on large concrete pads, or pre-inoculated tests would be useful for fine-tuning the performance of a particular preservative. For example, if formulation variations of azoles were to be examined for improved performance, then a raised deck test at Innisfail, or a pre-inoculated test with *O. placenta*, would be warranted.

It is sometimes thought that the ground proximity test, especially in the tropics, can be more like a ground contact test than a proper H3 test. However, this project shows that the ground proximity test gave the correct relative order of failure for H3 timbers, unlike the in-ground stake test at Innisfail. It is often easier to obtain test samples that are sapwood only by cutting 200 x 35 x 35 mm rather than 200 x 75 x 25 mm specimens. There seems no special reason for excluding either size from the ground proximity test.

The embedded tests were orientated at a 45^{o} angle with the idea that more water might drain into the 'joint'. However, a vertical orientation would probably be just as effective, and then the frames would be easier to install and more frames could be stacked into the same area. At Rotorua the embedded test was slightly faster when painted (average rating of all means was 5.2) than unpainted (average rating of all means 6.4), perhaps due to increased water trapping by the paint coating. At Innisfail the embedded test was similar whether painted (average rating of all means 4.0) or unpainted (average rating of all means 3.9), as water was mostly not limiting in this wet environment. This project suggests that the embedded test could be improved by placing the frames on treated pine bearers 90-100 mm from the ground.

The rot boxes generally became too wet (Table 7). Indeed, test specimens often squirted water when jabbed with a knife. At Innisfail it seemed that one copper-tolerant brown rot fungal species was unusually able to tolerate such damp conditions, and then caused rapid decay by the two year inspection. At Clayton during the three year inspection, several thick plastic meshes were placed between the rows (producing ~5 mm gaps) to try and reduce water-logging. However, even this step was insufficient to encourage significant decay. It seems that at least one end of a test specimen should be exposed and able to wick moisture by drying, so that a moisture gradient can establish in the test specimen so that optimal moisture conditions will then occur somewhere along the specimen's length. Therefore, a better design for the rot box may be to remove the two long sides of the box, so that specimens are effectively cradled within a U-shaped frame rather than a four sided box.

The peg test showed some potential at Innisfail, although it was still the slowest test at this site. At Clayton no result was achieved after four years as all pegs were sound. If time was of less concern, the peg test could be improved by having for example 100 replicates of each

treatment. The pegs are readily available, and could be treated to a mean retention rather than weighing each peg. Then, a 'natural' range of wood performances that include some defects would occur (in other tests, only those specimens close to the desired retentions are tested). Inspection is quick, simply by opening and closing the peg, and could also provide some information on corrosiveness to the metal hinge.

Test specimens in the double layer test were often quite wet, especially at Innisfail, yet the test had useful rates of decay at both sites where it was installed (Innisfail and Rotorua). A frame was made so that shade cloth was above the test specimens, with the aim of retaining moisture to hasten decay. This frame may be useful in drier sites (such as if it had been installed at Clayton), but is not needed at Innisfail, and also may best be excluded at Rotorua. If shade cloth is used, it may be better to make a frame with open sides rather than full length boards that shield against soil debris that could otherwise accumulate amongst the test specimens. A potential risk with the double layer test is that test specimens are not more evenly randomised in the frame, that is, all replicates are placed together.

The raised and deck-on-grass tests were installed to provide a calibration between the more true-to-life 'raised' deck usage and the accelerated deck-on-grass (although decks close to ground are sometimes built). At Innisfail after four years the average of all mean ratings was 2.1 (about 82% destroyed) for deck-on-grass and 5.1 (about 38% destroyed) for raised deck. Also, the average for all mean ratings was 6.1 after two years for deck-on-grass and also after three years for raised deck. These results suggest the deck-on-grass suffers decay 30 to 50% faster than raised deck at Innisfail. At Rotorua after four years the average of all mean ratings was 7.3 (about 6% destroyed) for deck-on-grass and 7.9 (about 1% destroyed) for raised deck. Also, the average for all mean ratings was 7.8 after two years for deck-on-grass and 7.9 after four years for raised deck. Perhaps, these results support the view that deck-on-grass is 50% faster than raised deck; however, there is insufficient decay differentiation at this stage for reliable comparisons to be made at Rotorua.

Flat panel tests were often used by CSIRO in Australia, and appeared to give fairly reliable results (Table 20, Clayton result 5, Innisfail, result 16). At Innisfail this test usually takes 6-7 years before comparative results suitable for preservative registration can be achieved, and indeed the quarter-H3 CCA-treated *P. radiata* specimens still had a mean rating of 7.0 after four years at Innisfail. The flat panel test at Innisfail had half of the replicates placed on an old frame and then the mean rating was 6.4, and half on a new frame where the mean rating was 7.6. Therefore, flat panel test results can be accelerated by placing new tests on 'old' frames (frames where local fungi have already become established).

Conclusions

1. The relative order of test site severity was Innisfail (most severe), Rotorua AFS, Rotorua, Clayton AFS and Clayton (least severe). For the field tests, this sequence follows the same order as mean annual rainfall of 3600 mm (Innisfail), 1400 mm (Rotorua) and 700 mm (Clayton).
2. The only field test site where quarter-H3 CCA-treated *P. radiata* had reached a mean rating less than 6.0 in H3 'natural' tests (not pre-inoculated) was at Innisfail. At this site, the rot box achieved this threshold after two years, the deck-on-grass and embedded tests after three years, and the ground proximity, painted embedded and double layer tests after four years.
3. The slowest test at Innisfail was the peg test, and it failed to give a result at Clayton (all pegs were sound). The flat panel test was also amongst the slowest tests, but could be accelerated by placing new tests on old frames in which local fungi had already become established.
4. The most reliable tests, that followed same the relative order of failure as all tests at all field sites combined, were the deck-on-grass and ground proximity tests. The likely reason is that these tests are placed close to the ground where a wider range of fungal species can establish, rather than in 'raised' tests that provide harsher conditions and fewer fungi which can then dominate and impose their own peculiar tolerances upon the test. The most reliable 'raised' test was the embedded test.
5. Tests on 'ground' but still partially shielded from soil/grass debris also tended to give less reliable results and become dominated by fewer fungi. The rot boxes at Innisfail were on a large concrete pad (away from soil) and appeared to become dominated by a copper-tolerant brown rotting fungus that was too severe on CCA. The double layer test at Innisfail was enclosed on the sides by a tall frame built so that shade cloth could cover the test, and a fungus particularly severe on AChQ-treated specimens became established.
6. Other atypical results arose from tests pre-inoculated with laboratory fungi, especially at Rotorua where *Oligoporus placenta* was used. The in-ground stake tests, especially at Innisfail, gave an atypical relative order of failure to that found in H3 exposure. Trials in the AFSs at Clayton and Rotorua also tended to be less reliable at producing the typical order of failure found in natural field exposure.
7. At Rotorua, only the inoculated embedded test had reached a mean rating less than 6.0 for quarter-H3 CCA-treated *P. radiata*. In the Rotorua AFS, both pre-inoculated tests (embedded and rot box) and the embedded test (not pre-inoculated) gave mean ratings less than 6.0 after four years.
8. At Clayton, the most severe test of those installed was the embedded test, and it seemed likely that this test would achieve a result (CCA rating less than 6.0) after five years. In the Clayton AFS only the painted embedded test had reached a mean rating of less than 6.0 for quarter-H3 CCA-treated *P. radiata*.
9. The fastest in-ground stake trials occurred at Innisfail, followed by Rotorua AFS and Clayton AFS.
10. The raised deck at Innisfail, and the pre-inoculated (*O. placenta*) tests at Rotorua were particularly severe on quarter-H3 azole-treated *P. radiata*. Most of the decay in the raised deck at Innisfail appeared to be due to a species of *Heterotextus*.
11. The flat panel test on the old test frame at Innisfail was one of the fastest tests initially, but has slowed compared to most other tests at Innisfail. This frame appeared to be dominated by *Fomitopsis lilacinogilva*.

12. The rot box design often caused test specimens to become too wet for decay. However at Innisfail it was the fastest test, and more decay occurred in non-inoculated than pre-inoculated boxes, suggesting that pre-inoculation inhibited the establishment of more aggressive local fungal species.
13. Bing^{TM} testing is an acoustic method for detecting changes in MOE in flexure, and was able to detect decay or incipient decay earlier than could be detected by probing with a knife. This method could therefore be used to make assessments earlier than can be made using conventional 'pick testing'.
14. The most reliable and fastest tests to use are the deck-on-grass, ground proximity and embedded tests (painted or unpainted). Reliability can be improved by placing tests closer to grass or bare earth.
15. More unusual results occur in raised tests, which may be useful for testing formulation variations to those preservatives found to be unusually susceptible in certain test designs. Laboratory bioassays can also test against selected fungi, and utilise fungi that are ubiquitous and known to be relevant to the built environment.

Recommendations

It is recommended that the embedded (preferably placed near the ground) and ground proximity tests be included in the AWPC protocols. The deck-on-grass test is already in the protocols.

While some of the tests examined can produce the required results in 3-4 years at Innisfail, it would be prudent to run such tests for longer duration as this would inevitably improve accuracy and confidence in comparisons. Also, given the variation that can be obtained from different tests, it would also be useful to have results from at least two different test sites or tests when considering the efficacy of new wood preservatives.

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Researcher's Disclaimer

Appendix 1: Summary tables from previous year inspections.

Table 21: Year 1 mean ratings (sd) for water-treated *P. radiata* (8=sound, 0=destroy.).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	3.2 (4.4)*		8.0 (0.0)		
Deck-on-grass	7.2 (2.2)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	7.7 (0.7)
Embedded test painted	7.9 (0.3)	7.8 (0.4)		8.0 (0.0)	
Embedded test inoculated	2.6 (2.5)	0.2 (0.6)		3.0 (3.2)	0.0 (0.0)
Rot box	7.7 (0.7)	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	2.9 (3.2)	1.0 (1.8)		1.4 (2.2)	0.0 (0.0)
Ground proximity	7.1 (1.7)	8.0 (0.0)	8.0 (0.0)		
In-ground stakes	0.5 (1.1)			5.4 (1.1)	3.8 (1.9)
Double layer test	8.0 (0.0)	8.0 (0.0)			
Peg test	8.0 (0.0)		8.0 (0.0)		

Table 22: Year 2 mean ratings (sd) for water-treated *P. radiata*.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	5.0 (2.8)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	2.6 (3.7)*		8.0 (0.0)		
Flat panel summary	3.8 (3.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	2.3 (1.9)	7.4 (1.3)			
Raised deck	4.8 (4.1)	8.0 (0.0)			
Embedded test	5.1 (3.6)	6.2 (1.2)	7.8 (0.4)	8.0 (0.0)	2.4 (3.4)
Embedded test painted	3.5 (2.4)	6.3 (2.4)		6.2 (2.7)	
Embedded test inoculated	0.2 (0.6)	0.3 (0.9)		0.1 (0.3)	0.0 (0.0)
Rot box	0.6 (1.3)	6.7 (0.5)	7.6 (0.7)	7.9 (0.3)	6.3 (2.3)
Rot box inoculated	1.0 (2.0)	0.6 (1.9)		0.0 (0.0)	0.0 (0.0)
Ground proximity	2.0 (2.1)	5.9 (1.4)	7.9 (0.3)		
Double layer test	6.3 (1.6)	6.6 (0.7)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			3.8 (1.4)	1.2 (1.8)

Table 23: Year 3 mean ratings (sd) for water-treated *P. radiata*.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	2.2 (2.5)*	7.8 (0.4)		8.0 (0.0)	
Flat panel old frame*	2.6 (3.7)*		7.8 (0.4)		
Flat panel summary	2.4 (3.4)	7.8 (0.4)	7.8 (0.4)	8.0 (0.0)	
Deck-on-grass	0.0 (0.0)	7.3 (1.3)			
Raised deck	1.3 (2.7)	7.9 (0.3)			
Embedded test	1.7 (3.0)	5.8 (1.9)	4.5 (2.3)	7.3 (1.3)	1.0 (2.5)
Embedded test painted	2.5 (2.5)	3.5 (2.9)		4.9 (3.5)	
Embedded test inoculated	0.0 (0.0)	0.0 (0.0)		0.0 (0.0)	0.0 (0.0)
Rot box	0.0 (0.0)	5.7 (1.8)	7.6 (0.7)	7.6 (0.5)	5.0 (2.6)
Rot box inoculated	0.0 (0.0)	0.4 (1.3)		0.0 (0.0)	0.0 (0.0)
Ground proximity	0.3 (0.9)	5.6 (1.3)	7.8 (0.4)		
Double layer test	0.8 (1.0)	6.3 (1.6)			
Peg test	5.5 (2.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			2.3 (1.8)	0.5 (1.6)

Table 24: Year 1 mean ratings (sd) for HFK-treated *P. radiata* (8=sound, 0=destroyed).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	4.2 (3.5)*		8.0 (0.0)		
Deck-on-grass	7.9 (0.3)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	7.1 (2.5)
Embedded test painted	8.0 (0.0)	7.8 (0.4)		8.0 (0.0)	
Embedded test inoculated	6.6 (2.1)	5.1 (2.3)		3.5 (2.4)	0.3 (0.9)
Rot box	8.0 (0.0)	7.9 (0.3)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	8.0 (0.0)	1.0 (1.7)		6.7 (2.0)	1.3 (1.3)
Ground proximity	7.7 (0.9)	8.0 (0.0)	8.0 (0.0)		
In-ground stakes	4.6 (1.8)			7.0 (0.9)	4.6 (1.1)
Double layer test	8.0 (0.0)	7.9 (0.3)			
Peg test	8.0 (0.0)		8.0 (0.0)		

*Five replicates

Table 25: Year 2 mean ratings (sd) for HFK-treated *P. radiata* (8=sound, 0=destroyed).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.2 (0.4)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	3.0 (4.1)*		8.0 (0.0)		
Flat panel summary	5.1 (3.5)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	5.3 (2.0)	7.5 (1.0)			
Raised deck	8.0 (0.0)	7.9 (0.3)			
Embedded test	6.6 (2.2)	6.2 (1.3)	7.7 (0.7)	8.0 (0.0)	3.8 (3.0)
Embedded test painted	5.9 (2.0)	6.6 (0.5)		7.1 (2.5)	
Embedded test inoculated	2.3 (2.9)	3.4 (2.8)		1.0 (1.5)	0.2 (0.6)
Rot box	1.5 (2.3)	7.5 (0.5)	8.0 (0.0)	8.0 (0.0)	7.9 (0.3)
Rot box inoculated	5.6 (2.4)	0.4 (0.8)		5.8 (2.6)	0.7 (1.2)
Ground proximity	5.0 (1.8)	6.9 (1.3)	8.0 (0.0)		
Double layer test	4.7 (1.8)	7.1 (0.6)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	1.8 (1.5)			4.9 (1.3)	1.4 (1.4)

Table 26: Year 3 mean ratings (sd) for HFK-treated *P. radiata* (8=sound, 0=destroyed).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.0 (0.7)*	8.0 (0.0)		7.9 (0.3)	
Flat panel old frame*	3.0 (4.1)*		8.0 (0.0)		
Flat panel summary	5.0 (3.5)	8.0 (0.0)	8.0 (0.0)	7.9 (0.3)	
Deck-on-grass	1.2 (2.3)	6.8 (1.6)			
Raised deck	5.6 (3.3)	8.0 (0.0)			
Embedded test	4.6 (3.2)	5.3 (1.8)	6.4 (2.7)	6.4 (2.8)	1.8 (2.6)
Embedded test painted	3.4 (2.5)	5.6 (1.2)		7.1 (2.5)	
Embedded test inoculated	0.2 (0.6)	2.2 (2.1)		0.5 (1.1)	0.0 (0.0)
Rot box	0.0 (0.0)	7.4 (0.7)	8.0 (0.0)	8.0 (0.0)	6.9 (1.4)
Rot box inoculated	2.7 (3.0)	0.3 (0.7)		5.7 (2.7)	0.2 (0.6)
Ground proximity	1.8 (2.0)	6.9 (1.1)	7.8 (0.4)		
Double layer test	2.5 (1.8)	6.9 (0.9)			
Peg test	6.0 (2.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			3.9 (0.7)	0.7 (1.2)

*Five replicates

Table 27: Year 1 mean ratings (sd) for quarter-H3 AChQ-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	7.4 (1.3)*		8.0 (0.0)		
Deck-on-grass	8.0 (0.0)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Embedded test painted	8.0 (0.0)	7.9 (0.3)		8.0 (0.0)	
Embedded test inoculated	7.9 (0.3)	7.7 (0.5)		8.0 (0.0)	6.3 (2.6)
Rot box	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	8.0 (0.0)	8.0 (0.0)		8.0 (0.0)	8.0 (0.0)
Ground proximity	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)		
In-ground stakes	5.9 (2.0)			7.9 (0.3)	6.4 (1.6)
Double layer test	7.7 (0.7)	7.9 (0.3)			
Peg test	8.0 (0.0)		8.0 (0.0)		

*Five replicates

Table 28: Year 2 mean ratings (sd) for quarter-H3 AChQ-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	6.2 (3.5)*		8.0 (0.0)		
Flat panel summary	7.1 (2.5)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	6.4 (1.8)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	7.9 (0.3)	7.3 (0.5)	8.0 (0.0)	8.0 (0.0)	4.7 (3.4)
Embedded test painted	7.8 (0.4)	7.2 (0.6)		8.0 (0.0)	
Embedded test inoculated	7.7 (0.7)	7.5 (0.5)		7.4 (1.3)	5.5 (3.4)
Rot box	6.0 (2.3)	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	7.2 (0.8)	7.9 (0.3)		7.5 (1.3)	7.9 (0.3)
Ground proximity	7.0 (2.5)	7.7 (0.5)	8.0 (0.0)		
Double layer test	6.0 (2.9)	7.9 (0.3)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	1.0 (1.9)			5.9 (1.2)	4.0 (2.4)

Table 29: Year 3 mean ratings (sd) for quarter-H3 AChQ-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.4 (0.5)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	6.2 (3.5)*		8.0 (0.0)		
Flat panel summary	6.8 (2.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	4.3 (2.5)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	7.1 (1.3)	7.4 (0.5)	7.5 (1.0)	6.1 (3.1)	3.5 (3.7)
Embedded test painted	7.2 (1.2)	6.6 (1.6)		7.2 (1.4)	
Embedded test inoculated	6.5 (1.5)	7.3 (0.7)		7.0 (1.4)	5.3 (2.9)
Rot box	5.5 (2.3)	7.9 (0.3)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	5.9 (2.2)	7.8 (0.6)		7.5 (1.2)	7.7 (0.5)
Ground proximity	4.1 (2.8)	7.7 (0.5)	7.8 (0.4)		
Double layer test	0.7 (1.5)	7.8 (0.6)			
Peg test	7.5 (1.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			4.6 (1.6)	2.6 (2.2)

*Five replicates

Table 30: Year 1 mean ratings (sd) for quarter-H3 CCA-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	7.8 (0.4)*		8.0 (0.0)		
Deck-on-grass	8.0 (0.0)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Embedded test painted	8.0 (0.0)	8.0 (0.0)		8.0 (0.0)	
Embedded test inoculated	7.8 (0.6)	6.5 (1.1)		7.9 (0.3)	6.6 (1.6)
Rot box	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	8.0 (0.0)	8.0 (0.0)		8.0 (0.0)	7.6 (1.3)
Ground proximity	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)		
In-ground stakes	5.3 (2.2)			7.6 (0.5)	6.8 (1.0)
Double layer test	8.0 (0.0)	8.0 (0.0)			
Peg test	8.0 (0.0)		8.0 (0.0)		

*Five replicates

Table 31: Year 2 mean ratings (sd) for quarter-H3 CCA-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	6.8 (2.7)*		8.0 (0.0)		
Flat panel summary	7.4 (1.9)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	6.7 (0.9)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	7.9 (0.3)	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)	7.2 (0.8)
Embedded test painted	7.7 (0.9)	7.7 (0.5)		8.0 (0.0)	
Embedded test inoculated	5.9 (2.1)	5.8 (0.9)		7.7 (0.7)	6.8 (1.0)
Rot box	3.8 (2.8)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	7.7 (0.9)	7.8 (0.4)		8.0 (0.0)	6.5 (1.6)
Ground proximity	8.0 (0.0)	7.8 (0.4)	8.0 (0.0)		
Double layer test	7.8 (0.6)	8.0 (0.0)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	1.2 (1.9)			5.4 (1.2)	5.2 (1.5)

Table 32: Year 3 mean ratings (sd) for quarter-H3 CCA-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	6.4 (3.6)*		8.0 (0.0)		
Flat panel summary	7.2 (2.5)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	4.7 (1.7)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	5.9 (2.7)	7.8 (0.4)	7.9 (0.3)	8.0 (0.0)	6.0 (2.7)
Embedded test painted	6.9 (1.6)	7.7 (0.7)		8.0 (0.0)	
Embedded test inoculated	4.2 (1.5)	5.2 (1.5)		7.3 (1.2)	6.3 (1.7)
Rot box	2.3 (3.2)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	6.9 (1.9)	7.4 (0.7)		8.0 (0.0)	6.2 (1.8)
Ground proximity	6.6 (1.0)	8.0 (0.0)	8.0 (0.0)		
Double layer test	5.8 (2.3)	8.0 (0.0)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	0.3 (0.9)			3.7 (1.1)	2.3 (1.5)

*Five replicates

Table 33: Year 1 mean ratings (sd) for quarter-H3 azole-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	7.8 (0.4*)		8.0 (0.0)		
Deck-on-grass	8.0 (0.0)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	7.8 (0.6)
Embedded test painted	8.0 (0.0)	8.0 (0.0)		8.0 (0.0)	
Embedded test inoculated	8.0 (0.0)	7.0 (0.9)		8.0 (0.0)	3.7 (2.9)
Rot box	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	8.0 (0.0)	2.8 (3.4)		8.0 (0.0)	2.1 (2.8)
Ground proximity	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)		
In-ground stakes	3.9 (0.7)			7.3 (0.5)	5.1 (1.4)
Double layer test	8.0 (0.0)	8.0 (0.0)			
Peg test	8.0 (0.0)		8.0 (0.0)		

*Five replicates

Table 34: Year 2 mean ratings (sd) for quarter-H3 azole-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.8 (0.4)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	5.8 (3.3*)		8.0 (0.0)		
Flat panel summary	6.8 (2.5)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	6.9 (0.9)	8.0 (0.0)			
Raised deck	8.0 (0.0)	7.8 (0.4)			
Embedded test	8.0 (0.0)	7.5 (0.5)	8.0 (0.0)	8.0 (0.0)	6.2 (2.5)
Embedded test painted	7.9 (0.3)	7.5 (0.5)		8.0 (0.0)	
Embedded test inoculated	7.9 (0.3)	6.0 (0.9)		7.4 (1.3)	2.9 (2.6)
Rot box	6.7 (1.3)	7.7 (0.5)	8.0 (0.0)	7.9 (0.3)	7.5 (1.1)
Rot box inoculated	7.6 (0.5)	2.3 (3.2)		8.0 (0.0)	1.5 (2.5)
Ground proximity	7.6 (1.3)	7.4 (0.7)	8.0 (0.0)		
Double layer test	7.2 (1.7)	7.8 (0.4)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	0.7 (0.9)			6.8 (0.9)	2.7 (1.6)

Table 35: Year 3 mean ratings (sd) for quarter-H3 azole-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.2 (1.1)*	7.9 (0.3)		8.0 (0.0)	
Flat panel old frame*	5.8 (3.3*)		8.0 (0.0)		
Flat panel summary	6.5 (2.5)	7.9 (0.3)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	5.1 (1.6)	7.9 (0.3)			
Raised deck	4.1 (3.7)	7.9 (0.3)			
Embedded test	7.8 (0.4)	7.7 (0.5)	8.0 (0.0)	7.9 (0.3)	5.6 (3.2)
Embedded test painted	7.1 (2.2)	7.6 (0.7)		8.0 (0.0)	
Embedded test inoculated	6.7 (0.8)	4.7 (2.3)		7.0 (1.6)	3.0 (2.6)
Rot box	5.9 (1.7)	7.6 (0.5)	8.0 (0.0)	7.9 (0.3)	6.9 (1.9)
Rot box inoculated	7.5 (0.5)	2.1 (3.3)		7.9 (0.3)	1.5 (2.5)
Ground proximity	5.0 (1.8)	7.5 (0.7)	8.0 (0.0)		
Double layer test	4.2 (2.6)	7.8 (0.4)			
Peg test	7.0 (2.1)		8.0 (0.0)		
In-ground stakes	0.1 (0.3)			4.8 (1.0)	1.3 (1.3)

*Five replicates

Table 36: Year 1 mean ratings (sd) for quarter-H3 TBTN-treated *P. radiata*.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	8.0 (0.0)*		8.0 (0.0)		
Deck-on-grass	8.0 (0.0)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Embedded test painted	8.0 (0.0)	8.0 (0.0)		8.0 (0.0)	
Embedded test inoculated	7.9 (0.3)	7.9 (0.3)		8.0 (0.0)	8.0 (0.0)
Rot box	8.0 (0.0)	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	8.0 (0.0)	8.0 (0.0)		8.0 (0.0)	7.8 (0.4)
Ground proximity	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)		
In-ground stakes	4.4 (1.1)			7.0 (0.5)	6.2 (1.3)
Double layer test	8.0 (0.0)	8.0 (0.0)			
Peg test	8.0 (0.0)		8.0 (0.0)		

*Five replicates

Table 37: Year 2 mean ratings (sd) for quarter-H3 TBTN-treated *P. radiata* (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.4 (0.9)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	6.0 (3.5)*		8.0 (0.0)		
Flat panel summary	6.7 (2.5)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	7.1 (1.5)	7.9 (0.3)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	8.0 (0.0)	7.2 (0.6)	8.0 (0.0)	7.8 (0.6)	7.6 (0.5)
Embedded test painted	7.0 (1.3)	7.1 (0.6)		8.0 (0.0)	
Embedded test inoculated	5.9 (1.6)	7.5 (0.5)		7.8 (0.4)	7.7 (0.5)
Rot box	4.6 (2.6)	7.2 (1.0)	8.0 (0.0)	8.0 (0.0)	7.9 (0.3)
Rot box inoculated	6.3 (1.4)	8.0 (0.0)		8.0 (0.0)	6.7 (2.5)
Ground proximity	7.0 (1.3)	7.2 (0.6)	8.0 (0.0)		
Double layer test	6.1 (1.8)	7.9 (0.3)			
Peg test	8.0 (0.0)		8.0 (0.0)		
In-ground stakes	0.3 (0.7)			5.4 (1.0)	2.9 (2.4)

Table 38: Year 3 mean ratings (sd) for quarter-H3 TBTN-treated *P. radiata*.

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.4 (0.9)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	5.4 (3.4)*		8.0 (0.0)		
Flat panel summary	6.4 (2.6)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	4.3 (2.5)	7.9 (0.3)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	5.6 (3.3)	6.9 (1.0)	7.6 (0.7)	7.8 (0.6)	7.1 (0.9)
Embedded test painted	5.1 (3.1)	6.6 (1.2)		8.0 (0.0)	
Embedded test inoculated	2.7 (2.6)	7.3 (0.7)		7.6 (0.7)	7.4 (0.5)
Rot box	4.1 (3.0)	7.0 (0.8)	8.0 (0.0)	8.0 (0.0)	7.1 (1.3)
Rot box inoculated	6.0 (1.4)	8.0 (0.0)		8.0 (0.0)	6.8 (1.1)
Ground proximity	3.7 (2.4)	7.3 (1.3)	8.0 (0.0)		
Double layer test	2.2 (2.6)	7.9 (0.3)			
Peg test	6.0 (2.6)		8.0 (0.0)		
In-ground stakes	0.0 (0.0)			4.0 (0.8)	2.0 (1.5)

*Five replicates

Table 39: Year 1 mean ratings (sd) for untreated *C. maculata* heartwood (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	8.0 (0.0)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	8.0 (0.0)*		8.0 (0.0)		
Deck-on-grass	8.0 (0.0)	8.0 (0.0)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	7.7 (0.7)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Embedded test painted	7.8 (0.4)	8.0 (0.0)		8.0 (0.0)	
Embedded test inoculated	7.9 (0.3)	8.0 (0.0)		7.4 (1.6)	8.0 (0.0)
Rot box	7.9 (0.3)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	8.0 (0.0)	8.0 (0.0)		7.8 (0.6)	8.0 (0.0)
Ground proximity	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)		
In-ground stakes	7.3 (1.3)			7.7 (0.5)	7.0 (0.0)
Double layer test	8.0 (0.0)	8.0 (0.0)			
Peg test			8.0 (0.0)		

*Five replicates

Table 40: Year 2 mean ratings (sd) for untreated *C. maculata* heartwood (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.8 (0.4)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	7.8 (0.4)*		8.0 (0.0)		
Flat panel summary	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	8.0 (0.0)	7.9 (0.3)			
Raised deck	8.0 (0.0)	8.0 (0.0)			
Embedded test	7.7 (0.7)	7.7 (0.5)	7.9 (0.3)	8.0 (0.0)	7.4 (0.5)
Embedded test painted	7.2 (1.3)	7.7 (0.7)		8.0 (0.0)	
Embedded test inoculated	7.7 (0.7)	7.9 (0.3)		7.9 (0.3)	7.6 (0.5)
Rot box	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	7.5 (0.5)	8.0 (0.0)		8.0 (0.0)	7.5 (0.7)
Ground proximity	7.5 (0.5)	7.7 (0.5)	8.0 (0.0)		
Double layer test	7.8 (0.4)	7.9 (0.3)			
Peg test			8.0 (0.0)		
In-ground stakes	6.9 (0.3)			7.5 (0.5)	7.0 (0.0)

Table 41: Year 3 mean ratings (sd) for untreated *C. maculata* heartwood (8=sound).

Test method	Field test site			AFS	
	Innisfail	Rotorua	Clayton	Clayton	Rotorua
Flat panel new frame*	7.6 (0.5)*	8.0 (0.0)		8.0 (0.0)	
Flat panel old frame*	7.4 (1.3)*		8.0 (0.0)		
Flat panel summary	7.5 (1.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	
Deck-on-grass	8.0 (0.0)	8.0 (0.0)			
Raised deck	7.8 (0.4)	8.0 (0.0)			
Embedded test	7.7 (0.7)	7.6 (0.5)	7.7 (0.5)	7.7 (0.9)	7.3 (0.5)
Embedded test painted	6.8 (2.1)	7.3 (0.9)		8.0 (0.0)	
Embedded test inoculated	7.7 (0.7)	7.8 (0.4)		7.8 (0.4)	7.5 (0.5)
Rot box	7.8 (0.4)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)	8.0 (0.0)
Rot box inoculated	7.5 (0.5)	8.0 (0.0)		8.0 (0.0)	8.0 (0.0)
Ground proximity	7.3 (0.7)	7.9 (0.3)	8.0 (0.0)		
Double layer test	7.7 (0.5)	8.0 (0.0)			
Peg test					
In-ground stakes	6.8 (0.4)			7.0 (0.0)	7.0 (0.0)

*Five replicates

Appendix 2: Four year inspection results for test specimens

Key:

PR = *Pinus radiata*
SG = Spotted gum (*Corymbia maculata*)

In the treatment column, q means quarter H3 retention.

In the retention % m/m or air dry density column, the result for:
SG none is air dry density in kg/m^3
PR water is air dry density in kg/m^3
AChQ is elemental copper % m/m oven dried wood
CCA is total active element of Cu + Cr + As % m/m oven dried wood
Azoles is total azoles % m/m oven dried wood
TBTN is elemental tin % m/m oven dried wood
HFK is HFK % m/m oven dried wood
Tan E is elemental copper plus tebuconazole % m/m oven dried wood
CuN is elemental copper % m/m oven dried wood
CC is Cu + Cr % m/m oven dried wood
Boron is elemental boron % m/m oven dried wood

Innisfail new frame flat panel installed 19-22 Nov 2007, inspected 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm, rot, number of fruiting bodies	Rating
A11	PR	4	Water	594	12 BR	32 BR	70+ BR	0
A31	PR	2	Water	507	0	33 BR	70+ BR	0
A38	PR	3	Water	431	25 BR	200 BR	200 BR	0
A49	PR	1	Water	410	25	200 BR	200 BR	0
A57	PR	5	Water	495	25 BR	200 BR	200 BR	0
E12	PR	2	ACQ q	0.087	0	0	0	8
E16	PR	4	ACQ q	0.085	0	0	0	8
E32	PR	3	ACQ q	0.091	25	200 BR	200	0
E33	PR	5	ACQ q	0.096	1 BR	0	2 BR under	7
E72	PR	1	ACQ q	0.08	0	0	2 BR under	7
F13	PR	2	TBTN q	0.042	0	0	2 BR	7
F16	PR	4	TBTN q	0.054	0	0	0	8
F2	PR	1	TBTN q	0.04	0	0	0	8
F707	PR	3	TBTN q	0.051	0	0	19 BR	4
F87	PR	5	TBTN q	0.056	2 BR	0	17 BR	4
G30	PR	3	CCA q	0.085	0	0	1 BR under	7
G55	PR	4	CCA q	0.098	0	0	0	8
G58	PR	2	CCA q	0.095	2 BR	0	0	7
G73	PR	5	CCA q	0.09	0	0	0	8
G75	PR	1	CCA q	0.103	0	0	0	8
J25	PR	3	HFK	29.56	25	200 BR	200	0
J3	PR	5	HFK	30.09	0	0	3 WR under	7
J659	PR	1	HFK	28.65	1 BR	0	57 BR	0
J667	PR	2	HFK	20.19	0	1 WR under	3 BR under	7
J689	PR	4	HFK	25.05	0	0	17 BR	4
L10	PR	5	Azoles q	0.013	2 BR	0	9 BR	6
L19	PR	1	Azoles q	0.015	0	0	52 WR	0
L4	PR	4	Azoles q	0.015	17 BR	0	6 BR side	3
L725	PR	2	Azoles q	0.018	0	0	60+ BR	0
L733	PR	3	Azoles q	0.015	0	0	3 BR	7
N25	SG	5	None	935	0	0	1 WR under	7
N27	SG	3	None	1117	0	0	0	8
N29	SG	1	None	1065	0	0	0	8
N4	SG	2	None	1083	0	0	1 WR	7
N8	SG	4	None	1040	0	0	0	8

Innisfail old frame flat panel installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm, rot, number of fruiting bodies	Rating
A12	PR	1	Water	445	25 BR	200 BR	200 BR	0
A22	PR	5	Water	537	25 BR	200 BR	200 BR	0
A30	PR	3	Water	514	0	0	37 BR	0
A40	PR	2	Water	487	25 BR	200 BR	200 BR	0
A43	PR	4	Water	473	25 BR	200 BR	200 BR	0
E24	PR	5	ACQ q	0.101	25 BR	200 BR	200 BR	0
E37	PR	4	ACQ q	0.081	0	0	0	8
E42	PR	1	ACQ q	0.084	0	0	0	8
E58	PR	3	ACQ q	0.077	0	0	2 BR under	7
E71	PR	2	ACQ q	0.081	0	0	1 WR under	7
F30	PR	3	TBTN q	0.06	0	0	1 BR	7
F50	PR	1	TBTN q	0.062	0	0	0	8
F56	PR	2	TBTN q	0.063	1 BR	0	0	7
F69	PR	4	TBTN q	0.049	0	0	38 BR	0
F90	PR	5	TBTN q	0.046	0	0	22 BR under	3
G29	PR	5	CCA q	0.104	25 BR	200 BR	200 BR	0
G47	PR	2	CCA q	0.088	0	0	0	8
G63	PR	4	CCA q	0.099	0	0	0	8
G86	PR	1	CCA q	0.092	0	0	0	8
G90i	PR	3	CCA q	0.093	0	0	0	8
J631	PR	2	HFK	20.4	25 BR	200 BR	200 BR	0
J633	PR	5	HFK	24.12	25 BR	200 BR	200 BR	0
J650	PR	3	HFK	27.33	2 BR und.	0	0	7
J685	PR	1	HFK	22.26	3 BR	0	1BR+8 under	5
J686	PR	4	HFK	26.36	25 BR	200 BR	200 BR	0
L701	PR	5	Azoles q	0.015	12 BR under	0	70+ BR	0
L704	PR	4	Azoles q	0.013	0	0	7BR+6under	6
L712	PR	1	Azoles q	0.018	0	2 BR	0	7
L720	PR	2	Azoles q	0.014	0	0	0	8
L745	PR	3	Azoles q	0.016	0	0	3 BR under	7
N12	SG	1	None	1105	0	12 WR under	7 WR, 5 under	4
N22	SG	3	None	1071	0	0	0	8
N28	SG	2	None	1159	0	0	0	8
N30	SG	5	None	1121	0	0	0	8
N34	SG	4	None	1032	0	0	0	8

Innisfail ground proximity test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Lower end, mm, rot, number of fruiting bodies	Rating
A112	PR	4	Water	472		All BR		0
A117	PR	5	Water	471	25 BR	25 BR	200 BR	0
A122	PR	3	Water	424		All BR		0
A124	PR	5	Water	439		All WR		0
A142	PR	4	Water	409		All BR		0
A157	PR	1	Water	495	25 WR	25 BR	200 BR	0
A167	PR	3	Water	456	25 BR	25 BR	200 BR	0
A463	PR	1	Water	506		All BR		0
A470	PR	2	Water	519		All BR		0
A63	PR	2	Water	396		All WR BR		0
E161	PR	3	ACQ q	0.085	25 BR WR	25 BR WR	58,48 WR BR	0
E163	PR	5	ACQ q	0.079	0	17 BR	33,13 WR BR	0
E194	PR	3	ACQ q	0.086	16 BR	7 BR	25,11 BR	0
E224	PR	6	ACQ q	0.099	6 WR	4 WR	0	6
E231	PR	2	ACQ q	0.082	0	8 WR	37,12 WR BR	0
E311	PR	4	ACQ q	0.092	0	22 WR	70+,45 WR	0
E316	PR	2	ACQ q	0.099	0	13 BR	18,16 BR	1
E331	PR	1	ACQ q	0.093	0	22 BR	15,70+ BR	0
E92	PR	5	ACQ q	0.077	4 WR	15 WR	19,17 WR	0
E93	PR	1	ACQ q	0.074	2 BR	11 BR	32 BR	1
F128	PR	2	TBTN q	0.039	25 WR	25 WR	200 WR	0
F161	PR	3	TBTN q	0.053		All BR		0
F184	PR	4	TBTN q	0.05		All BR		0
F187	PR	1	TBTN q	0.051	25 BR	25 BR	5,32 BR	0
F224	PR	3	TBTN q	0.045		All WR		0
F233	PR	1	TBTN q	0.041	25 WR	25 WR	42,70+ WR	0
F236	PR	5	TBTN q	0.061	0	14 SR WR	7,7 WR	5
F241	PR	4	TBTN q	0.062	4 SR	14 WR	12,8 WR	4
F266	PR	2	TBTN q	0.057	4 BR	11 BR	14,12 BR	2
F299	PR	5	TBTN q	0.047	0	19 WR	0	2
G128	PR	2	CCA q	0.098	4 WR edge	2 BR	14,11 BR	3
G162	PR	1	CCA q	0.093	0	21 BR	0	2
G165	PR	6	CCA q	0.089	0	2 BR	0	7
G243	PR	4	CCA q	0.084	0	2 BR	5,3 BR	6
G249	PR	5	CCA q	0.104	0	3 BR	3 BR	7

Innisfail ground proximity test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Lower end, mm, rot, number of fruiting bodies	Rating
G279	PR	4	CCA q	0.106	0	6 WR	6,3 BR WR	6
G286	PR	2	CCA q	0.103	0	10 WR	24,6 WR	2
G290	PR	3	CCA q	0.099	5 BR WR	13 BR WR	42,7 BR WR	0
G292	PR	3	CCA q	0.096	0	2 BR	8 BR	6
G314	PR	5	CCA q	0.088	0	3 BR	3 BR	7
J111	PR	3	HFK	28.79		All BR		0
J125	PR	4	HFK	26.88		All BR		0
J157	PR	2	HFK	20.94	25 BR	25 BR	32,27 BR	0
J164	PR	4	HFK	27.3		All WR		0
J182	PR	6	HFK	24.87		All BR		0
J195	PR	5	HFK	25.21	0	19 BR	40,32 BR	0
J224	PR	3	HFK	29.3		All BR		0
J257	PR	1	HFK	22.81	25 WR	25 WR	200 BR	0
J709	PR	5	HFK	22.44	0	17 BR	42,15 BR	0
J87	PR	1	HFK	23.89		All WR		0
L171	PR	4	Azoles q	0.015		All WR		0
L172	PR	4	Azoles q	0.013	3 BR side	12 WR	70+,45 WR	0
L206	PR	5	Azoles q	0.016	1 BR	7 BR	5,2 BR	5
L218	PR	1	Azoles q	0.018	0	16 BR	46 BR	0
L228	PR	2	Azoles q	0.017	25 WT	25 WR	200 WR	0
L232	PR	3	Azoles q	0.019		All BR		0
L247	PR	6	Azoles q	0.019	1 BR	8 SR	0	6
L286	PR	3	Azoles q	0.012	0	15 WR	200 WR	0
L288	PR	2	Azoles q	0.016	4 BR	10 BR	14,8 BR	3
L307	PR	1	Azoles q	0.014	0	21 BR	0	2
N110	SG	5	None	1110	0	0	0	8
N120	SG	2	None	1107	0	2 WR	0	7
N128	SG	3	None	1069	0	1 WR	0	7
N141	SG	1	None	1046	0	2 WR	0	7
N160	SG	5	None	1117	0	1 WR	0	7
N47	SG	6	None	1101	0	1 WR	0	7
N76	SG	2	None	1087	0	3 WR	17,4 WR	3
N79	SG	1	None	1135	0	0	0	8
N83	SG	4	None	1162	0	0	0	8
N86	SG	4	None	1038	0	3 WR	14,3 WR	4

Innisfail rot box, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A133	PR		Water	461	25 BR	25 BR	200 BR	0
A146	PR		Water	421	25 BR	25 BR	200 BR	0
A156	PR		Water	500	25 BR	25 BR	200 BR	0
A175	PR		Water	409	25 BR	25 BR	200 BR	0
A189	PR		Water	494	25 BR	25 BR	200 BR	0
A190	PR		Water	560	25 BR	25 BR	200 BR	0
A465	PR		Water	472	25 BR	25 BR	200 BR	0
A81	PR		Water	406	25 BR	25 BR	200 BR	0
A97	PR		Water	444	25 BR	25 BR	200 BR WR	0
A99	PR		Water	512	25 BR	25 BR	200 BR	0
E140	PR		ACQ q	0.079	0	0	0	8
E196	PR		ACQ q	0.082	0	3 BR	0	7
E219	PR		ACQ q	0.077	7 BR	3 BR	0	5
E237	PR		ACQ q	0.089	23 BR	1 BR	150,0 BR	0
E239	PR		ACQ q	0.091	0	4 BR	0	6
E281	PR		ACQ q	0.098	0	1 BR	6 BR	6
E309	PR		ACQ q	0.074	16 BR	0	0	3
E315	PR		ACQ q	0.094	6 BR	0	3 BR	6
E333	PR		ACQ q	0.102	1 BR	0	0	7
E334	PR		ACQ q	0.083	2 BR	1 BR	9 BR side	6
F100	PR		TBTN q	0.048	1 BR	2 BR	0	7
F114	PR		TBTN q	0.039	12 BR	7 BR	0	2
F120	PR		TBTN q	0.061	2 BR	2 BR	0	6
F180	PR		TBTN q	0.046	2 BR	22 BR	0	1
F188	PR		TBTN q	0.042	25 BR	25 BR	0	0
F228	PR		TBTN q	0.062	6 BR	6 BR	0	4
F291	PR		TBTN q	0.05	25 BR	25 BR	200 BR	0
F309	PR		TBTN q	0.056	6 BR	7 BR	0	4
F737	PR		TBTN q	0.057	1 BR	2 BR	0	7
F743	PR		TBTN q	0.053	7 BR	1 BR	4 BR	5
G111	PR		CCA q	0.104	18 BR	0	0	3
G113	PR		CCA q	0.108	0	0	0	8
G152	PR		CCA q	0.096	25 BR	25 BR	200 BR	0
G197	PR		CCA q	0.1	25 BR	25 BR	0	0
G204	PR		CCA q	0.087	10 BR	15 BR	0	0

Innisfail rot box, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G236	PR		CCA q	0.094	16 BR	9 BR	0	0
G266	PR		CCA q	0.101	0	0	0	8
G269	PR		CCA q	0.096	25 BR	25 BR	200 BR	0
G315	PR		CCA q	0.084	25 BR	25 BR	200 BR	0
G96	PR		CCA q	0.088	20 BR	0	0	2
J118	PR		HFK	26.92	25 BR	25 BR	200 BR	0
J140	PR		HFK	24.41	25 BR	25 BR	200 BR	0
J158	PR		HFK	22.07	25 BR	25 BR	200 BR	0
J162	PR		HFK	22.88	25 BR	25 BR	200 BR	0
J176	PR		HFK	27.52	25 BR	25 BR	200 BR	0
J210	PR		HFK	25.75	25 BR	25 BR	200 BR	0
J212	PR		HFK	23.61	25 BR	25 BR	200 BR	0
J278	PR		HFK	20.83	25 BR	25 BR	70+,43 BR	0
J84	PR		HFK	30.67	25 BR	25 BR	200 BR	0
J94	PR		HFK	28.46	25 BR	25 BR	200 BR	0
L208	PR		Azoles q	0.015	3 BR	1 BR	0	6
L216	PR		Azoles q	0.019	0	0	0	8
L236	PR		Azoles q	0.018	5 BR	2 BR	0	6
L237	PR		Azoles q	0.019	3 BR	2 BR	0	6
L272	PR		Azoles q	0.013	4 BR	0	0	6
L283	PR		Azoles q	0.012	4 BR	17 BR	0	2
L287	PR		Azoles q	0.016	9 BR	9 BR	0	3
L301	PR		Azoles q	0.015	0	6 BR	0	6
L764	PR		Azoles q	0.017	0	0	0	8
L808	PR		Azoles q	0.016	16 BR	1 BR	0	3
N124	SG		None	1130	1 WR	0	0	7
N125	SG		None	1082	0	1 WR	1,1 WR	7
N127	SG		None	1085	1 WR	0	0	7
N49	SG		None	1093	0	1 WR	0	7
N50	SG		None	1103	0	0	1 WR	7
N52	SG		None	1032	1 WR	1 WR	2 WR	7
N54	SG		None	1158	0	0	1,1 WR	7
N69	SG		None	1110	0	0	1 WR	7
N70	SG		None	1142	0	0	0	8
N72	SG		None	1063	0	1 WR	0	7

Innisfail inoc rot box, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A135	PR		Water	546	25 BR	25 BR	200 BR WR	0
A141	PR		Water	482	25 BR	25 BR	200 BR	0
A149	PR		Water	499	25 BR WR	25 BR WR	70+,70+ BR WR	0
A171	PR		Water	455	25 BR	25 BR	200 BR	0
A179	PR		Water	524	25 BR	25 BR	75,42 BR	0
A186	PR		Water	418	25 BR	25 BR	200 BR	0
A200	PR		Water	437	25 BR	25 BR	200 BR	0
A202	PR		Water	489	25 BR	25 BR	70+,37 BR	0
A62	PR		Water	405	25 BR	25 BR	200 BR	0
A74	PR		Water	436	25 WR BR	25 WR BR	200 WR BR	0
E113	PR		ACQ q	0.081	3 WR	4 WR	11,0 WR	5
E139	PR		ACQ q	0.088	25 BR	25 BR	200 BR	0
E195	PR		ACQ q	0.079	1 WR	16 WR	11 WR	3
E218	PR		ACQ q	0.103	4 BR	1 BR	0	6
E233	PR		ACQ q	0.091	0	0	0	8
E247	PR		ACQ q	0.083	13 WR	16 WR	0	0
E280	PR		ACQ q	0.097	0	7 WR	0	6
E313	PR		ACQ q	0.095	0	3 WR	0	7
E321	PR		ACQ q	0.073	3 WR	2 WR	0	6
E322	PR		ACQ q	0.077	3 WR	0	18 BR	4
F105	PR		TBTN q	0.049	11 BR	6 WR	0	3
F106	PR		TBTN q	0.046	2 WR	16 WR	12 WR	3
F194	PR		TBTN q	0.037	1 WR	19 WR	0	2
F221	PR		TBTN q	0.062	2 WR	1 WR	0	7
F222	PR		TBTN q	0.059	15 WR	12 WR	21 WR	0
F232	PR		TBTN q	0.053	3 WR	7 WR	0	5
F278	PR		TBTN q	0.056	8 WR	3 WR	0	5
F723	PR		TBTN q	0.044	1 WR	16 WR	0	3
F728	PR		TBTN q	0.06	1 WR	2 WR	0	7
F741	PR		TBTN q	0.048	12 BR	3 BR	0	4
G103	PR		CCA q	0.085	1 WR	0	19 WR	4
G153	PR		CCA q	0.088	2 WR	0	0	7
G167	PR		CCA q	0.096	1 WR	1 WR	0	7
G169	PR		CCA q	0.101	8 BR	13 BR	0	2
G231	PR		CCA q	0.107	1 WR	0	0	7

Innisfail inoc rot box, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G232	PR		CCA q	0.092	0	0	0	8
G251	PR		CCA q	0.103	0	0	0	8
G274	PR		CCA q	0.097	14 BR	0	0	4
G295	PR		CCA q	0.102	24 BR	0	0	1
G94	PR		CCA q	0.087	0	0	0	8
J126	PR		HFK	28.41	19 BR	9 BR WR	33 BR	1
J143	PR		HFK	21.58	19 BR	5 WR	28,12 BR	0
J203	PR		HFK	24.12	25 WR BR	25 WR BR	35,32 WR BR	0
J227	PR		HFK	27.87	25 WR	25 WR	18,16 BR WR	0
J236	PR		HFK	26.87	25 BR	25 BR	200 BR WR	0
J694	PR		HFK	20.43	2 WR BR	3 WR	9 WR	6
J700	PR		HFK	24.58	25 BR	25 BR	70+,48 BR	0
J707	PR		HFK	22.83	25 BR	25 BR	200 BR	0
J92	PR		HFK	29.72	25 BR	25 BR	33,28 BR	0
J95	PR		HFK	25.78	0	13 BR	7 WR	4
L135	PR		Azoles q	0.018	0	0	0	8
L189	PR		Azoles q	0.015	2 WR	0	0	7
L207	PR		Azoles q	0.019	0	1 WR	0	7
L213	PR		Azoles q	0.016	0	0	0	8
L261	PR		Azoles q	0.019	2 WR	1 BR	0	7
L265	PR		Azoles q	0.012	2 WR	4 WR	0	6
L266	PR		Azoles q	0.013	0	0	0	8
L277	PR		Azoles q	0.018	2 WR	0	0	7
L291	PR		Azoles q	0.015	0	0	0	8
L784	PR		Azoles q	0.016	1 WR	0	0	7
N105	SG		None	1102	0	1 WR	1,1 WR	7
N114	SG		None	1122	0	1 WR	0	7
N135	SG		None	1087	1 WR	1 WR edge	0	7
N136	SG		None	1107	1 WR	0	0	7
N144	SG		None	1135	1 WR	0	0	7
N44	SG		None	1163	1 WR	1 WR	0	7
N59	SG		None	1109	1 WR	1 WR	0	7
N61	SG		None	1054	1 WR	1 WR	0	7
N93	SG		None	1079	1 WR	1 WR	0	7
N95	SG		None	941	0	0	0	8

Innisfail deck-on-grass, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Deck /Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
A223	PR	2\1	Water	502	25 BR	300 BR	300 BR	0
A230	PR	1\1	Water	481	25 BR	300 BR	300 BR	0
A240	PR	1\2	Water	404	25 BR	300 BR	300 BR	0
A243	PR	2\1	Water	467	25 BR	300 BR	300 BR	0
A251	PR	2\1	Water	571	25 BR	300 BR	300 BR	0
A255	PR	1\1	Water	444	25 BR	300 BR WR	300 BR WR	0
A273	PR	1\2	Water	408	25 WR BR	300 WR BR	300 WR BR	0
A481	PR	2\2	Water	509	25 BR	300 BR	300 BR	0
A486	PR	1\1	Water	450	25 BR	300 BR	300 BR	0
A488	PR	2\2	Water	490	25 BR	300 BR	300 BR	0
E358	PR	1\1	ACQ q	0.078	0	27 BR	0	2
E359	PR	2\1	ACQ q	0.085		47 BR	0	0
E364	PR	1\1	ACQ q	0.094	6 BR	37 WR	4 BR under	0
E372	PR	2\1	ACQ q	0.092	13 BR unt end	3 BR top	0	5
E375	PR	1\2	ACQ q	0.086	0	39 WR	28 BR	0
E377	PR	2\1	ACQ q	0.09	0	11 BR	0	5
E408	PR	1\1	ACQ q	0.102	0	23 BR WR	12 BR	1
E424	PR	2\2	ACQ q	0.094		24 WR	22 WR	0
E429	PR	1\2	ACQ q	0.088	0	35 WR	0	1
E435	PR	2\2	ACQ q	0.081	0	33 WR	0	1
F341	PR	2\1	TBTN q	0.061	0	22 BR	0	3
F362	PR	1\1	TBTN q	0.051	3 BR	70+ WR	2 BR under	0
F370	PR	1\2	TBTN q	0.05	0	21 BR	0	3
F373	PR	1\1	TBTN q	0.052	0	70+ BR WR	70+ BR	0
F375	PR	2\2	TBTN q	0.041	25 BR	300 BR	300 BR	0
F390	PR	1\2	TBTN q	0.056	0	56 BR WR	0	0
F403	PR	2\1	TBTN q	0.055	0	70+ BR	41 BR WR	0
F769	PR	2\2	TBTN q	0.063	0	2 BR	18 BR	4
F771	PR	2\1	TBTN q	0.059	0	33 BR WR	16 BR under	0
F775	PR	1\1	TBTN q	0.044	0	19 BR	11 BR under	2
G325	PR	2\2	CCA q	0.083	0	11 BR	0	5
G329	PR	1\1	CCA q	0.096	0	23 BR WR	0	3
G330	PR	2\1	CCA q	0.103	0	14 BR	0	5
G351	PR	1\1	CCA q	0.097	0	33 BR WR	0	1
G352	PR	1\1	CCA q	0.084	0	28 WR	16 BR	0

Innisfail deck-on-grass, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Deck /Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
G374	PR	2\2	CCA q	0.099	0	19 BR	0	4
G376	PR	1\2	CCA q	0.093	0	27 WR	0	2
G386	PR	1\2	CCA q	0.105	0	38 BR	0	0
G415	PR	2\1	CCA q	0.091	0	42 BR	0	0
G416	PR	2\1	CCA q	0.087	0	22 BR	0	3
J295	PR	1\1	HFK	20.72	25 BR	300 BR	300 BR	0
J331	PR	1\1	HFK	23.09	25 BR	300 BR	300 BR	0
J337	PR	2\1	HFK	22.54	25 BR	300 BR	300 BR	0
J344	PR	1\2	HFK	21.49	25	300 BR WR	300 BR WR	0
J364	PR	2\2	HFK	19.94	25	300 BR WR	300 BR WR	0
J365	PR	2\1	HFK	19.71	25 BR	300 BR WR	300 BR WR	0
J366	PR	1\2	HFK	28.94	25 WR	300 WR	300 WR	0
J370	PR	2\2	HFK	25.54	25 BR	300 BR	300 BR	0
J380	PR	1\2	HFK	27.3	25 WR	300 WR	300 WR	0
J717	PR	2\1	HFK	18.42	25 BR	300 BR WR	300 BR WR	0
L320	PR	1\1	Azoles q	0.013	0	70+ BR	11 BR	0
L336	PR	2\1	Azoles q	0.016		42 WR	0	0
L340	PR	1\1	Azoles q	0.012	0	14 BR	0	5
L353	PR	2\1	Azoles q	0.019	0	23 BR	0	3
L361	PR	2\2	Azoles q	0.014	0	23 BR	0	3
L363	PR	1\2	Azoles q	0.012	0	22 WR	0	3
L375	PR	1\1	Azoles q	0.017		28 BR WR	0	2
L405	PR	2\2	Azoles q	0.013	0	7 BR WR	0	6
L407	PR	2\2	Azoles q	0.012	0	22 BR	8 BR	2
L412	PR	1\2	Azoles q	0.014	0	28 WR	5 BR under	1
N162	SG	2\2	None	1174	1 WR unt end	0	0	7
N163	SG	2\1	None	1213	1 WR	0	0	7
N169	SG	1\1	None	1159	0	0	0	8
N180	SG	2\1	None	1125	1 WR unt end	0	0	7
N184	SG	2\1	None	1078	1 WR	0	0	7
N192	SG	1\2	None	1089	0	0	0	8
N203	SG	1\1	None	1101	0	0	0	8
N206	SG	1\1	None	1058	0	0	0	8
N211	SG	1\2	None	1142	0	0	0	8
N220	SG	2\2	None	1197	1 WR unt end	0	0	7

Innisfail deck 'one metre' high, installed 19-22 Nov 2007, insp. LJC 3-4 Nov 2011

No.	Wood	Deck /Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
A224	PR	3\2	Water	464	25 BR	300 BR	300 BR	0
A229	PR	4\2	Water	397	25 BR	300 BR	300 BR	0
A244	PR	3\2	Water	504	25 BR	300 BR	300 BR	0
A247	PR	4\2	Water	502	25 BR	300 BR	300 BR	0
A257	PR	3\1	Water	438	25 BR	300 BR	300 BR	0
A266	PR	4\1	Water	489	25 BR	300 BR	300 BR	0
A268	PR	3\1	Water	452	25 BR	0	17 BR	0
A275	PR	4\1	Water	475	25 BR	300 BR	300 BR	0
A280	PR	4\1	Water	400	0	70+ BR	56 BR	0
A483	PR	3\2	Water	587	25 BR	300 BR	300 BR	0
E339	PR	4\2	ACQ q	0.087	0	0	0	8
E355	PR	4\1	ACQ q	0.081	0	0	0	8
E382	PR	3\2	ACQ q	0.08	0	0	0	8
E386	PR	4\2	ACQ q	0.092	0	0	0	8
E391	PR	4\2	ACQ q	0.096	0	0	0	8
E400	PR	4\1	ACQ q	0.086	0	0	0	8
E402	PR	3\2	ACQ q	0.084	0	0	0	8
E407	PR	3\1	ACQ q	0.09	0	0	0	8
E409	PR	3\1	ACQ q	0.096	0	0	0	8
E438	PR	3\1	ACQ q	0.092	0	0	0	8
F343	PR	4\2	TBTN q	0.063	0	0	0	8
F349	PR	3\2	TBTN q	0.051	0	0	0	8
F352	PR	3\1	TBTN q	0.057	0	0	0	8
F355	PR	4\1	TBTN q	0.039	0	0	0	8
F359	PR	3\1	TBTN q	0.046	0	0	0	8
F368	PR	4\1	TBTN q	0.055	0	0	0	8
F376	PR	4\1	TBTN q	0.049	0	0	0	8
F383	PR	4\2	TBTN q	0.062	0	0	0	8
F760	PR	3\2	TBTN q	0.051	0	16 BR	0	4
F772	PR	3\1	TBTN q	0.053	0	0	0	8
G331	PR	3\1	CCA q	0.087	1 WR	0	0	7
G347	PR	3\2	CCA q	0.09	0	0	0	8
G359	PR	4\1	CCA q	0.098	0	0	0	8
G377	PR	3\1	CCA q	0.097	0	0	0	8
G378	PR	4\1	CCA q	0.1	0	0	0	8

Innisfail deck 'one metre' high, installed 19-22 Nov 2007, insp. LJC 3-4 Nov 2011

No.	Wood	Deck /Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
G380	PR	4\1	CCA q	0.083	1 BR	0	0	7
G395	PR	4\2	CCA q	0.111	0	0	0	8
G401	PR	4\2	CCA q	0.096	0	0	0	8
G410	PR	3\2	CCA q	0.095	0	0	0	8
G420	PR	3\1	CCA q	0.085	0	0	0	8
J302	PR	3\1	HFK	23.2	0	13 BR under	5 BR under	4
J307	PR	3\2	HFK	26.89	25 BR	300 BR	300 BR	0
J313	PR	4\2	HFK	20.11	0	14 BR	12 BR	2
J319	PR	4\1	HFK	21.69	0	0	1 BR	7
J324	PR	3\1	HFK	19.86	0	18 BR under	46 BR	0
J326	PR	4\1	HFK	19.2	0	17 BR under	0	3
J330	PR	3\1	HFK	22.12	6 BR	43 BR	0	0
J352	PR	4\1	HFK	29.42	14 BR	23 BR	0	3
J358	PR	3\2	HFK	21.57	25 BR	300 BR	300 BR	0
J711	PR	4\2	HFK	25.74	10 BR	8 BR	25 BR	1
L335	PR	3\1	Azoles q	0.017	25 BR	0	0	0
L351	PR	4\1	Azoles q	0.018	25 BR	25 BR	70+ BR	0
L357	PR	4\2	Azoles q	0.013	25 BR	300 BR	300 BR	0
L366	PR	4\1	Azoles q	0.013	0	0	0	8
L387	PR	4\1	Azoles q	0.016	0	0	0	8
L388	PR	3\2	Azoles q	0.012	4 BR	12 BR	58 BR	0
L400	PR	3\1	Azoles q	0.011	0	52 BR	0	0
L404	PR	3\2	Azoles q	0.015	25 BR	0	70+ BR	0
L413	PR	3\1	Azoles q	0.013	25 BR	300 BR	300 BR	0
L419	PR	4\2	Azoles q	0.014	0	0	0	8
N171	PR	3\1	None	1204	0	0	3 WR under	7
N172	PR	3\2	None	1141	0	0	0	8
N175	PR	3\2	None	1094	0	0	0	8
N177	PR	4\2	None	1115	0	0	0	8
N183	PR	4\1	None	1154	0	0	0	8
N191	PR	4\2	None	1077	0	0	0	8
N199	PR	4\1	None	1166	0	0	0	8
N215	PR	3\1	None	1021	0	0	0	8
N217	PR	3\1	None	1168	0	0	0	8
N218	PR	4\1	None	1085	0	0	2 WR under	7

Innisfail double layer test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Bottom face, mm and rot	Each end, mm and rot	Rating
A212	PR	1/t	Water	511	25 BR	25 BR	70+,70+ BR	0
A226	PR	1/b	Water	451	25 BR	25 BR	70+,70+ BR	0
A228	PR	1/t	Water	423	25 BR	25 BR	300 BR	0
A231	PR	1/b	Water	491	25 BR	25 BR	70+,70+ BR	0
A236	PR	1/t	Water	447	25 BR	25 BR	300 BR	0
A249	PR	1/t	Water	397	25 BR	25 BR	300 BR	0
A272	PR	1/b	Water	486	25 BR	25 BR	70+,70+ BR	0
A277	PR	1/b	Water	496	25 BR	25 BR	70+,70+ BR	0
A279	PR	1/b	Water	465	25 BR	25 BR	70+,55 BR	0
A490	PR	1/t	Water	534	25 BR	25 BR	70+,55 BR	0
E343	PR	1/t	ACQ q	0.100	0	21 BR	39,20 BR	0
E351	PR	1/b	ACQ q	0.093	25 BR	25 BR	70+,70+ BR	0
E369	PR	1/b	ACQ q	0.090	25 BR	25 BR	70+,70+ BR	0
E371	PR	1/b	ACQ q	0.091	18 BR	0	43,37 BR	0
E380	PR	1/t	ACQ q	0.084	25 BR	25 BR	70+,70+ BR	0
E385	PR	1/t	ACQ q	0.089	0	16 BR	46,38 BR	0
E395	PR	1/b	ACQ q	0.082	25 BR	25 BR	70+,32 BR	0
E412	PR	1/b	ACQ q	0.094	25 BR	25 BR	70+,70+ BR	0
E420	PR	1/t	ACQ q	0.086	25 BR	25 BR	70+,70+ BR	0
E431	PR	1/b	ACQ q	0.081	25 BR	25 BR	70+,70+ BR	0
F321	PR	2/b	TBTN q	0.057	16 BR	0	70+,4 BR	0
F333	PR	2/t	TBTN q	0.052	25 BR	25 BR	300 BR	0
F344	PR	2/b	TBTN q	0.056	21 BR	0	70+,52 BR	0
F396	PR	2/t	TBTN q	0.051	0	17 BR	70+,29 BR	0
F398	PR	2/b	TBTN q	0.043	17 BR	14 BR WR	70+,62 BR	0
F408	PR	2/b	TBTN q	0.047	25 BR	25 BR	70+,70+ BR	0
F417	PR	2/t	TBTN q	0.062	25 BR	25 BR	300 BR	0
F758	PR	2/b	TBTN q	0.054	4 BR	0	0	6
F759	PR	2/b	TBTN q	0.049	25 BR	25 BR	26,14 BR	0
F763	PR	2/t	TBTN q	0.064	8 BR	6 BR	19,12 BR	1
G323	PR	2/b	CCA q	0.098	0	0	37 BR	0
G349	PR	2/t	CCA q	0.082	5 BR	0	0	6
G353	PR	2/b	CCA q	0.092	0	0	0	8
G357	PR	2/b	CCA q	0.104	0	0	17 BR side	3
G365	PR	2/b	CCA q	0.097	0	0	11 BR	5

Innisfail double layer test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Bottom face, mm and rot	Each end, mm and rot	Rating
G375	PR	2/t	CCA q	0.104	9 BR	0	0	5
G387	PR	2/t	CCA q	0.089	7 BR	0	37 BR	0
G398	PR	2/t	CCA q	0.088	6 BR	0	0	6
G408	PR	2/b	CCA q	0.095	1 BR	0	0	7
G417	PR	2/t	CCA q	0.086	11 BR	0	0	5
J281	PR	2/t	HFK	25.21	25 BR	25 BR	70+,55 BR	0
J294	PR	2/b	HFK	18.47	5 BR	18 BR	37,21 BR	0
J300	PR	2/b	HFK	20.02	4 BR	16 BR	18,7 BR	2
J314	PR	2/t	HFK	22.57	3 BR	16 BR	38,16 BR	0
J317	PR	2/b	HFK	23.95	25 BR	25 BR	25,21 BR	0
J354	PR	2/t	HFK	22.00	0	9 BR	26,23 BR	0
J368	PR	2/t	HFK	29.38	0	12 BR	24,19 BR	0
J371	PR	2/b	HFK	19.58	3 BR	15 BR	24,13 BR	0
J714	PR	2/b	HFK	20.74	14 BR	14 BR	27,18 BR	0
J718	PR	2/t	HFK	28.40	25	25 BR WR	55,42 BR WR	0
L329	PR	1/t	Azoles q	0.012	25 BR	25 BR	300 BR	0
L331	PR	1/t	Azoles q	0.015	25 BR	25 BR	300 BR	0
L334	PR	1/b	Azoles q	0.016	25 BR	25 BR	300 BR	0
L350	PR	1/b	Azoles q	0.011	25 BR	25 BR	300 BR	0
L382	PR	1/b	Azoles q	0.014	25 BR	25 BR	300 BR	0
L394	PR	1/b	Azoles q	0.013	25 BR	25 BR	300 BR	0
L396	PR	1/b	Azoles q	0.019	25 BR	25 BR	300 BR	0
L408	PR	1/t	Azoles q	0.013	25 BR	25 BR	300 BR	0
L410	PR	1/t	Azoles q	0.017	25 BR	25 BR	300 BR	0
L420	PR	1/t	Azoles q	0.013	25 BR	25 BR	300 BR	0
N168	SG	1/b	None	1010	1 WR	0	1 WR	7
N178	SG	1/t	None	1091	0	0	0	8
N182	SG	1/b	None	1080	1 WR	0	0	7
N189	SG	1/t	None	1186	0	0	0	8
N190	SG	1/b	None	1159	1 WR	0	0	7
N193	SG	1/t	None	1080	0	1 WR	2 WR	7
N196	SG	1/t	None	1151	1 WR	0	0	7
N197	SG	1/t	None	1078	0	1 WR	1 WR	7
N202	SG	1/b	None	1125	1 WR	0	0	7
N212	SG	1/b	None	1110	1 WR	4 WR	0	6

Innisfail embedded test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A298	PR	F	Water	475	0	0	60 BR end	0
A308	PR	D	Water	568	0	0	12,9,5 BR	4
A325	PR	G	Water	448		All BR		0
A382	PR	N	Water	501		All BR		0
A392	PR	C	Water	437		All BR		0
A492	PR	J	Water	460		All BR		0
A507	PR	B	Water	479		32 BR	70+ BR end	0
A508	PR	K	Water	374		All BR		0
A511	PR	H	Water	405		All BR		0
A516	PR	M	Water	547		All BR		0
B2	PR	H	Boron	0.362	0	0	18,17,12,11 BR	0
B22	PR	M	Boron	0.353	0	0	70+ BR end	0
B24	PR	C	Boron	0.368	0	0	15,14,12,8 BR	2
B28	PR	B	Boron	0.409	0	0	35,35,18,12 BR	0
B36	PR	F	Boron	0.325		All BR		0
B39	PR	J	Boron	0.334	0	0	35,35,14,2 BR	0
B47	PR	D	Boron	0.361	0	0	14,6,5,3 BR	4
B5	PR	K	Boron	0.356	0	17 BR	35,35,12,6 BR	0
B51	PR	G	Boron	0.344	0	0	70+ BR end	0
B7	PR	N	Boron	0.348		All BR	0	0
C16	PR	M	Cu Cr	0.395	0	0	0	8
C18	PR	N	Cu Cr	0.336	0	0	5,2 BR	6
C24	PR	J	Cu Cr	0.346	0	0	1,0 BR	7
C28	PR	F	Cu Cr	0.35	0	0	0	8
C39	PR	D	Cu Cr	0.376	0	0	0	8
C4	PR	C	Cu Cr	0.347	0	0	0	8
C42	PR	G	Cu Cr	0.36	0	0	7,6 BR	5
C43	PR	K	Cu Cr	0.353	0	0	0	8
C46	PR	B	Cu Cr	0.342	0	0	0	8
C52	PR	H	Cu Cr	0.411	0	0	0	8
D19	PR	N	ACQ H3	0.333	0	0	2,2,1 BR	7
D23	PR	F	ACQ H3	0.357	0	0	0	8
D24	PR	D	ACQ H3	0.363	0	0	1,0 BR	7
D25	PR	M	ACQ H3	0.402	0	0	0	8
D28	PR	K	ACQ H3	0.368	0	0	0	8

Innisfail embedded test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
D46	PR	C	ACQ H3	0.351	0	0	0	8
D47	PR	B	ACQ H3	0.353	0	0	0	8
D58	PR	G	ACQ H3	0.349	0	0	1,0 BR	7
D6	PR	H	ACQ H3	0.375	0	0	0	8
D7	PR	J	ACQ H3	0.379	0	0	0	8
E484	PR	J	ACQ q	0.089	0	0	58 BR end	0
E491	PR	G	ACQ q	0.086	0	0	35,35,5 BR	0
E492	PR	H	ACQ q	0.082	0	0	16,12,10,2 BR	2
E495	PR	F	ACQ q	0.086	0	0	0	8
E505	PR	M	ACQ q	0.091	0	0	6,2 BR	6
E535	PR	D	ACQ q	0.096	0	0	0	8
E560	PR	K	ACQ q	0.078	0	0	0	8
E562	PR	N	ACQ q	0.085	0	0	70+ BR end	0
E604	PR	C	ACQ q	0.095	0	0	18,0 BR	4
E694	PR	B	ACQ q	0.092	0	0	0	8
F450	PR	B	TBTN q	0.053	0	0	2,0 BR	7
F471	PR	J	TBTN q	0.054	0	0	35,35,1 BR	0
F474	PR	K	TBTN q	0.05	0	0	0	8
F488	PR	F	TBTN q	0.044	0	0	5,2,1 BR	6
F502	PR	N	TBTN q	0.045	0	0	26,1 BR	2
F520	PR	M	TBTN q	0.051	0	0	14,7,5,3 BR	4
F558	PR	G	TBTN q	0.062		All BR		0
F569	PR	D	TBTN q	0.058	0	0	2,1 BR	7
F574	PR	C	TBTN q	0.057	0	0	1 BR	7
F586	PR	H	TBTN q	0.052	0	0	70+ BR end	0
G460	PR	F	CCA q	0.103	0	0	2,2 BR	7
G480	PR	H	CCA q	0.085		All BR	0	0
G486	PR	D	CCA q	0.11	0	0	0	8
G507	PR	N	CCA q	0.081	0	0	47 BR end	0
G519	PR	K	CCA q	0.087	0	0	6,0 BR	6
G530	PR	C	CCA q	0.092	0	0	1 BR	7
G537	PR	G	CCA q	0.101	0	0	70+ BR end	0
G598	PR	J	CCA q	0.083	0	0	70+ BR end	0
G614	PR	M	CCA q	0.095	0	0	1,0 BR	7
G629	PR	B	CCA q	0.096	0	0	2,0 BR	7

Innisfail embedded test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
H11	PR	B	CCA H3	0.406	0	0	0	8
H12	PR	N	CCA H3	0.426	0	0	6,0 BR	6
H13	PR	J	CCA H3	0.366	0	0	0	8
H15	PR	H	CCA H3	0.34	0	0	0	8
H24	PR	G	CCA H3	0.419	0	0	6,3,1,1 BR	6
H25	PR	F	CCA H3	0.34	0	0	0	8
H33	PR	K	CCA H3	0.351	0	0	0	8
H34	PR	M	CCA H3	0.346	0	0	0	8
H44	PR	D	CCA H3	0.393	0	0	0	8
H5	PR	C	CCA H3	0.38	0	0	0	8
J398	PR	M	HFK	27.07	0	0	13,4 BR	4
J428	PR	N	HFK	27.73	0	0	70+ BR end	0
J435	PR	F	HFK	21.11	0	0	16 BR end	4
J451	PR	K	HFK	20.25	0	0	12,10 BR	3
J483	PR	B	HFK	29.73		All BR		0
J490	PR	H	HFK	25.27		All BR		0
J505	PR	C	HFK	22.91		All BR		0
J568	PR	G	HFK	24.08	0	0	70+ BR end	0
J618	PR	J	HFK	28.43		All BR		0
J777	PR	D	HFK	25.64	0	0	15,5,4 BR	4
K1	PR	K	TanE H3	0.227	0	0	0	8
K23	PR	M	TanE H3	0.246	0	0	0	8
K26	PR	C	TanE H3	0.232	0	0	0	8
K29	PR	D	TanE H3	0.228	0	0	0	8
K30	PR	N	TanE H3	0.209	0	0	0	8
K37	PR	G	TanE H3	0.247	0	0	3,2 BR	7
K49	PR	F	TanE H3	0.204	0	0	1,0 BR	7
K51	PR	H	TanE H3	0.241	0	0	1,0 BR	7
K54	PR	B	TanE H3	0.245	0	0	1,0 BR	7
K8	PR	J	TanE H3	0.253	0	0	1,0 WR	7
L453	PR	F	Azoles q	0.015	0	0	12,3 BR	5
L482	PR	N	Azoles q	0.018	0	0	13,5 BR	4
L492	PR	G	Azoles q	0.013	0	0	45 BR end	0
L509	PR	M	Azoles q	0.017	0	0	2,0 BR	7
L524	PR	C	Azoles q	0.012	0	0	0	8

Innisfail embedded test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
L577	PR	K	Azoles q	0.016	0	0	14,0 BR	5
L580	PR	D	Azoles q	0.013	0	0	1,1 BR	7
L609	PR	J	Azoles q	0.017	0	0	12,5 BR	4
L650	PR	H	Azoles q	0.014	0	0	6,2,2 BR	6
L669	PR	B	Azoles q	0.015	0	0	0	8
M1	PR	M	AzoleH3	0.065	0	0	0	8
M15	PR	G	AzoleH3	0.06	0	0	7,1 BR	6
M20	PR	N	AzoleH3	0.055	0	0	0	8
M25	PR	C	AzoleH3	0.059	0	0	0	8
M33	PR	D	AzoleH3	0.062	0	0	0	8
M40	PR	H	AzoleH3	0.069	0	0	0	8
M42	PR	J	AzoleH3	0.058	0	0	0	8
M46	PR	B	AzoleH3	0.067	0	0	0	8
M47	PR	F	AzoleH3	0.063	0	0	0	8
M54	PR	K	AzoleH3	0.049	0	0	0	8
N237	SG	B	None	1127	0	0	0	8
N243	SG	M	None	1037	0	0	0	8
N259	SG	N	None	1199	0	0	1,0 BR	7
N269	SG	C	None	1112	0	0	0	8
N270	SG	J	None	1007	0	0	5 WR 1 cnr	7
N272	SG	D	None	1064	0	0	0	8
N322	SG	F	None	1079	0	0	1,0 WR	7
N352	SG	G	None	1045	0	0	5 WR sap cnr	8
N356	SG	K	None	1100	0	0	10,1 WR cnr	5
N359	SG	H	None	1089	0	0	0	8
U675	PR	C	CuN H3	0.123	0	0	0	8
U676	PR	N	CuN H3	0.097	0	0	17,13,6 BR	2
U680	PR	F	CuN H3	0.116	0	0	0	8
U681	PR	M	CuN H3	0.109	0	0	0	8
U684	PR	J	CuN H3	0.1	0	0	2,0 BR	7
U703	PR	H	CuN H3	0.12	0	0	2,0 BR	7
U709	PR	K	CuN H3	0.111	0	0	0	8
U726	PR	G	CuN H3	0.105	0	0	18,13 BR	2
U728	PR	D	CuN H3	0.114	0	0	0	8
U730	PR	B	CuN H3	0.088	0	0	8,3 BR	5

Innisfail PAINTED embedded test, installed 19-22 Nov 2007, inspected 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A290	PR/pt	B	Water	438		23 BR	70+ BR end	0
A309	PR/pt	N	Water	558		All BR		0
A321	PR/pt	J	Water	429	0	0	50 BR end	0
A329	PR/pt	G	Water	476		All BR		0
A384	PR/pt	M	Water	465	0	0	70+ BR end	0
A450	PR/pt	K	Water	405	0	0	21,16,15,13 BR	0
A502	PR/pt	C	Water	447		All BR		0
A505	PR/pt	F	Water	389		All BR		0
A517	PR/pt	H	Water	515		All BR		0
A520	PR/pt	D	Water	534	0	0	16,8,3 BR	3
E468	PR/pt	H	ACQ q	0.081	0	0	35,35,6,1 BR	0
E479	PR/pt	G	ACQ q	0.076	0	0	23,22,6 BR	0
E498	PR/pt	J	ACQ q	0.084	0	0	16,8 3,3 BR	3
E506	PR/pt	D	ACQ q	0.086	0	0	0	8
E529	PR/pt	K	ACQ q	0.091	0	0	0	8
E574	PR/pt	C	ACQ q	0.09	0	0	0	8
E588	PR/pt	F	ACQ q	0.086	0	0	0	8
E634	PR/pt	B	ACQ q	0.098	0	0	3,0 BR	7
E648	PR/pt	M	ACQ q	0.094	0	0	7,0 BR	6
E708	PR/pt	N	ACQ q	0.09	0	0	12,7 BR	4
F441	PR/pt	B	TBTN q	0.059	0	0	20,16,13,13 BR	0
F547	PR/pt	G	TBTN q	0.062		All BR		0
F565	PR/pt	F	TBTN q	0.061	0	0	4,0 BR	7
F570	PR/pt	K	TBTN q	0.049	0	0	5,3,2 BR	6
F650	PR/pt	H	TBTN q	0.06		All BR		0
F692	PR/pt	D	TBTN q	0.039	0	0	6,5 BR	5
F807	PR/pt	N	TBTN q	0.054	0	0	32,3 BR	0
F830	PR/pt	J	TBTN q	0.052	0	0	14,4 BR	4
F845	PR/pt	C	TBTN q	0.057	0	0	14 BR	5
F849	PR/pt	M	TBTN q	0.045	0	0	13,10,9,9 BR	3
G434	PR/pt	J	CCA q	0.084	0	0	17,12,12 BR	2
G526	PR/pt	F	CCA q	0.083	0	0	0	8
G547	PR/pt	H	CCA q	0.104	0	0	9,1,1,1 BR	6
G573	PR/pt	B	CCA q	0.101	0	0	2,0 BR	7
G574	PR/pt	D	CCA q	0.095	0	0	2,0 BR	7

Pt = painted

Innisfail PAINTED embedded test, installed 19-22 Nov 2007, inspected 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G581	PR/pt	C	CCA q	0.093	0	0	0	8
G582	PR/pt	N	CCA q	0.08	0	0	35,35,35,35 BR	0
G592	PR/pt	K	CCA q	0.099	0	0	7,0 BR	6
G608	PR/pt	G	CCA q	0.087	0	0	70+ BR end	0
G651	PR/pt	M	CCA q	0.11	0	0	0	8
J405	PR/pt	D	HFK	27.96	0	0	16,13,5,3 BR	2
J464	PR/pt	N	HFK	19.09		All BR		0
J489	PR/pt	J	HFK	28.95		All BR		0
J491	PR/pt	B	HFK	24.79	0	0	14,11,10,4 BR	4
J518	PR/pt	M	HFK	22.25	0	0	11,2 BR	5
J558	PR/pt	C	HFK	24.34	0	0	21,17,12,11 BR	1
J561	PR/pt	K	HFK	25.76	0	0	21,19,17,7 BR	0
J574	PR/pt	F	HFK	22.56	0	0	22 BR end	3
J583	PR/pt	G	HFK	30.11	0	0	70+ BR end	0
J778	PR/pt	H	HFK	27.03		All BR		0
L433	PR/pt	C	Azoles q	0.017	0	0	6,5 BR	5
L466	PR/pt	K	Azoles q	0.012	0	0	35,35 BR	0
L500	PR/pt	F	Azoles q	0.016	0	0	13,0 BR	5
L528	PR/pt	J	Azoles q	0.014	0	0	1,1 BR	7
L546	PR/pt	M	Azoles q	0.013	0	0	0	8
L550	PR/pt	N	Azoles q	0.014	0	0	0	8
L589	PR/pt	D	Azoles q	0.016	0	0	1,1 BR	7
L642	PR/pt	G	Azoles q	0.015	0	0	1,0 BR	7
L643	PR/pt	H	Azoles q	0.013	0	0	2,0 BR	7
L665	PR/pt	B	Azoles q	0.018	0	0	0	8
N245	SG/pt	M	None	1132	0	0	1,0 WR	7
N298	SG/pt	B	None	1033	0	0	0	8
N306	SG/pt	C	None	1147	0	0	1,0 WR	7
N309	SG/pt	D	None	1086	0	0	4 WR 1 side	7
N319	SG/pt	F	None	1112	0	0	0	8
N327	SG/pt	H	None	1065	0	0	5 WR end	7
N328	SG/pt	J	None	1057	0	0	0	8
N349	SG/pt	K	None	983	0	0	0	8
N354	SG/pt	N	None	1096	0	0	8,8 WR	4
N367	SG/pt	G	None	1076	FB collected	0	200 WR end	0

Pt = painted

Innisfail INOCULATED embedded test, installed 19-22 Nov 2007, insp. 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A304	PR	A	Water	570		All BR		0
A336	PR	E	Water	431		All BR		0
A340	PR	P	Water	490		All BR		0
A356	PR	A	Water	497		All BR		0
A363	PR	L	Water	471		All BR		0
A398	PR	P	Water	517		All BR		0
A435	PR	P	Water	469		All BR		0
A452	PR	L	Water	394		All BR		0
A506	PR	L	Water	440		All BR		0
A510	PR	A	Water	432		All BR		0
E460	PR	E	ACQ q	0.081	0	0	3,3 BR	6
E476	PR	A	ACQ q	0.093	0	0	7,1 BR	6
E487	PR	P	ACQ q	0.088	0	0	35,35,28,0 BR	0
E533	PR	P	ACQ q	0.089	0	0	13,9,3 BR	3
E565	PR	L	ACQ q	0.094	0	0	11,3,1 BR	5
E597	PR	L	ACQ q	0.085	0	0	3,2 BR	7
E619	PR	L	ACQ q	0.084	0	0	1,0 BR	7
E646	PR	P	ACQ q	0.085	0	0	19,0 BR	4
E687	PR	A	ACQ q	0.098	0	0	3,2 BR	7
E689	PR	A	ACQ q	0.09	0	0	7,3 BR	6
F455	PR	L	TBTN q	0.063	0	0	35,35,2 BR	0
F490	PR	A	TBTN q	0.047	0	0	55 BR end	0
F528	PR	P	TBTN q	0.057	0	0	35,35,35 BR	0
F537	PR	L	TBTN q	0.057	0	0	7,2,1 BR	6
F667	PR	E	TBTN q	0.044	0	0	18,5 BR	3
F683	PR	P	TBTN q	0.051	0	0	35,35,35 BR	0
F810	PR	A	TBTN q	0.051	0	0	35,35,35,35 BR	0
F813	PR	A	TBTN q	0.061	0	0	35,35,35,35 BR	0
F821	PR	L	TBTN q	0.059	0	0	9,5,4,2 BR	5
F855	PR	P	TBTN q	0.055	0	0	70+ BR end	0
G422	PR	A	CCA q	0.102	0	0	0	8
G436	PR	P	CCA q	0.093	0	0	70+ BR end	0
G447	PR	E	CCA q	0.08	0	0	15,1 BR	4
G463	PR	A	CCA q	0.085	0	0	0	8
G473	PR	P	CCA q	0.083	0	0	35,35,35 BR	0

Innisfail INOCULATED embedded test, installed 19-22 Nov 2007, insp. 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G485	PR	L	CCA q	0.095	0	0	27,0 BR	2
G491	PR	A	CCA q	0.106	0	0	4 BR	7
G510	PR	P	CCA q	0.087	0	0	21,16 BR	0
G585	PR	L	CCA q	0.101	0	0	8,7 BR	5
G623	PR	L	CCA q	0.099	0	0	22,18,10,5 BR	0
J433	PR	L	HFK	22.28		All BR		0
J461	PR	A	HFK	28	0	0	70+ BR end	0
J541	PR	P	HFK	26.55		All BR		0
J553	PR	A	HFK	25.57	0	25 BR	70+ BR end	0
J578	PR	A	HFK	24.09	0	0	70+ BR end	0
J581	PR	E	HFK	21.6		All BR		0
J604	PR	L	HFK	20.76		All BR		0
J617	PR	L	HFK	28.6		All BR		0
J630	PR	P	HFK	30.23		All BR		0
J794	PR	P	HFK	25.36		All BR		0
L435	PR	P	Azoles q	0.014	0	0	3,2,2,1 BR	7
L449	PR	P	Azoles q	0.018	0	0	3,2,1 BR	7
L497	PR	A	Azoles q	0.012	0	0	2,2,1,1 BR	7
L507	PR	A	Azoles q	0.015	0	0	2,2 BR	7
L511	PR	A	Azoles q	0.016	0	0	11,2 BR	5
L536	PR	P	Azoles q	0.017	0	0	4,2,1 BR	6
L545	PR	L	Azoles q	0.015	0	0	9,3,2 BR	5
L625	PR	E	Azoles q	0.016	0	0	2,1,1 BR	7
L637	PR	L	Azoles q	0.013	0	0	7,1,1 BR	6
L647	PR	L	Azoles q	0.013	0	0	3,2,2 BR	7
N229	SG	A	None	1055	0	0	1,1 BR	7
N257	SG	P	None	1072	0	0	1,1 BR	7
N268	SG	A	None	1128	0	0	0	8
N279	SG	L	None	1163	0	0	0	8
N281	SG	L	None	1084	0	0	0	8
N289	SG	E	None	1066	0	0	1,1 BR	7
N339	SG	A	None	1010	0	0	1,0 WR	7
N351	SG	P	None	1031	0	0	1,1 BR	7
N355	SG	P	None	1104	0	0	7 WR 1 side	6

Innisfail in-ground stake test, installed 19-22 Nov 2007, inspected LJC 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Sides in-gd, mm and rot	Above ground, mm and rot or T=termites	Rating
A283	PR	2	Water	428	Missing		0
A319	PR	8	Water	602	Missing		0
A338	PR	5	Water	440	Missing		0
A348	PR	1	Water	399	Missing		0
A357	PR	6	Water	490	Missing		0
A388	PR	4	Water	473	Missing		0
A418	PR	3	Water	436	Missing		0
A428	PR	10	Water	504	Missing		0
A438	PR	9	Water	522	Missing		0
A439	PR	7	Water	454	Missing		0
E501	PR	2	ACQ q	0.097	Missing		0
E547	PR	7	ACQ q	0.094	Missing		0
E558	PR	6	ACQ q	0.082	Missing		0
E559	PR	8	ACQ q	0.076	Missing		0
E570	PR	1	ACQ q	0.09	Missing		0
E573	PR	9	ACQ q	0.084	Missing		0
E595	PR	5	ACQ q	0.092	Missing		0
E621	PR	10	ACQ q	0.09	Missing		0
E678	PR	3	ACQ q	0.086	Missing		0
E684	PR	4	ACQ q	0.086	Missing		0
F598	PR	4	TBTN q	0.059	Missing		0
F613	PR	6	TBTN q	0.06	Missing		0
F695	PR	2	TBTN q	0.044	Failed SR		0
F789	PR	3	TBTN q	0.053	Missing		0
F795	PR	7	TBTN q	0.055	Missing		0
F812	PR	9	TBTN q	0.063	Missing		0
F815	PR	5	TBTN q	0.045	Missing		0
F854	PR	10	TBTN q	0.058	Missing		0
F871	PR	8	TBTN q	0.062	Missing		0
F872	PR	1	TBTN q	0.061	Missing		0
G427	PR	6	CCA q	0.101	Missing		0
G466	PR	2	CCA q	0.091	Missing		0
G494	PR	1	CCA q	0.088	Missing		0
G609	PR	5	CCA q	0.084	Missing		0
G612	PR	8	CCA q	0.109	Failed WR & T	Mod. T	0

Innisfail in-ground stake test, installed 19-22 Nov 2007, inspected 3-4 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Sides in-gd, mm and rot	Above ground, mm and rot or T=termites	Rating
G615	PR	7	CCA q	0.095	Missing		0
G621	PR	10	CCA q	0.084	Missing		0
G652	PR	3	CCA q	0.104	Failed WR & T	Failed T	0
G679	PR	4	CCA q	0.097	Missing		0
G682	PR	9	CCA q	0.08	Missing		3
J409	PR	10	HFK	26.31	Missing		0
J465	PR	7	HFK	28.55	Missing		0
J472	PR	2	HFK	20.94	Missing		0
J486	PR	9	HFK	31.1	Missing		0
J510	PR	3	HFK	21.48	Missing		0
J517	PR	6	HFK	25.54	Missing		0
J526	PR	4	HFK	26.59	Missing		0
J575	PR	1	HFK	27.85	Failed SR		0
J597	PR	5	HFK	22.49	Missing		0
J616	PR	8	HFK	24.57	Missing		0
L460	PR	2	Azoles q	0.016	Missing		0
L462	PR	4	Azoles q	0.014	Missing		0
L506	PR	8	Azoles q	0.013	Missing		0
L513	PR	10	Azoles q	0.015	Missing		0
L522	PR	9	Azoles q	0.013	Missing		0
L527	PR	7	Azoles q	0.015	Missing		0
L597	PR	5	Azoles q	0.018	Missing		0
L599	PR	3	Azoles q	0.017	Missing		0
L608	PR	6	Azoles q	0.016	Missing		0
L640	PR	1	Azoles q	0.012	Failed WR		0
N224	SG	9	None	1044	2,2,1,1 WR SR	0	7
N242	SG	1	None	950	2 mm WR T nibbles	0	7
N254	SG	8	None	1083	2,2,1,1 SR	0	7
N255	SG	2	None	1147	1,1,1,1 SR	0	7
N274	SG	5	None	1126	5 WR cnr, 1,1,1 SR	0	6
N288	SG	4	None	1070	2,2,1,1 WR SR	0	7
N301	SG	6	None	1090	2,2,1,1 WR SR	0	7
N307	SG	3	None	1073	8,5,2,1 WR SR	0	5
N329	SG	7	None	1061	1,1,1,0 SR & T	0	7
N368	SG	10	None	1111	4 SR cnr, 1,1,1 SR	0	7

Innisfail peg test, installed 19-22 Nov 2007, inspected 3 Nov 2011

10 replicates, order is U (untreated), C (CCA), T (TBTN), A (ACQ), H (HFK), Z (azole)					
No.	Wood	Treat	Number OK	Number broken	Mean rating (where break =3, OK = 8)
U	Pine	Untreat	2	8	4.0
C	Pine	CCA q	10	0	8.0
T	Pine	TBTN q	5	5	5.5
A	Pine	ACQ q	6	4	6.0
H	Pine	HFK	5	5	5.5
Z	Pine	Azole q	6	4	6.0

Clayton flat panel installed 26 Oct 2007, inspected 18 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm and rot	Rating
A50	PR	1	Water	418	1 BR	0	39 BR	0
A21	PR	5	Water	498	0	0	11 BR	5
A23	PR	4	Water	524	1 BR	0	0	7
A24	PR	4	Water	478	0	0	0	8
A26	PR	5	Water	441	1 BR	0	0	7
A36	PR	3	Water	543	0	0	21 BR	3
A44	PR	2	Water	489	0	0	2 BR	7
A47	PR	3	Water	560	0	0	0	8
A51	PR	1	Water	496	4 BR under	0	0	6
A7	PR	2	Water	464	0	0	26 BR	2
E19	PR	3	ACQ q	0.084	0	0	0	8
E2	PR	5	ACQ q	0.093	0	0	0	8
E20	PR	3	ACQ q	0.088	0	0	0	8
E22	PR	5	ACQ q	0.096	0	0	0	8
E28	PR	2	ACQ q	0.085	0	0	0	8
E39	PR	4	ACQ q	0.079	0	0	0	8
E54	PR	2	ACQ q	0.083	0	0	0	8
E60	PR	1	ACQ q	0.081	0	0	0	8
E70	PR	1	ACQ q	0.091	0	0	0	8
E74	PR	4	ACQ q	0.075	0	0	0	8
F12	PR	2	TBTN q	0.055	0	0	0	8
F20	PR	4	TBTN q	0.057	0	0	0	8
F38	PR	2	TBTN q	0.046	0	0	0	8
F42	PR	1	TBTN q	0.041	0	0	0	8
F44	PR	4	TBTN q	0.067	0	0	0	8
F48	PR	3	TBTN q	0.048	0	0	0	8
F65	PR	1	TBTN q	0.045	0	0	12 BR	5
F7	PR	5	TBTN q	0.058	0	0	0	8
F708	PR	5	TBTN q	0.063	0	0	0	8
F80	PR	3	TBTN q	0.052	0	0	0	8
G11	PR	5	CCA q	0.097	0	0	0	8
G16	PR	1	CCA q	0.098	0	0	0	8
G24	PR	1	CCA q	0.103	0	0	0	8
G31	PR	3	CCA q	0.104	0	0	0	8
G32	PR	3	CCA q	0.1	0	0	0	8

Clayton flat panel installed 26 Oct 2007, inspected 18 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm and rot	Rating
G38	PR	2	CCA q	0.084	0	0	0	8
G46	PR	4	CCA q	0.092	0	0	0	8
G69	PR	2	CCA q	0.087	0	0	0	8
G90A	PR	5	CCA q	0.094	0	0	0	8
G90F	PR	4	CCA q	0.093	0	0	0	8
J19	PR	4	HFK	28.2	0	0	0	8
J637	PR	2	HFK	21.67	0	0	6 BR	6
J648	PR	1	HFK	19.87	0	0	0	8
J660	PR	4	HFK	29.57	0	0	0	8
J664	PR	5	HFK	26.03	0	0	1 BR	7
J665	PR	3	HFK	24.56	0	0	22 BR	3
J673	PR	3	HFK	20.59	0	0	0	8
J675	PR	2	HFK	30.37	0	0	2 BR	7
J678	PR	5	HFK	28.35	1 BR under	0	0	7
J69	PR	1	HFK	25.58	0	0	0	8
L1	PR	4	Azoles q	0.016	0	0	0	8
L12	PR	1	Azoles q	0.015	0	0	0	8
L20	PR	5	Azoles q	0.013	0	0	0	8
L694	PR	4	Azoles q	0.016	0	0	0	8
L700	PR	5	Azoles q	0.018	0	0	0	8
L716	PR	2	Azoles q	0.012	0	0	0	8
L719	PR	1	Azoles q	0.015	0	0	0	8
L730	PR	2	Azoles q	0.015	0	0	0	8
L749	PR	3	Azoles q	0.014	0	0	0	8
L90D	PR	3	Azoles q	0.018	0	0	0	8
N14	SG	4	None	1005	0	0	0	8
N15	SG	2	None	1055	0	0	0	8
N16	SG	1	None	1109	0	0	0	8
N18	SG	2	None	932	0	0	0	8
N19	SG	5	None	1037	0	0	0	8
N3	SG	5	None	1102	0	0	0	8
N38	SG	4	None	1074	0	0	0	8
N5	SG	3	None	1089	0	0	0	8
N7	SG	3	None	1157	0	0	0	8
N9	SG	1	None	1151	0	0	0	8

Clayton ground proximity test, installed 29 Oct 2007 inspected 18 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A153	PR	1\2	Water	428	0	2 BR	0	7
A154	PR	1\2	Water	437	0	2 BR	0	7
A161	PR	1\3	Water	378	0	4 BR	0	6
A176	PR	1\6	Water	471	0	6 BR	0	6
A181	PR	1\4	Water	505	0	4 BR	0	6
A182	PR	1\5	Water	524	0	7 BR	0	6
A192	PR	2\2	Water	492	0	2 BR	0	7
A195	PR	2\1	Water	410	0	6 BR	0	6
A203	PR	2\3	Water	450	0	4 BR	0	6
A66	PR	1\1	Water	610	0	4 BR	0	6
E141	PR	1\5	ACQ q	0.078	0	1 BR	0	7
E182	PR	2\4	ACQ q	0.103	0	1 BR	0	7
E186	PR	1\1	ACQ q	0.085	0	1 BR	0	7
E234	PR	2\2	ACQ q	0.092	0	0	0	8
E238	PR	2\1	ACQ q	0.082	0	0	0	8
E246	PR	1\4	ACQ q	0.097	0	0	0	8
E269	PR	1\4	ACQ q	0.089	0	2 BR	0	7
E287	PR	1\2	ACQ q	0.076	0	0	0	8
E320	PR	1\2	ACQ q	0.089	0	3 BR	0	7
E324	PR	1\3	ACQ q	0.075	0	1 BR	0	7
F130	PR	2\3	TBTN q	0.06	0	1 BR	0	7
F168	PR	1\1	TBTN q	0.038	0	1 BR	0	7
F171	PR	1\2	TBTN q	0.045	0	3 BR	0	7
F269	PR	2\1	TBTN q	0.062	0	2 BR	0	7
F284	PR	1\4	TBTN q	0.057	0	1 BR	0	7
F293	PR	1\3	TBTN q	0.048	0	0	0	8
F312	PR	1\1	TBTN q	0.043	0	1 BR	0	7
F721	PR	1\5	TBTN q	0.052	0	1 BR	0	7
F740	PR	1\5	TBTN q	0.055	0	0	0	8
F751	PR	1\3	TBTN q	0.049	0	0	0	8
G117	PR	1\1	CCA q	0.108	0	0	0	8
G183	PR	1\6	CCA q	0.092	0	2 BR	0	7
G208	PR	1\4	CCA q	0.105	0	0	0	8
G250	PR	1\3	CCA q	0.101	0	0	0	8
G263	PR	1\6	CCA q	0.096	0	1 BR	0	7

Clayton ground proximity test, installed 29 Oct 2007 inspected 18 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G265	PR	1\5	CCA q	0.089	0	0	0	8
G277	PR	1\4	CCA q	0.098	0	0	0	8
G291	PR	1\2	CCA q	0.084	0	0	0	8
G296	PR	2\4	CCA q	0.102	0	4 BR	0	6
G92	PR	2\2	CCA q	0.086	0	0	0	8
J103	PR	2\3	HFK	26.46	0	2 BR	0	7
J110	PR	1\5	HFK	28.88	0	2 BR	0	7
J187	PR	1\2	HFK	28.83	0	0	0	8
J229	PR	1\3	HFK	20.18	0	3 BR	0	7
J235	PR	2\1	HFK	26.04	0	7 BR	0	6
J259	PR	1\4	HFK	27.07	0	5 BR	0	6
J261	PR	1\1	HFK	22.6	0	3 BR	0	7
J702	PR	1\3	HFK	22.02	0	2 BR	0	7
J86	PR	1\5	HFK	24.96	0	4 BR	0	6
J88	PR	1\2	HFK	23.87	0	15 BR	0	4
L187	PR	1\1	Azoles q	0.015	0	2 BR	0	7
L209	PR	1\4	Azoles q	0.017	0	1 BR	0	7
L244	PR	1\1	Azoles q	0.019	0	2 BR	0	7
L250	PR	2\2	Azoles q	0.019	0	1 BR	0	7
L264	PR	1\3	Azoles q	0.013	0	3 BR	0	7
L292	PR	1\5	Azoles q	0.016	0	2 BR	0	7
L308	PR	2\3	Azoles q	0.014	0	1 BR	0	7
L773	PR	1\3	Azoles q	0.011	0	1 BR	0	7
L790	PR	1\2	Azoles q	0.016	0	0	0	8
L800	PR	2\4	Azoles q	0.018	0	1 BR	0	7
N146	SG	1\2	None	1005	0	1 BR	0	7
N149	SG	1\2	None	1112	0	1 BR	0	7
N152	SG	1\1	None	1085	0	1 BR	0	7
N45	SG	2\3	None	1102	0	0	0	8
N51	SG	2\1	None	1098	0	1 BR	0	7
N62	SG	2\2	None	1121	0	0	0	8
N63	SG	1\5	None	1043	0	1 BR	0	7
N67	SG	1\4	None	1141	0	1 BR	0	7
N78	SG	1\6	None	1155	0	1 BR	0	7
N92	SG	1\3	None	1068	0	1 BR	0	7

Clayton rot box installed 24 Oct 2007 inspected 18 Nov 2011

No.	Wood	Row for year	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A129	PR		Water	515	5 BR	0	2,2 BR ends	6
A151	PR		Water	417	1 BR	0	0	7
A177	PR		Water	479	2 BR	2 BR	0	6
A188	PR		Water	389	0	0	0	8
A461	PR		Water	441	1 BR	1 BR	0	7
A478	PR		Water	505	0	0	0	8
A67	PR		Water	496	1 BR	0	1	7
A68	PR		Water	421	0	0	0	8
A94	PR		Water	447	2 BR	0	0	7
A98	PR		Water	532	0	0	0	8
E156	PR		ACQ q	0.102	0	0	0	8
E199	PR		ACQ q	0.089	0	0	0	8
E201	PR		ACQ q	0.095	0	0	0	8
E211	PR		ACQ q	0.082	0	0	0	8
E242	PR		ACQ q	0.085	0	0	0	8
E248	PR		ACQ q	0.091	0	0	0	8
E260	PR		ACQ q	0.076	0	0	0	8
E314	PR		ACQ q	0.094	0	0	0	8
E327	PR		ACQ q	0.078	0	0	0	8
E328	PR		ACQ q	0.076	0	0	0	8
F102	PR		TBTN q	0.05	0	0	0	8
F104	PR		TBTN q	0.055	0	0	0	8
F157	PR		TBTN q	0.057	0	0	0	8
F166	PR		TBTN q	0.064	0	0	0	8
F177	PR		TBTN q	0.059	0	0	0	8
F186	PR		TBTN q	0.041	0	0	0	8
F204	PR		TBTN q	0.038	0	0	0	8
F252	PR		TBTN q	0.048	0	0	0	8
F302	PR		TBTN q	0.052	0	0	0	8
F747	PR		TBTN q	0.045	0	0	0	8
G100	PR		CCA q	0.086	0	0	0	8
G131	PR		CCA q	0.102	0	0	0	8
G157	PR		CCA q	0.084	0	0	0	8
G238	PR		CCA q	0.095	0	0	0	8
G244	PR		CCA q	0.103	0	0	0	8

Clayton rot box installed 24 Oct 2007 inspected 18 Nov 2011

No.	Wood	Row for year	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G259	PR		CCA q	0.101	0	0	0	8
G264	PR		CCA q	0.097	0	0	0	8
G312	PR		CCA q	0.09	0	0	0	8
G315E	PR		CCA q	0.108	0	0	0	8
G99	PR		CCA q	0.092	0	0	0	8
J132	PR		HFK	21.12	0	0	0	8
J165	PR		HFK	27.09	0	0	0	8
J167	PR		HFK	26.11	3 BR	0	0	7
J175	PR		HFK	30.42	0	0	0	8
J197	PR		HFK	23.29	1 BR	0	0	7
J213	PR		HFK	24.69	0	0	0	8
J231	PR		HFK	26.24	0	0	0	8
J255	PR		HFK	20.35	0	0	0	8
J697	PR		HFK	28.81	0	0	0	8
J708	PR		HFK	23.91	0	0	0	8
L169	PR		Azoles q	0.014	0	0	0	8
L174	PR		Azoles q	0.019	0	0	0	8
L179	PR		Azoles q	0.015	0	0	0	8
L192	PR		Azoles q	0.017	0	0	0	8
L200	PR		Azoles q	0.017	0	0	0	8
L241	PR		Azoles q	0.014	0	0	0	8
L249	PR		Azoles q	0.018	0	0	0	8
L783	PR		Azoles q	0.011	0	0	0	8
L787	PR		Azoles q	0.019	0	0	0	8
L805	PR		Azoles q	0.016	0	0	0	8
N111	SG		None	1041	0	0	0	8
N123	SG		None	1199	0	0	0	8
N130	SG		None	1111	0	0	0	8
N131	SG		None	1069	0	0	0	8
N143	SG		None	1138	0	0	0	8
N151	SG		None	1102	0	0	0	8
N157	SG		None	1001	0	0	0	8
N42	SG		None	1123	0	0	0	8
N94	SG		None	1084	0	0	0	8
N96	SG		None	1107	0	0	0	8

Clayton embedded test, installed 29 Oct 2007 inspected 18 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A332	PR	A	Water	422	0	0	52 BR end	0
A335	PR	H	Water	439	0	0	1,1 BR	7
A354	PR	A	Water	439	0	0	70+ BR end	0
A366	PR	C	Water	456	0	0	48 BR end	0
A373	PR	E	Water	472	0	0	70+ BR end	0
A447	PR	B	Water	518	0	0	6,4,3 BR	6
A458	PR	B	Water	482	0	0	13,7,5,3 BR	4
A498	PR	A	Water	385	0	0	70+ BR end	0
A503	PR	B	Water	578	0	0	70+ BR end	0
A523	PR	G	Water	542	0	0	70+ BR end	0
E449	PR	A	ACQ q	0.083	0	0	14,13,3 BR	2
E464	PR	B	ACQ q	0.091	0	0	11,7,2,1 BR	4
E466	PR	D	ACQ q	0.086	0	0	4,0 BR	7
E507	PR	G	ACQ q	0.084	0	0	7,6,4,3 BR	5
E528	PR	A	ACQ q	0.099	0	0	4,1,1 BR	7
E539	PR	F	ACQ q	0.093	0	0	0	8
E636	PR	B	ACQ q	0.093	0	0	0	8
E660	PR	B	ACQ q	0.077	0	0	10,4,3,2 BR	5
E696	PR	A	ACQ q	0.088	0	0	38 BR end	0
E704	PR	E	ACQ q	0.085	0	0	13,2 BR	5
F431	PR	A	TBTN q	0.042	0	0	6,3,2,2 BR	6
F572	PR	D	TBTN q	0.058	0	0	1,1 BR	7
F596	PR	D	TBTN q	0.059	0	0	0	8
F640	PR	G	TBTN q	0.062	0	0	3,3,3,2 BR	6
F670	PR	G	TBTN q	0.052	0	0	13,2,1 BR	5
F693	PR	A	TBTN q	0.054	0	0	5,5,1 BR	6
F698	PR	B	TBTN q	0.062	0	0	1 BR	7
F778	PR	B	TBTN q	0.055	0	0	1,1 BR	7
F836	PR	B	TBTN q	0.047	0	0	2,1 BR	7
F874	PR	A	TBTN q	0.05	0	0	0	8
G426	PR	A	CCA q	0.086	0	0	7,2 BR	6
G481	PR	A	CCA q	0.092	0	0	6,5,1 BR	5
G498	PR	G	CCA q	0.095	0	0	4,3,2,1 BR	6
G502	PR	B	CCA q	0.101	0	0	0	8
G542	PR	B	CCA q	0.103	0	0	4,3,3,2 BR	6

Clayton embedded test, installed 29 Oct 2007 inspected 18 Nov 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G577	PR	F	CCA q	0.099	0	0	0	8
G589	PR	B	CCA q	0.084	0	0	0	8
G641	PR	A	CCA q	0.08	0	0	12,11,9 BR	3
G654	PR	F	CCA q	0.106	0	0	1,0 BR	7
G683	PR	C	CCA q	0.09	0	0	3,1 BR	7
J408	PR	E	HFK	26.51	0	0	0	8
J443	PR	D	HFK	29.19	0	0	34 BR end	1
J481	PR	H	HFK	20.11	0	0	3,1 BR	7
J494	PR	G	HFK	23.1	0	0	70+ BR end	0
J538	PR	A	HFK	21.39	0	0	0	8
J586	PR	A	HFK	29.23	0	0	70+ BR end	0
J588	PR	B	HFK	25.95	0	0	0	8
J595	PR	C	HFK	23.65	0	0	2,1 BR	7
J612	PR	A	HFK	25.16	0	0	53 BR end	0
J621	PR	B	HFK	28.22	0	0	37 BR end	0
L503	PR	A	Azoles q	0.016	0	0	3 BR	7
L505	PR	A	Azoles q	0.014	0	0	3,2,1,1 BR	7
L518	PR	A	Azoles q	0.014	0	0	3,2,1 BR	7
L531	PR	B	Azoles q	0.017	0	0	3,2 BR	7
L539	PR	B	Azoles q	0.015	0	0	6,5,3,1 BR	5
L554	PR	B	Azoles q	0.012	0	0	7,6,4,4 BR	5
L561	PR	D	Azoles q	0.013	0	0	0	8
L575	PR	H	Azoles q	0.018	0	0	1,0 BR	7
L601	PR	F	Azoles q	0.013	0	0	0	8
L654	PR	C	Azoles q	0.016	0	0	0	8
N225	SG	E	None	1070	0	0	1,0 BR	7
N227	SG	A	None	1085	0	0	0	8
N266	SG	B	None	1089	0	0	6,3,2,1 BR	6
N284	SG	H	None	1040	0	0	1,0 BR	7
N287	SG	A	None	1123	0	0	1,1 WR	7
N299	SG	B	None	1147	0	0	0	8
N338	SG	A	None	1060	0	0	1 BR	7
N350	SG	B	None	978	0	0	1WR 1 side	7
N358	SG	D	None	1075	0	0	0	8
N366	SG	F	None	1103	0	0	1,0 WR	7

Clayton peg test, installed 24-29 Oct 2007 inspected 18 Nov 2011

10 replicates, order is U (untreated), C (CCA), T (TBTN), A (ACQ), H (HFK), Z (azole)					
No.	Wood	Treat	Number OK	Number breaking	Mean rating (where break =3, OK = 8)
U	Pine	Untreat	10	0	8.0
C	Pine	CCA q	10	0	8.0
T	Pine	TBTN q	10	0	8.0
A	Pine	ACQ q	10	0	8.0
H	Pine	HFK	10	0	8.0
Z	Pine	Azole q	10	0	8.0

Rotorua flat panel test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm and rot	Rating
A25	PR	Btm	water	473	0	0	0	8
A28	PR	Top	water	481	0	0	0	8
A29	PR	Btm	water	517	0	0	4 BR	7
A3	PR	Btm	water	533	0	0	0	8
A4	PR	Top	water	408	1 BR	0	0	7
A41	PR	Top	water	501	0	0	0	8
A5	PR	Top	water	562	0	0	0	8
A59	PR	Top	water	489	0	0	0	8
A6	PR	Btm	water	452	0	0	0	8
A8	PR	Btm	water	442	0	0	0	8
E1	PR	Top	ACQ q	0.09	0	0	0	8
E14	PR	Top	ACQ q	0.092	0	0	0	8
E15	PR	Top	ACQ q	0.099	0	0	11 BR	5
E18	PR	Btm	ACQ q	0.085	0	0	0	8
E47	PR	Btm	ACQ q	0.095	0	0	0	8
E56	PR	Btm	ACQ q	0.087	0	0	0	8
E7	PR	Top	ACQ q	0.08	0	0	0	8
E78	PR	Top	ACQ q	0.082	0	0	0	8
E8	PR	Btm	ACQ q	0.079	0	0	7 BR	6
E84	PR	Btm	ACQ q	0.078	0	0	0	8
F22	PR	Btm	TBTN q	0.055	0	0	0	8
F3	PR	Btm	TBTN q	0.064	0	0	0	8
F35	PR	Btm	TBTN q	0.048	0	0	0	8
F40	PR	Top	TBTN q	0.05	0	0	0	8
F41	PR	Btm	TBTN q	0.042	0	0	0	8
F52	PR	Top	TBTN q	0.041	0	0	0	8
F64	PR	Btm	TBTN q	0.055	0	0	0	8
F70	PR	Top	TBTN q	0.054	0	0	0	8
F75	PR	Top	TBTN q	0.062	0	0	0	8
F9	PR	Top	TBTN q	0.059	0	0	0	8
G14	PR	Top	CCA q	0.095	0	0	0	8
G26	PR	Top	CCA q	0.105	0	0	0	8
G28	PR	Top	CCA q	0.098	0	0	0	8
G3	PR	Top	CCA q	0.091	0	0	0	8
G40	PR	Btm	CCA q	0.102	0	0	0	8

Rotorua flat panel test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm and rot	Rating
G88	PR	Top	CCA q	0.087	0	0	0	8
G9	PR	Btm	CCA q	0.1	0	0	0	8
G90C	PR	Btm	CCA q	0.086	0	0	0	8
G90H	PR	Btm	CCA q	0.093	0	0	0	8
G90J	PR	Btm	CCA q	0.093	0	0	0	8
J39	PR	Top	HFK	29.7	0	0	2 BR	7
J636	PR	Top	HFK	28.27	0	0	52 BR	0
J638	PR	Btm	HFK	23.81	0	0	1 BR under	7
J640	PR	Btm	HFK	29.98	14 BR under	0	17 BR under	3
J642	PR	Top	HFK	27.95	0	0	0	8
J644	PR	Top	HFK	24.1	0	0	0	8
J662	PR	Btm	HFK	19.55	0	0	0	8
J668	PR	Top	HFK	24.92	0	0	0	8
J669	PR	Btm	HFK	21.45	0	0	6 BR	6
J80	PR	Btm	HFK	26.08	0	0	0	8
L14	PR	Btm	Azole q	0.018	0	0	0	8
L692	PR	Btm	Azole q	0.014	0	0	0	8
L693	PR	Btm	Azole q	0.014	0	0	1	7
L710	PR	Top	Azole q	0.014	0	0	0	8
L714	PR	Top	Azole q	0.016	0	0	0	8
L718	PR	Top	Azole q	0.012	0	0	0	8
L721	PR	Top	Azole q	0.015	0	0	0	8
L732	PR	Btm	Azole q	0.017	0	0	0	8
L748	PR	Btm	Azole q	0.015	0	0	0	8
L750	PR	Top	Azole q	0.016	0	0	0	8
N10	SG	Top	none	1103	0	0	0	8
N13	SG	Top	none	1098	0	0	0	8
N17	SG	Btm	none	1062	0	0	0	8
N2	SG	Btm	none	1156	0	0	0	8
N20	SG	Top	none	1112	0	0	0	8
N21	SG	Btm	none	1044	0	0	0	8
N24	SG	Top	none	928	0	0	0	8
N33	SG	Top	none	1152	0	0	0	8
N37	SG	Btm	none	1070	0	0	0	8
N39	SG	Btm	none	1013	0	0	0	8

Rotorua ground proximity test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A100	PR	2	water	475	4 BR	15 BR	0	2
A104	PR	5	water	426	3 BR	15 BR	12,0 BR	3
A165	PR	4	water	387	15 BR	13 BR	14,12 BR	0
A196	PR	1	water	450	0	20 BR	0	2
A208	PR	2	water	409	0	22 WR	31,24 WR	0
A471	PR	4	water	549	0	0	0	8
A480	PR	3	water	525	0	17 BR	0	3
A90	PR	1	water	496	2 BR	9 BR	16,0 BR	4
A91	PR	3	water	487	3 BR	7 BR	12,0 BR	5
A95	PR	5	water	437	0	23 BR	0	1
E104	PR	1	ACQ q	0.078	0	3 BR	0	7
E143	PR	1	ACQ q	0.08	0	5 BR	0	6
E157	PR	5	ACQ q	0.086	1 BR	5 WR	0	6
E177	PR	4	ACQ q	0.099	0	8 WR	9,7 WR,BR	4
E216	PR	3	ACQ q	0.084	0	6 WR	0	6
E221	PR	2	ACQ q	0.077	0	13 BR	0	4
E225	PR	4	ACQ q	0.098	0	2 WR	0	7
E308	PR	5	ACQ q	0.09	0	3 WR	0	7
E319	PR	2	ACQ q	0.076	1 BR	3 BR	0	6
E326	PR	3	ACQ q	0.095	0	0	0	8
F152	PR	3	TBTN q	0.058	2 WR	11 WR	9,6 WR	4
F164	PR	2	TBTN q	0.051	2 BR	6 WR	0	5
F211	PR	4	TBTN q	0.04	1 WR	10 WR	0	5
F263	PR	1	TBTN q	0.049	0	19 WR	0	2
F268	PR	2	TBTN q	0.045	0	4 WR	6,5 WR	5
F294	PR	4	TBTN q	0.038	0	4 WR	0	6
F729	PR	1	TBTN q	0.056	1 BR	0	0	7
F750	PR	3	TBTN q	0.061	0	5 WR	0	6
F95	PR	5	TBTN q	0.048	0	0	0	8
F97	PR	5	TBTN q	0.061	0	5 BR	0	6
G142	PR	3	CCA q	0.089	1 WR	0	0	7
G163	PR	2	CCA q	0.095	0	0	0	8
G171	PR	1	CCA q	0.085	0	0	0	8
G207	PR	4	CCA q	0.106	0	0	0	8
G256	PR	5	CCA q	0.103	0	2 WR	0	7

Rotorua ground proximity test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G260	PR	5	CCA q	0.094	0	0	0	8
G262	PR	3	CCA q	0.086	0	0	0	8
G267	PR	1	CCA q	0.101	0	0	0	8
G289	PR	2	CCA q	0.105	0	5 BR	0	6
G315C	PR	4	CCA q	0.096	0	0	0	8
J106	PR	2	HFK	27.07	0	8 BR	0	5
J136	PR	4	HFK	24.54	0	5 BR	0	6
J177	PR	5	HFK	26.2	0	5 BR	0	6
J228	PR	4	HFK	22.44	0	4 WR	0	6
J266	PR	3	HFK	24.27	3 BR	13 WR	0	3
J276	PR	1	HFK	23.26	0	18 WR	23,11 WR	1
J279	PR	1	HFK	26.16	0	4 WR	0	6
J695	PR	2	HFK	28.97	0	7 BR	0	6
J705	PR	3	HFK	18.96	1 BR	12 WR	8,0 WR	4
J85	PR	5	HFK	28.24	1 WR	5 WR	0	6
L150	PR	4	Azole q	0.015	0	7 WR	0	6
L190	PR	3	Azole q	0.018	0	2 WR	0	7
L198	PR	5	Azole q	0.019	1 WR	3 BR	0	6
L210	PR	2	Azole q	0.016	0	0	0	8
L222	PR	3	Azole q	0.017	0	4 BR	0	6
L262	PR	5	Azole q	0.012	0	11 BR,WR	6,3 WR	5
L295	PR	2	Azole q	0.018	0	8 BR	0	5
L776	PR	1	Azole q	0.013	0	3 WR	0	7
L785	PR	4	Azole q	0.014	0	3 BR	0	7
L795	PR	1	Azole q	0.019	0	4 BR	0	6
N107	SG	4	none	1066	0	1 WR	0	7
N112	SG	2	none	930	0	0	0	8
N119	SG	3	none	1108	0	0	0	8
N147	SG	1	none	1060	0	3 WR	0	7
N154	SG	1	none	1142	0	0	0	8
N46	SG	5	none	1090	0	0	0	8
N53	SG	2	none	1123	0	0	0	8
N60	SG	4	none	1109	0	0	0	8
N84	SG	3	none	1102	0	0	0	8
N91	SG	5	none	1155	0	0	0	8

Rotorua rot box installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A102	PR	1	Water	387	5 BR	0	11,2 BR	5
A126	PR	2	Water	425	6 BR	13 BR	22,7 BR	2
A155	PR	1	Water	496	2 BR	1 BR	0	7
A168	PR	2	Water	473	1 BR	5 BR	12,0 BR	5
A183	PR	2	Water	446	11 BR	4 BR	0	4
A187	PR	2	Water	495	1 BR	17 BR	19,6 BR	3
A474	PR	1	Water	561	0	12 BR	5,5 BR	4
A477	PR	1	Water	520	1 BR	2 BR	2,1 BR	7
A82	PR	1	Water	410	2 BR	6 BR	9,1 BR	5
A89	PR	2	Water	445	0	2 BR	0	7
E122	PR	1	ACQ q	0.078	0	0	0	8
E136	PR	2	ACQ q	0.093	0	0	10,0 BR	6
E138	PR	1	ACQ q	0.087	0	0	0	8
E142	PR	1	ACQ q	0.084	0	1 BR	0	7
E148	PR	2	ACQ q	0.079	0	0	0	8
E172	PR	1	ACQ q	0.103	0	0	0	8
E185	PR	1	ACQ q	0.082	0	0	0	8
E200	PR	2	ACQ q	0.092	0	0	0	8
E228	PR	2	ACQ q	0.099	0	0	0	8
E329	PR	2	ACQ q	0.076	0	0	0	8
F112	PR	1	TBTN q	0.051	0	0	0	8
F144	PR	2	TBTN q	0.058	0	0	0	8
F151	PR	2	TBTN q	0.06	2 BR	0	4,0 BR	7
F181	PR	2	TBTN q	0.062	1 BR	0	0	7
F210	PR	1	TBTN q	0.047	10 BR	14 BR	0	1
F218	PR	1	TBTN q	0.037	12 BR	4 BR	20,4 BR	3
F237	PR	2	TBTN q	0.053	2 BR	0	0	7
F259	PR	1	TBTN q	0.045	1 BR	3 BR	0	6
F264	PR	2	TBTN q	0.055	2 BR	2 BR	0	6
F306	PR	1	TBTN q	0.042	0	3 BR	0	7
G129	PR	1	CCA q	0.105	0	0	0	8
G134	PR	2	CCA q	0.09	0	0	0	8
G148	PR	2	CCA q	0.097	0	0	0	8
G179	PR	1	CCA q	0.101	0	0	0	8
G229	PR	1	CCA q	0.086	1 BR	0	0	7

Rotorua rot box installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G234	PR	2	CCA q	0.094	0	0	0	8
G248	PR	2	CCA q	0.088	0	0	0	8
G287	PR	1	CCA q	0.099	0	0	0	8
G288	PR	1	CCA q	0.108	0	0	0	8
G293	PR	2	CCA q	0.096	0	0	0	8
J142	PR	1	HFK	20.2	1 BR	0	7,0 BR	6
J166	PR	2	HFK	27.19	0	0	0	8
J217	PR	1	HFK	23.67	0	2 BR	0	7
J256	PR	1	HFK	21.42	0	0	0	8
J265	PR	2	HFK	25.37	0	0	0	8
J270	PR	2	HFK	28.51	0	2 BR	2,2 BR	7
J696	PR	2	HFK	26.69	3 BR	1 BR	12,0 BR	5
J698	PR	2	HFK	24.51	2 BR	2 BR	0	6
J83	PR	1	HFK	30.45	1 BR	1 BR	13,0 BR	5
J90	PR	1	HFK	23.17	0	1 BR	2,0 BR	7
L113	PR	1	Azole q	0.019	1 BR	0	0	7
L226	PR	2	Azole q	0.015	1 BR	2 BR	0	7
L240	PR	2	Azole q	0.019	0	0	0	8
L289	PR	1	Azole q	0.016	1 BR	0	0	7
L304	PR	1	Azole q	0.016	0	0	0	8
L312	PR	2	Azole q	0.014	0	0	0	8
L315	PR	2	Azole q	0.014	0	0	0	8
L761	PR	1	Azole q	0.018	0	0	2,0 BR	7
L775	PR	1	Azole q	0.018	0	0	0	8
L810	PR	2	Azole q	0.012	0	0	0	8
N104	SG	2	none	1021	0	0	0	8
N109	SG	2	none	1094	0	0	0	8
N117	SG	1	none	1145	0	0	0	8
N118	SG	1	none	1062	0	0	0	8
N137	SG	1	none	1125	0	0	0	8
N139	SG	1	none	1105	0	0	0	8
N142	SG	1	none	1080	0	0	0	8
N66	SG	2	none	1108	0	0	0	8
N77	SG	2	none	1157	0	0	0	8
N81	SG	2	none	1084	0	0	0	8

Rotorua inoc rot box installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A105	PR	3	water	445	Fully	decayed	BR	0
A128	PR	3	water	473	Fully	decayed	BR	0
A159	PR	3	water	424	Fully	decayed	BR	0
A162	PR	3	water	409	Fully	decayed	BR	0
A173	PR	4	water	492	Fully	decayed	BR	0
A462	PR	4	water	524	Fully	decayed	BR	0
A466	PR	3	water	453	Fully	decayed	BR	0
A469	PR	4	water	564	2 BR	13 BR	6,0 BR	4
A75	PR	4	water	497	25	25 BR	19,18 BR	0
A93	PR	4	water	408	25	25 BR	70+,3 BR	0
E115	PR	4	ACQ q	0.077	0	0	0	8
E135	PR	4	ACQ q	0.08	0	0	3,0 BR	7
E145	PR	3	ACQ q	0.098	0	0	0	8
E188	PR	3	ACQ q	0.103	0	3 BR	0	7
E229	PR	4	ACQ q	0.083	0	7 BR	6,0 BR	6
E259	PR	3	ACQ q	0.09	0	0	0	8
E279	PR	3	ACQ q	0.088	0	0	0	8
E306	PR	4	ACQ q	0.079	0	0	0	8
E310	PR	4	ACQ q	0.074	0	1 BR	0	7
E330	PR	3	ACQ q	0.093	0	0	0	8
F117	PR	4	TBTn q	0.04	0	0	0	8
F137	PR	3	TBTN q	0.054	0	0	0	8
F156	PR	4	TBTN q	0.039	0	0	0	8
F174	PR	3	TBTN q	0.051	3 BR	1 BR	0	6
F189	PR	3	TBTN q	0.063	0	3 BR	0	7
F267	PR	3	TBTN q	0.056	0	0	0	8
F722	PR	4	TBTN q	0.047	0	0	0	8
F731	PR	3	TBTN q	0.061	0	2 BR	0	7
F94	PR	4	TBTN q	0.045	0	0	0	8
F96	PR	4	TBTN q	0.049	0	0	0	8
G108	PR	4	CCA q	0.088	2 BR	0	0	7
G139	PR	4	CCA q	0.09	0	0	0	8
G141	PR	3	CCA q	0.099	0	1 BR	0	7
G147	PR	4	CCA q	0.093	0	4 BR	0	6
G156	PR	4	CCA q	0.102	0	1 BR side	0	7

Rotorua inoc rot box installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G209	PR	3	CCA q	0.108	0	1 BR	0	7
G214	PR	4	CCA q	0.098	3 BR	2 BR	0	6
G245	PR	3	CCA q	0.096	0	1 BR	0	7
G281	PR	3	CCA q	0.104	0	0	1,0 BR	7
G98	PR	3	CCA q	0.086	0	0	0	8
J105	PR	3	HFK	28.67	25	25 BR	70+,0 BR	0
J108	PR	3	HFK	27.82	25	25 BR	45,0 BR	0
J113	PR	4	HFK	21.41	25	25 BR	16,7 BR	0
J124	PR	4	HFK	23.54	25 BR	25 BR	33,12 BR	0
J254	PR	4	HFK	24.83	25	25 BR	70+,15 BR	0
J273	PR	3	HFK	26.98	25	25 BR	35,32 BR	0
J275	PR	4	HFK	20.86	Fully	decayed	BR	0
J277	PR	3	HFK	22.52	0	21 BR	0	2
J691	PR	4	HFK	25.79	3 BR	23 BR	0	0
J91	PR	3	HFK	29.59	25	25 BR	70+,7 BR	0
L163	PR	3	Azole q	0.019	25	25 BR	2 one end	0
L166	PR	3	Azole q	0.018	25	25 BR	2	0
L212	PR	3	Azole q	0.016	22 BR	7 BR	0	0
L215	PR	4	Azole q	0.013	3 BR	14 BR	0	3
L235	PR	4	Azole q	0.015	25	25 BR	0	0
L260	PR	3	Azole q	0.017	25 BR	25 BR	0	0
L300	PR	3	Azole q	0.016	0	0	0	8
L313	PR	4	Azole q	0.014	25	25 BR	70+,0 BR	0
L755	PR	4	Azole q	0.019	0	0	0	8
L759	PR	4	Azole q	0.012	25 BR	25 BR	0	0
N100	SG	4	none	1142	0	0	0	8
N101	SG	3	none	1101	0	0	0	8
N121	SG	3	none	1118	0	0	0	8
N126	SG	3	none	1108	0	0	0	8
N138	SG	3	none	1112	0	0	0	8
N159	SG	3	none	1086	0	0	0	8
N55	SG	4	none	1048	0	0	0	8
N65	SG	4	none	1150	0	0	0	8
N80	SG	4	none	930	0	0	0	8
N82	SG	4	none	1071	0	0	0	8

Rotorua deck-on-grass installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
A218	PR	1	water	478	5 BR	3 BR under	0	5
A227	PR	1	water	544	1 WR	3 BR	3 BR	6
A232	PR	1	water	418	25 BR	70+ BR	0	0
A253	PR	1	water	503	0	0	0	8
A254	PR	2	water	506	1 WR	0	0	7
A258	PR	1	water	401	1 BR	3 BR	0	6
A259	PR	2	water	460	1 WR	4 BR under	0	6
A260	PR	2	water	463	0	1 BR	0	7
A484	PR	2	water	445	1 BR	3 BR under	0	6
A485	PR	2	water	493	0	1 BR	0	7
E342	PR	1	ACQ q	0.093	0	0	0	8
E349	PR	1	ACQ q	0.095	0	0	0	8
E356	PR	2	ACQ q	0.089	0	0	0	8
E363	PR	2	ACQ q	0.097	0	0	0	8
E416	PR	2	ACQ q	0.081	0	0	0	8
E426	PR	1	ACQ q	0.087	0	0	0	8
E427	PR	2	ACQ q	0.082	0	0	0	8
E428	PR	1	ACQ q	0.089	0	0	0	8
E430	PR	1	ACQ q	0.085	0	0	0	8
E440	PR	2	ACQ q	0.092	0	0	0	8
F322	PR	1	TBTN q	0.061	0	0	0	8
F323	PR	2	TBTN q	0.057	0	0	0	8
F331	PR	2	TBTN q	0.05	0	0	0	8
F347	PR	2	TBTN q	0.052	0	0	0	8
F372	PR	2	TBTN q	0.05	0	0	0	8
F380	PR	1	TBTN q	0.055	0	0	0	8
F402	PR	1	TBTN q	0.038	0	0	0	8
F412	PR	1	TBTN q	0.048	0	0	0	8
F764	PR	2	TBTN q	0.053	0	0	0	8
F770	PR	1	TBTN q	0.063	0	1 BR	0	7
G328	PR	2	CCA q	0.097	0	0	0	8
G342	PR	1	CCA q	0.086	0	0	0	8
G343	PR	2	CCA q	0.106	0	0	0	8
G354	PR	1	CCA q	0.084	0	0	0	8
G355	PR	2	CCA q	0.098	0	0	0	8

Rotorua deck-on-grass installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
G372	PR	1	CCA q	0.093	0	0	0	8
G397	PR	1	CCA q	0.091	0	0	0	8
G404	PR	1	CCA q	0.096	0	0	0	8
G405	PR	2	CCA q	0.101	0	0	0	8
G413	PR	2	CCA q	0.083	0	0	0	8
J296	PR	1	HFK	19.89	1 BR	0	0	7
J301	PR	2	HFK	21.92	0	1 BR	0	7
J305	PR	1	HFK	25.3	0	0	0	8
J310	PR	1	HFK	20.6	0	23 BR under	0	1
J316	PR	2	HFK	22.64	1 BR	3 BR under	0	6
J343	PR	2	HFK	25.03	0	1 BR	0	7
J350	PR	2	HFK	29.32	0	2 BR mid	0	7
J359	PR	1	HFK	19.98	0	0	0	8
J715	PR	1	HFK	19.38	4 BR	70+ BR	0	0
J719	PR	2	HFK	27.86	0	1 BR	0	7
L324	PR	1	Azole q	0.017	0	0	0	8
L349	PR	1	Azole q	0.016	0	0	0	8
L352	PR	2	Azole q	0.012	0	0	0	8
L377	PR	2	Azole q	0.013	0	0	0	8
L378	PR	1	Azole q	0.015	1 BR	0	0	7
L386	PR	2	Azole q	0.012	0	0	0	8
L390	PR	1	Azole q	0.014	0	0	0	8
L409	PR	2	Azole q	0.013	0	0	0	8
L416	PR	1	Azole q	0.019	0	0	0	8
L418	PR	2	Azole q	0.011	0	0	0	8
N161	SG	2	none	1150	0	0	0	8
N176	SG	2	none	1076	0	0	0	8
N185	SG	2	none	1097	1 WR side	0	0	7
N186	SG	2	none	1104	0	0	0	8
N187	SG	2	none	1158	0	0	0	8
N198	SG	1	none	1196	0	0	0	8
N200	SG	1	none	1129	0	0	0	8
N201	SG	1	none	1083	0	0	0	8
N207	SG	1	none	1019	0	0	0	8
N209	SG	1	none	1172	0	0	0	8

Rotorua raised deck installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
A213	PR	2	water	391	4 BR	0	0	6
A221	PR	2	water	488	0	0	0	8
A237	PR	1	water	498	0	2 BR	0	7
A238	PR	2	water	465	0	0	0	8
A262	PR	2	water	453	0	0	0	8
A263	PR	1	water	404	0	0	0	8
A264	PR	1	water	486	0	0	0	8
A265	PR	1	water	445	0	0	0	8
A274	PR	2	water	511	0	0	0	8
A489	PR	1	water	596	0	0	0	8
E353	PR	2	ACQ q	0.078	0	0	0	8
E381	PR	2	ACQ q	0.083	0	0	0	8
E387	PR	1	ACQ q	0.094	0	0	0	8
E392	PR	2	ACQ q	0.085	0	0	0	8
E394	PR	2	ACQ q	0.087	0	0	0	8
E404	PR	1	ACQ q	0.092	0	0	0	8
E406	PR	1	ACQ q	0.09	0	0	0	8
E411	PR	1	ACQ q	0.092	0	0	0	8
E415	PR	1	ACQ q	0.097	0	0	0	8
E422	PR	2	ACQ q	0.088	0	0	0	8
F338	PR	1	TBTN q	0.052	0	0	0	8
F339	PR	1	TBTN q	0.049	0	0	0	8
F350	PR	2	TBTN q	0.058	0	0	0	8
F361	PR	2	TBTN q	0.038	0	0	0	8
F365	PR	1	TBTN q	0.051	0	0	0	8
F388	PR	1	TBTN q	0.06	0	0	0	8
F393	PR	2	TBTN q	0.056	0	0	0	8
F394	PR	2	TBTN q	0.053	0	0	0	8
F395	PR	1	TBTN q	0.048	2 BR	0	0	7
F762	PR	2	TBTN q	0.063	0	0	0	8
G321	PR	1	CCA q	0.086	0	0	0	8
G322	PR	2	CCA q	0.094	0	0	0	8
G335	PR	2	CCA q	0.081	0	0	0	8
G339	PR	2	CCA q	0.1	0	0	0	8
G358	PR	1	CCA q	0.084	0	0	0	8

Rotorua raised deck installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Unt support end, mm and rot	Treated support end, mm and rot	Rating
G371	PR	1	CCA q	0.096	0	0	0	8
G390	PR	1	CCA q	0.107	0	0	0	8
G394	PR	2	CCA q	0.099	0	0	0	8
G403	PR	1	CCA q	0.089	0	0	0	8
G412	PR	2	CCA q	0.096	0	0	0	8
J282	PR	1	HFK	23.58	0	0	0	8
J286	PR	1	HFK	30.78	0	1 BR	0	7
J290	PR	2	HFK	22.09	1 BR	0	0	7
J293	PR	2	HFK	19.56	0	0	0	8
J298	PR	1	HFK	25.78	0	0	0	8
J304	PR	2	HFK	21.24	0	0	0	8
J315	PR	1	HFK	22.79	1 BR	0	0	7
J335	PR	2	HFK	19.9	0	0	0	8
J360	PR	1	HFK	26.12	0	0	0	8
J724	PR	2	HFK	17.83	0	0	0	8
L327	PR	2	Azole q	0.014	0	0	0	8
L346	PR	2	Azole q	0.012	0	0	0	8
L347	PR	1	Azole q	0.016	0	1 WR	0	7
L358	PR	2	Azole q	0.017	0	0	0	8
L372	PR	1	Azole q	0.012	0	0	0	8
L385	PR	1	Azole q	0.015	0	1 BR	0	7
L389	PR	2	Azole q	0.013	0	0	0	8
L392	PR	1	Azole q	0.013	0	0	0	8
L398	PR	1	Azole q	0.018	0	0	0	8
L414	PR	2	Azole q	0.014	0	0	0	8
N164	SG	1	none	1114	0	0	0	8
N165	SG	1	none	1126	0	0	0	8
N166	SG	1	none	1079	0	0	0	8
N167	SG	1	none	1142	0	0	0	8
N170	SG	1	none	1156	0	0	0	8
N174	SG	2	none	1087	0	0	0	8
N194	SG	2	none	1209	0	0	0	8
N205	SG	2	none	1061	0	0	0	8
N216	SG	2	none	1047	0	0	0	8
N219	SG	2	none	1190	0	0	0	8

Rotorua double layer test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Bottom face, mm and rot	Each end, mm and rot	Rating
A211	PR	1/b	water	446	2 BR	3 BR	0	6
A215	PR	1/t	water	462	1 BR	11 BR	6,0 BR	4
A216	PR	1/b	water	492	7 BR	2 BR	0	5
A225	PR	1/b	water	496	16 BR	5 BR	16,8 BR	2
A234	PR	1/b	water	385	4 WR	0	11,0 WR	5
A239	PR	1/b	water	426	4 BR	0	0	6
A248	PR	1/t	water	562	0	10 BR	48,26 BR	0
A261	PR	1/t	water	511	0	14 BR	27,0 BR	2
A482	PR	1/t	water	459	1 BR	5 BR	23,21 BR	0
A487	PR	1/t	water	482	1 BR	9 BR	28,21 BR	0
E354	PR	2/t	ACQ q	0.096	0	0	6,0 BR	6
E361	PR	2/b	ACQ q	0.083	0	0	0	8
E373	PR	2/t	ACQ q	0.097	0	7 BR under	0	6
E384	PR	2/b	ACQ q	0.086	0	0	0	8
E389	PR	2/b	ACQ q	0.088	0	0	0	8
E396	PR	2/b	ACQ q	0.084	0	0	0	8
E397	PR	2/b	ACQ q	0.081	0	0	0	8
E399	PR	2/b	ACQ q	0.089	2 BR	0	0	7
E414	PR	2/t	ACQ q	0.092	0	0	0	8
E437	PR	2/t	ACQ q	0.092	0	0	0	8
F320	PR	1/t	TBTN q	0.058	1 BR	0	2,0 BR	7
F327	PR	1/t	TBTN q	0.054	0	0	0	8
F335	PR	1/b	TBTN q	0.055	0	0	0	8
F337	PR	1/t	TBTN q	0.063	0	0	0	8
F346	PR	1/t	TBTN q	0.049	0	0	0	8
F357	PR	1/b	TBTN q	0.05	0	0	0	8
F360	PR	1/b	TBTN q	0.042	0	0	0	8
F371	PR	1/b	TBTN q	0.051	0	0	0	8
F379	PR	1/b	TBTN q	0.048	1 BR	0	0	7
F386	PR	1/t	TBTN q	0.061	0	0	0	8
G316	PR	1/b	CCA q	0.106	0	0	0	8
G319	PR	1/b	CCA q	0.1	0	0	0	8
G341	PR	1/t	CCA q	0.081	0	0	0	8
G350	PR	1/t	CCA q	0.087	0	0	0	8
G356	PR	1/t	CCA q	0.085	0	0	0	8

Rotorua double layer test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Bottom face, mm and rot	Each end, mm and rot	Rating
G367	PR	1/t	CCA q	0.099	0	0	0	8
G379	PR	1/b	CCA q	0.096	0	0	0	8
G383	PR	1/t	CCA q	0.092	0	0	0	8
G409	PR	1/b	CCA q	0.095	0	0	0	8
G414	PR	1/b	CCA q	0.096	0	0	0	8
J306	PR	2/b	HFK	22.17	2 BR	0	6,1 BR	6
J320	PR	2/t	HFK	19.48	0	9 BR	32,9 BR	0
J321	PR	2/b	HFK	20.12	2 BR	2 BR	0	6
J323	PR	2/b	HFK	21.42	2 BR	2 BR	0	6
J327	PR	2/b	HFK	19.2	2 BR	1 BR	14,0 BR	5
J336	PR	2/b	HFK	20.81	2 BR	0	8,0 BR	6
J339	PR	2/t	HFK	25.66	0	2 BR	8,4 BR	5
J342	PR	2/t	HFK	30.71	0	0	1,1 BR	7
J346	PR	2/t	HFK	23.13	0	15 BR	30,11 BR	0
J723	PR	2/t	HFK	26.87	0	2 BR	11,4 BR	5
L316	PR	2/t	Azole q	0.017	0	0	0	8
L318	PR	2/t	Azole q	0.014	0	0	0	8
L325	PR	2/t	Azole q	0.018	0	0	5,0 BR	7
L359	PR	2/b	Azole q	0.013	0	0	0	8
L360	PR	2/b	Azole q	0.015	0	0	0	8
L376	PR	2/t	Azole q	0.017	0	0	0	8
L383	PR	2/t	Azole q	0.014	0	0	0	8
L401	PR	2/b	Azole q	0.013	0	0	0	8
L411	PR	2/b	Azole q	0.011	1 BR	0	0	7
L415	PR	2/b	Azole q	0.012	0	0	0	8
N173	SG	2/b	none	1132	0	0	0	8
N179	SG	2/b	none	1112	0	0	0	8
N181	SG	2/b	none	1152	0	0	0	8
N188	SG	2/b	none	1092	0	0	0	8
N195	SG	2/b	none	1201	0	0	0	8
N204	SG	2/t	none	1166	0	0	0	8
N208	SG	2/t	none	1012	0	1 WR side	0	7
N210	SG	2/t	none	1185	0	0	0	8
N213	SG	2/t	none	1077	0	0	0	8
N214	SG	2/t	none	1081	0	0	0	8

Rotorua embedded test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A287	PR	1	water	460	0	0	14,9,3 BR	3
A292	PR	1	water	479	0	0	1,0 BR	7
A299	PR	1	water	441	0	0	10,8 BR	4
A313	PR	1	water	540	0	0	0	8
A322	PR	1	water	605	0	0	0	8
A344	PR	1	water	376	0	0	13,6 BR	4
A372	PR	2	water	483	0	0	17,8,5,4BR	3
A432	PR	1	water	434	0	0	19,13,5 BR	1
A515	PR	1	water	431	0	0	20,11,2 BR	2
A522	PR	2	water	506	0	0	19,15 BR	1
E457	PR	1	ACQ q	0.097	0	0	5,0 BR	7
E527	PR	1	ACQ q	0.082	0	0	0	8
E571	PR	1	ACQ q	0.085	0	0	0	8
E577	PR	1	ACQ q	0.09	0	0	7,0 BR	6
E622	PR	1	ACQ q	0.089	0	0	5,0 BR	7
E638	PR	1	ACQ q	0.087	0	0	10,5 BR	5
E641	PR	2	ACQ q	0.081	0	0	1 BR end	7
E655	PR	1	ACQ q	0.092	0	0	0	8
E679	PR	2	ACQ q	0.085	0	0	2,1 BR	7
E700	PR	1	ACQ q	0.094	0	0	6,0 BR	6
F452	PR	1	TBTN q	0.061	0	0	1,0 BR	7
F472	PR	1	TBTN q	0.055	0	0	3,3,2 BR	6
F542	PR	1	TBTN q	0.051	0	0	0	8
F592	PR	1	TBTN q	0.063	0	0	0	8
F609	PR	1	TBTN q	0.039	0	0	7,0 BR	6
F626	PR	2	TBTN q	0.059	0	0	0	8
F780	PR	1	TBTN q	0.052	0	0	13,8 BR	4
F852	PR	1	TBTN q	0.054	0	0	1,1 BR	7
F862	PR	2	TBTN q	0.059	0	0	7,5 BR	5
F870	PR	1	TBTN q	0.046	0	0	2,1 BR	7
G453	PR	1	CCA q	0.094	0	0	4,0 BR	7
G511	PR	1	CCA q	0.102	0	0	0	8
G529	PR	1	CCA q	0.083	0	0	0	8
G566	PR	2	CCA q	0.088	0	0	0	8
G580	PR	1	CCA q	0.107	0	0	0	8

Rotorua embedded test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G596	PR	1	CCA q	0.082	0	0	0	8
G606	PR	2	CCA q	0.086	0	0	3,1 BR	7
G633	PR	1	CCA q	0.103	0	0	0	8
G636	PR	1	CCA q	0.098	0	0	0	8
G667	PR	1	CCA q	0.095	0	0	0	8
J463	PR	1	HFK	29.8	0	0	22,12 BR	1
J474	PR	1	HFK	24.85	0	0	16,12,11,4	2
J476	PR	1	HFK	25.87	0	0	12,0 BR	5
J511	PR	1	HFK	21.69	0	0	0	8
J557	PR	1	HFK	24.73	0	0	12,12,11 BR	3
J600	PR	2	HFK	27.89	0	0	18,14,12 BR	1
J602	PR	1	HFK	20.98	0	0	10,0 BR	6
J627	PR	2	HFK	22.74	0	0	14,9,8,2BR	3
J797	PR	1	HFK	27.15	0	0	23,2 BR	3
J805	PR	1	HFK	28.59	0	0	3,1 BR	7
L432	PR	1	Azole q	0.018	0	0	0	8
L469	PR	1	Azole q	0.017	0	0	0	8
L471	PR	1	Azole q	0.015	0	0	0	8
L498	PR	1	Azole q	0.015	0	0	0	8
L514	PR	2	Azole q	0.014	0	0	2 BR	7
L516	PR	1	Azole q	0.016	0	0	7,0 BR	6
L520	PR	1	Azole q	0.012	0	0	0	8
L576	PR	2	Azole q	0.013	0	0	2,1 BR	7
L607	PR	1	Azole q	0.016	0	0	0	8
L653	PR	1	Azole q	0.013	0	0	0	8
N222	SG	1	none	1091	0	0	3,0 WR	7
N235	SG	1	none	1118	0	0	0	8
N239	SG	1	none	1201	0	0	0	8
N247	SG	1	none	1119	0	0	3 WR cnr	7
N282	SG	1	none	1082	0	0	0	8
N286	SG	1	none	1041	0	0	1,0 BR	7
N293	SG	1	none	1063	0	0	0	8
N318	SG	1	none	1060	0	0	0	8
N336	SG	2	none	1086	0	0	0	8
N343	SG	2	none	968	0	0	1,1 WR	7

Rotorua embedded test, B list, installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
B11	PR	2	Boron	0.375	0	0	7,7 BR	5
B13	PR	2	Boron	0.356	0	0	5,0 BR	7
B15	PR	2	Boron	0.329	0	0	7,0 BR	6
B30	PR	2	Boron	0.361	0	0	0	8
B37	PR	2	Boron	0.355	0	0	1,0 BR	7
B46	PR	3	Boron	0.348	0	0	25,15,8 BR	0
B49	PR	3	Boron	0.367	0	0	2,1 BR	7
B54	PR	3	Boron	0.34	0	1 WR	0	7
B60	PR	2	Boron	0.409	0	0	35 x 4 BR	0
B9	PR	3	Boron	0.348	0	0	12,6,3,3 BR	4
C17	PR	2	Cu Cr	0.331	0	0	0	8
C19	PR	3	Cu Cr	0.343	0	0	1,0 BR	7
C20	PR	3	Cu Cr	0.349	0	0	1,0 BR	7
C25	PR	2	Cu Cr	0.362	0	0	0	8
C29	PR	3	Cu Cr	0.396	0	0	0	8
C40	PR	3	Cu Cr	0.387	0	0	0	8
C41	PR	2	Cu Cr	0.369	0	0	4,0 BR	7
C44	PR	2	Cu Cr	0.354	0	0	3,0 BR	7
C53	PR	2	Cu Cr	0.335	0	0	0	8
C8	PR	2	Cu Cr	0.33	0	0	0	8
D17	PR	2	ACQ H3	0.363	0	0	0	8
D22	PR	2	ACQ H3	0.364	0	0	0	8
D27	PR	3	ACQ H3	0.357	0	0	0	8
D29	PR	2	ACQ H3	0.358	0	0	1,0 BR	7
D32	PR	2	ACQ H3	0.305	0	0	0	8
D33	PR	2	ACQ H3	0.375	0	0	0	8
D4	PR	2	ACQ H3	0.392	0	0	0	8
D45	PR	3	ACQ H3	0.35	0	0	0	8
D52	PR	3	ACQ H3	0.35	0	0	0	8
D8	PR	3	ACQ H3	0.369	0	0	1 BR end	7
H20	PR	3	CCA H3	0.389	0	0	0	8
H22	PR	2	CCA H3	0.338	0	0	0	8
H29	PR	2	CCA H3	0.352	0	0	0	8
H30	PR	2	CCA H3	0.35	0	0	0	8
H35	PR	3	CCA H3	0.418	0	0	0	8

Rotorua embedded test, B list, installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
H4	PR	3	CCA H3	0.347	0	0	0	8
H41	PR	3	CCA H3	0.398	0	0	0	8
H42	PR	2	CCA H3	0.419	0	0	0	8
H48	PR	2	CCA H3	0.343	0	0	0	8
H50	PR	2	CCA H3	0.379	0	0	0	8
K16	PR	2	TanE H3	0.242	0	0	0	8
K17	PR	2	TanE H3	0.251	0	0	2,0 BR	7
K28	PR	3	TanE H3	0.207	0	0	0	8
K3	PR	2	TanE H3	0.234	0	0	2,0 BR	7
K31	PR	3	TanE H3	0.247	0	0	1,0 BR	7
K33	PR	3	TanE H3	0.212	0	0	0	8
K34	PR	2	TanE H3	0.238	0	0	0	8
K39	PR	2	TanE H3	0.247	0	0	1,1 BR	7
K43	PR	3	TanE H3	0.22	0	0	0	8
K52	PR	2	TanE H3	0.227	0	0	0	8
M23	PR	2	Azo H3	0.058	0	0	0	8
M31	PR	3	Azo H3	0.07	0	0	0	8
M35	PR	2	Azo H3	0.063	0	0	0	8
M37	PR	2	Azo H3	0.066	0	0	0	8
M39	PR	2	Azo H3	0.062	0	0	0	8
M44	PR	2	Azo H3	0.052	0	0	4,0 BR	7
M49	PR	3	Azo H3	0.053	0	0	1,0 BR	7
M50	PR	2	Azo H3	0.062	0	0	0	8
M57	PR	3	Azo H3	0.06	0	0	0	8
M7	PR	3	Azo H3	0.06	0	0	0	8
U672	PR	2	CuN H3	0.103	0	0	0	8
U683	PR	3	CuN H3	0.113	0	0	0	8
U697	PR	3	CuN H3	0.118	0	0	3,0 BR	7
U710	PR	2	CuN H3	0.123	0	0	0	8
U713	PR	2	CuN H3	0.12	0	0	0	8
U714	PR	2	CuN H3	0.105	0	0	0	8
U716	PR	2	CuN H3	0.099	0	0	7,0 BR	6
U720	PR	2	CuN H3	0.092	0	0	0	8
U727	PR	3	CuN H3	0.11	0	0	6,0 BR	6
U729	PR	3	CuN H3	0.078	0	0	1,0 BR	7

Rotorua embedded test painted installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A294	PR	7	water	490	0	0	13,12,6,2BR	3
A302	PR	7	water	469	0	0	4,3 BR	6
A310	PR	7	water	549	0	0	13,13,10 BR	3
A315	PR	7	water	476	0	0	35,35 BR	0
A343	PR	7	water	393	0	0	31,12,6 BR	0
A347	PR	7	water	410	0	0	70+BR end	0
A441	PR	7	water	530	0	0	8,4,2 BR	5
A453	PR	8	water	491	0	0	35 x 4 BR	0
A518	PR	8	water	440	0	0	70+BR end	0
A521	PR	7	water	435	0	0	36 BR end	0
E446	PR	7	ACQ q	0.092	0	0	26,7,6 BR	1
E455	PR	7	ACQ q	0.088	0	0	1,1 BR	7
E478	PR	7	ACQ q	0.082	0	0	7,0 BR	6
E542	PR	7	ACQ q	0.096	0	0	1,1 BR	7
E554	PR	7	ACQ q	0.084	0	0	13,10 BR	3
E586	PR	7	ACQ q	0.09	0	0	2,1 BR	7
E644	PR	7	ACQ q	0.086	0	0	3,0 BR	7
E649	PR	7	ACQ q	0.08	0	0	13,5,2,2 BR	4
E653	PR	8	ACQ q	0.093	0	0	7,3,1 BR	6
E682	PR	8	ACQ q	0.09	0	0	11,6,5 BR	4
F425	PR	7	TBTN q	0.048	0	0	14,13,7,2 BR	2
F445	PR	7	TBTN q	0.06	0	0	1,0 BR	7
F484	PR	8	TBTN q	0.057	0	0	35,35,28,12	0
F590	PR	7	TBTN q	0.058	0	0	5,0 BR	7
F595	PR	7	TBTN q	0.043	0	0	11,10,4,1 BR	4
F623	PR	7	TBTN q	0.061	0	0	7,6,3 BR	5
F625	PR	7	TBTN q	0.05	0	0	14,9,6 BR	3
F777	PR	7	TBTN q	0.051	0	0	3,2 BR	7
F788	PR	8	TBTN q	0.054	0	0	3,0 BR	7
F808	PR	7	TBTN q	0.062	0	0	4,3,3 BR	6
G464	PR	8	CCA q	0.084	0	0	0	8
G493	PR	7	CCA q	0.1	0	0	0	8
G520	PR	7	CCA q	0.094	0	0	1,1 BR	7
G560	PR	7	CCA q	0.103	0	0	1,0 BR	7
G565	PR	7	CCA q	0.088	0	0	0	8

Rotorua embedded test painted installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G575	PR	8	CCA q	0.106	0	0	0	8
G601	PR	7	CCA q	0.083	0	0	5,2 BR	6
G628	PR	7	CCA q	0.092	0	0	0	8
G646	PR	7	CCA q	0.101	0	0	13,2 BR	5
G661	PR	7	CCA q	0.081	0	0	0	8
J416	PR	8	HFK	23.19	0	2	5,1	6
J425	PR	7	HFK	26.73	0	0	16,13,13,6BR	2
J462	PR	7	HFK	25.74	0	0	15,12,4,3 BR	2
J473	PR	7	HFK	24.4	0	0	12,7,3,2BR	4
J484	PR	7	HFK	28.06	0	0	15,12,6 BR	2
J495	PR	8	HFK	30.04	0	0	17,16,7,4BR	1
J512	PR	7	HFK	19.15	0	0	4,3,2 BR	6
J544	PR	7	HFK	21.01	0	0	12,3 BR	5
J554	PR	7	HFK	28.65	0	0	6,5,3,2 BR	5
J623	PR	7	HFK	25.22	0	0	8,5,5,5 BR	5
L437	PR	8	Azole q	0.015	0	0	0	8
L446	PR	7	Azole q	0.014	0	0	6,2,1,1 BR	6
L475	PR	7	Azole q	0.016	0	0	2,1 BR	7
L553	PR	7	Azole q	0.013	0	0	2,0 BR	7
L560	PR	7	Azole q	0.014	0	0	2,0 BR	7
L587	PR	7	Azole q	0.014	0	0	3,2 BR	7
L612	PR	8	Azole q	0.017	0	0	5,0 BR	7
L619	PR	7	Azole q	0.012	0	0	1,0 BR	7
L635	PR	7	Azole q	0.016	0	0	0	8
L641	PR	7	Azole q	0.017	0	0	16,3,2 BR	4
N233	SG	7	none	1029	0	0	1,0 WR	7
N240	SG	7	none	1094	0	0	0	8
N251	SG	7	none	1082	0	0	1,0 WR	7
N256	SG	7	none	1128	0	0	1,1 WR	7
N260	SG	7	none	1061	0	0	0	8
N283	SG	7	none	1184	0	0	0	8
N295	SG	8	none	1119	0	0	0	8
N296	SG	7	none	1068	0	0	13,12 BR	3
N346	SG	8	none	1005	0	0	0	8
N360	SG	7	none	1088	0	0	1,1 WR	7

Rotorua inoc embedded test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A307	PR	6	water	403	0	0	56 BR end	0
A318	PR	6	water	514	0	0	70+BR end	0
A334	PR	6	water	433	0	0	70+BR end	0
A361	PR	6	water	469	0	0	70+BR end	0
A400	PR	6	water	462	0	0	60 BR end	0
A410	PR	6	water	601	0	0	70+BR end	0
A431	PR	8	water	441	0	0	70+BR end	0
A499	PR	8	water	396	0	0	70+BR end	0
A501	PR	6	water	483	0	0	70+BR end	0
A524	PR	6	water	522	0	0	70+BR end	0
E441	PR	8	ACQ q	0.086	0	0	3,1 BR	7
E499	PR	6	ACQ q	0.08	0	0	5,1 BR	6
E514	PR	6	ACQ q	0.095	0	0	6,0 BR	6
E515	PR	8	ACQ q	0.084	0	0	1,0 BR	7
E540	PR	6	ACQ q	0.087	0	0	2 BR	7
E567	PR	6	ACQ q	0.09	0	0	18,2 BR	4
E618	PR	6	ACQ q	0.099	0	0	2,0 BR	7
E652	PR	6	ACQ q	0.09	0	0	6,3 BR	6
E671	PR	6	ACQ q	0.082	0	0	1,0 BR	7
E702	PR	6	ACQ q	0.093	0	0	6,4 BR	6
F483	PR	6	TBTN q	0.061	0	0	1,0 BR	7
F508	PR	6	TBTN q	0.044	0	0	2,1 BR	7
F529	PR	8	TBTN q	0.062	0	0	1,0 BR	7
F534	PR	6	TBTN q	0.06	0	0	3,0 BR	7
F546	PR	6	TBTN q	0.059	0	0	4,3,1 BR	6
F580	PR	6	TBTN q	0.046	0	0	0	8
F664	PR	6	TBTN q	0.052	0	0	2,1 BR	7
F794	PR	8	TBTN q	0.056	0	0	1,1 BR	7
F817	PR	6	TBTN q	0.048	0	0	0	8
F875	PR	6	TBTN q	0.055	0	0	1,0 BR	7
G469	PR	6	CCA q	0.095	0	0	2,0 BR	7
G492	PR	6	CCA q	0.083	0	0	7,5 BR	5
G514	PR	6	CCA q	0.106	0	0	6,5 BR	5
G521	PR	6	CCA q	0.082	0	0	7,5 BR	5
G551	PR	6	CCA q	0.099	0	0	21,20,5 BR	0

Rotorua inoc embedded test installed 15-22 Nov 2007 inspected LJC+DP 1 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G557	PR	8	CCA q	0.105	0	0	17,12,5 BR	2
G567	PR	6	CCA q	0.094	0	0	7,7 BR	5
G599	PR	6	CCA q	0.087	0	0	7,0 BR	6
G605	PR	6	CCA q	0.085	0	0	10,7 BR	4
G630	PR	8	CCA q	0.101	0	0	18,13,12 BR	2
J397	PR	6	HFK	20.51	0	0	70+BR end	0
J404	PR	6	HFK	30.26	0	0	15,6 BR	4
J420	PR	6	HFK	26.67	0	0	70+BR end	0
J422	PR	8	HFK	24.94	0	0	47 BR end	0
J442	PR	6	HFK	23.05	0	0	70+BR end	0
J459	PR	6	HFK	26.09	0	0	14,12,5 BR	3
J504	PR	6	HFK	28.87	0	0	13,12,6 BR	3
J552	PR	6	HFK	21.23	0	0	70+BR end	0
J609	PR	6	HFK	27.34	0	0	13,12,10 BR	3
J629	PR	8	HFK	24.33	0	0	70+BR end	0
L426	PR	6	Azole q	0.012	0	0	34,32,7 BR	0
L440	PR	6	Azole q	0.014	0	0	8,2 BR	6
L448	PR	6	Azole q	0.016	0	0	14,0 BR	5
L452	PR	6	Azole q	0.018	0	0	12,6 BR	4
L459	PR	6	Azole q	0.016	0	0	26,13,10 BR	0
L478	PR	8	Azole q	0.012	0	0	0	8
L504	PR	6	Azole q	0.014	0	0	7,2 BR	6
L508	PR	6	Azole q	0.015	0	0	14,5 BR	4
L584	PR	8	Azole q	0.017	0	0	4,2 BR	6
L590	PR	6	Azole q	0.014	0	0	15,7 BR	3
N223	SG	6	none	1058	0	0	0	8
N234	SG	6	none	1041	0	0	0	8
N244	SG	6	none	1103	0	0	0	8
N252	SG	8	none	971	Pale, 0	0	1,0 BR	7
N263	SG	8	none	1144	0	0	0	8
N275	SG	6	none	1092	0	0	0	8
N285	SG	6	none	1128	0	0	0	8
N291	SG	6	none	1071	0	0	0	8
N323	SG	6	none	1081	0	0	1,0 WR	7
N362	SG	6	none	1087	0	0	1,0 BR	7

AFS Clayton flat panel installed 1 Nov 2007, inspected LJC 28 Oct 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm and rot	Rating
A1	PR	2\2	Water	478	0	0	0	8
A14	PR	2\1	Water	543	0	0	0	8
A15	PR	4\2	Water	481	0	0	0	8
A19	PR	1/3 btm	Water	519	0	0	0	8
A2	PR	2\3	Water	566	0	0	0	8
A20	PR	3\1	Water	425	7 BR	0	0	6
A35	PR	1/2 mid	Water	498	0	0	0	8
A48	PR	1/1 top	Water	498	1 BR	0	0	7
A53	PR	3\3	Water	464	2 BR	0	0	7
A60	PR	3\2	Water	379	0	0	0	8
E26	PR	1/3 btm	ACQ q	0.085	0	0	0	8
E30	PR	3\2	ACQ q	0.09	0	0	0	8
E49	PR	1/2 mid	ACQ q	0.086	0	0	0	8
E52	PR	3\1	ACQ q	0.074	0	0	0	8
E6	PR	2\3	ACQ q	0.082	0	0	0	8
E82	PR	2\1	ACQ q	0.078	0	0	0	8
E90	PR	3\3	ACQ q	0.092	0	0	0	8
E90A	PR	4\2	ACQ q	0.081	0	0	0	8
E90D	PR	1/1 top	ACQ q	0.095	0	0	0	8
E90E	PR	2\2	ACQ q	0.1	0	0	0	8
F1	PR	3\1	TBTN q	0.064	0	0	0	8
F23	PR	1/3 btm	TBTN q	0.051	0	0	0	8
F24	PR	3\2	TBTN q	0.046	0	0	0	8
F28	PR	4\2	TBTN q	0.061	0	0	0	8
F33	PR	1/1 top	TBTN q	0.044	0	0	0	8
F5	PR	2\3	TBTN q	0.058	0	0	0	8
F60	PR	3\3	TBTN q	0.057	0	0	0	8
F63	PR	1/2 mid	TBTN q	0.041	0	0	0	8
F704	PR	2\1	TBTN q	0.052	0	0	0	8
F720	PR	2\2	TBTN q	0.054	0	0	0	8
G10	PR	1/1 top	CCA q	0.094	0	0	0	8
G13	PR	2\2	CCA q	0.09	0	0	0	8
G35	PR	3\3	CCA q	0.098	0	0	0	8
G48	PR	1/3 btm	CCA q	0.101	0	0	0	8
G52	PR	2\1	CCA q	0.102	0	0	0	8

AFS Clayton flat panel installed 1 Nov 2007, inspected 28 Oct 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top face, mm and rot	Top end, mm and rot	Lower end, mm and rot	Rating
G7	PR	4\2	CCA q	0.107	0	0	0	8
G71	PR	1/2 mid	CCA q	0.096	0	0	0	8
G83	PR	2\3	CCA q	0.089	0	0	0	8
G89	PR	3\1	CCA q	0.086	0	0	0	8
G90E	PR	3\2	CCA q	0.093	0	0	0	8
J24	PR	2\1	HFK	29.67	0	0	0	8
J634	PR	3\2	HFK	21.49	0	0	0	8
J646	PR	1/3 btm	HFK	26.48	0	0	0	8
J655	PR	1/2 mid	HFK	26.19	0	0	0	8
J661	PR	2\2	HFK	21.99	0	0	0	8
J674	PR	2\3	HFK	24.48	0	0	0	8
J68	PR	4\2	HFK	30.18	0	0	0	8
J683	PR	3\1	HFK	24.89	6 BR	0	0	6
J688	PR	1/1 top	HFK	20.03	0	0	0	8
J690	PR	3\3	HFK	28.62	0	0	0	8
L11	PR	2\2	Azoles q	0.012	0	0	0	8
L2	PR	2\1	Azoles q	0.015	0	0	0	8
L691	PR	3\1	Azoles q	0.014	0	0	0	8
L715	PR	1/3 btm	Azoles q	0.015	0	0	0	8
L722	PR	3\2	Azoles q	0.014	0	0	0	8
L723	PR	1/2 mid	Azoles q	0.015	0	0	0	8
L724	PR	4\2	Azoles q	0.016	0	0	0	8
L727	PR	3\3	Azoles q	0.019	0	0	0	8
L736	PR	2\3	Azoles q	0.016	0	0	0	8
L739	PR	1/1 top	Azoles q	0.017	0	0	0	8
N1	SG	1/1 top	None	1036	0	0	0	8
N11	SG	1/3 btm	None	1049	0	0	0	8
N23	SG	2\1	None	1159	0	0	0	8
N26	SG	3\3	None	1092	0	0	0	8
N31	SG	3\2	None	1038	0	0	0	8
N32	SG	3\1	None	1076	0	0	0	8
N35	SG	2\2	None	943	0	0	0	8
N36	SG	2\3	None	1113	0	0	0	8
N40	SG	4\2	None	1121	0	0	0	8
N6	SG	1\2 mid	None	1099	0	0	0	8

AFS Clayton rot box installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood		Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A107	PR		Water	513	0	0	0	8
A108	PR		Water	454	2 BR	0	0	7
A139	PR		Water	433	0	0	3 BR end	7
A172	PR		Water	440	2 BR	0	0	7
A185	PR		Water	487	0	0	0	8
A191	PR		Water	411	0	0	0	8
A205	PR		Water	501	0	0	0	8
A464	PR		Water	605	0	0	0	8
A83	PR		Water	389	0	2 BR	0	7
A86	PR		Water	467	3 BR	0	0	7
E116	PR		ACQ q	0.077	0	0	0	8
E158	PR		ACQ q	0.089	0	0	0	8
E165	PR		ACQ q	0.085	0	0	0	8
E166	PR		ACQ q	0.086	0	0	0	8
E169	PR		ACQ q	0.073	0	0	0	8
E253	PR		ACQ q	0.095	0	0	0	8
E267	PR		ACQ q	0.102	0	0	0	8
E268	PR		ACQ q	0.083	0	0	0	8
E276	PR		ACQ q	0.093	0	0	0	8
E99	PR		ACQ q	0.078	0	0	0	8
F109	PR		TBTN q	0.06	0	0	0	8
F131	PR		TBTN q	0.059	0	0	0	8
F178	PR		TBTN q	0.047	0	0	0	8
F219	PR		TBTN q	0.044	0	0	0	8
F298	PR		TBTN q	0.04	0	0	0	8
F313	PR		TBTN q	0.045	0	0	0	8
F742	PR		TBTN q	0.061	0	0	0	8
F746	PR		TBTN q	0.056	0	0	0	8
F754	PR		TBTN q	0.05	0	0	0	8
F91	PR		TBTN q	0.051	0	0	0	8
G123	PR		CCA q	0.098	0	0	0	8
G125	PR		CCA q	0.087	0	0	0	8
G149	PR		CCA q	0.096	0	0	0	8
G155	PR		CCA q	0.085	0	0	0	8
G166	PR		CCA q	0.09	0	0	0	8

AFS Clayton rot box installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood		Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G218	PR		CCA q	0.107	0	0	0	8
G235	PR		CCA q	0.095	0	0	0	8
G247	PR		CCA q	0.102	0	0	0	8
G276	PR		CCA q	0.1	0	0	0	8
G283	PR		CCA q	0.105	0	0	0	8
J100	PR		HFK	27.46	0	0	0	8
J102	PR		HFK	27.01	0	0	0	8
J104	PR		HFK	25.02	0	0	0	8
J112	PR		HFK	22.32	0	0	0	8
J119	PR		HFK	28.28	0	0	0	8
J120	PR		HFK	29.78	0	0	0	8
J181	PR		HFK	23.76	0	0	0	8
J186	PR		HFK	24.67	0	0	0	8
J220	PR		HFK	23.46	0	0	0	8
J699	PR		HFK	20.85	0	0	0	8
L177	PR		Azoles q	0.014	2 BR	0	0	7
L182	PR		Azoles q	0.017	0	0	0	8
L211	PR		Azoles q	0.019	0	0	0	8
L227	PR		Azoles q	0.018	0	0	0	8
L271	PR		Azoles q	0.012	0	0	0	8
L302	PR		Azoles q	0.017	0	0	0	8
L306	PR		Azoles q	0.015	0	0	0	8
L794	PR		Azoles q	0.016	0	0	0	8
L803	PR		Azoles q	0.018	0	0	0	8
L97	PR		Azoles q	0.013	0	0	0	8
N103	SG		None	1074	0	0	0	8
N116	SG		None	1089	0	0	0	8
N129	SG		None	1103	0	0	0	8
N134	SG		None	1039	0	0	0	8
N140	SG		None	1115	0	0	0	8
N145	SG		None	1159	0	0	0	8
N41	SG		None	1025	0	0	0	8
N43	SG		None	1127	0	0	0	8
N68	SG		None	1098	0	0	0	8
N99	SG		None	1146	0	0	0	8

AFS Clayton inoc rot box 3 installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood		Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A109	PR		Water	523	25 BR	25 BR	200 BR	0
A118	PR		Water	479	25 BR	25 BR	200 BR	0
A130	PR		Water	437	25 BR	25 BR	200 BR	0
A134	PR		Water	440	25 BR	25 BR	200 BR	0
A194	PR		Water	412	25 BR	25 BR	200 BR	0
A207	PR		Water	502	25 BR	25 BR	200 BR	0
A210	PR		Water	489	25 BR	25 BR	120,40 BR	0
A473	PR		Water	538	25 BR	25 BR	200 BR	0
A80	PR		Water	458	0	9 BR	52,0 BR	0
A85	PR		Water	375	25 BR	25 BR	120,55 BR	0
E129	PR		ACQ q	0.104	0	0	0	8
E203	PR		ACQ q	0.095	0	0	0	8
E217	PR		ACQ q	0.094	0	2 BR	0	7
E220	PR		ACQ q	0.081	0	15 BR side	0	4
E222	PR		ACQ q	0.08	0	0	0	8
E249	PR		ACQ q	0.085	0	0	0	8
E256	PR		ACQ q	0.087	0	0	0	8
E262	PR		ACQ q	0.078	0	0	0	8
E301	PR		ACQ q	0.092	0	0	0	8
E97	PR		ACQ q	0.074	0	0	0	8
F110	PR		TBTN q	0.05	0	0	0	8
F118	PR		TBTN q	0.056	0	0	0	8
F123	PR		TBTN q	0.059	0	0	0	8
F136	PR		TBTN q	0.052	0	0	0	8
F200	PR		TBTN q	0.039	0	0	0	8
F214	PR		TBTN q	0.043	0	0	0	8
F240	PR		TBTN q	0.064	0	0	0	8
F304	PR		TBTN q	0.048	0	0	0	8
F748	PR		TBTN q	0.059	0	0	0	8
F749	PR		TBTN q	0.046	0	0	0	8
G106	PR		CCA q	0.085	0	0	0	8
G133	PR		CCA q	0.106	0	0	0	8
G145	PR		CCA q	0.088	0	0	0	8
G237	PR		CCA q	0.096	0	0	0	8
G240	PR		CCA q	0.092	0	0	0	8

AFS Clayton inoc rot box 4 installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood		Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G252	PR		CCA q	0.1	0	0	0	8
G282	PR		CCA q	0.101	0	0	0	8
G284	PR		CCA q	0.105	0	0	0	8
G304	PR		CCA q	0.087	0	0	0	8
G306	PR		CCA q	0.098	0	0	0	8
J109	PR		HFK	28.67	10 BR	12 BR	13,5 BR	2
J129	PR		HFK	27.05	12 BR	4 BR	0	3
J180	PR		HFK	20.85	0	0	0	8
J209	PR		HFK	23.86	25 BR	25 BR	0	0
J234	PR		HFK	25.35	4 BR	0	0	6
J250	PR		HFK	22.47	0	0	0	8
J269	PR		HFK	24.45	2 BR	0	0	7
J693	PR		HFK	21.02	0	13 BR	0	4
J82	PR		HFK	29.37	3 BR	14 BR side	0	3
J96	PR		HFK	27.1	0	0	0	8
L176	PR		Azoles q	0.017	0	0	0	8
L183	PR		Azoles q	0.017	0	0	0	8
L217	PR		Azoles q	0.019	0	0	0	8
L221	PR		Azoles q	0.014	0	0	0	8
L267	PR		Azoles q	0.013	0	0	0	8
L284	PR		Azoles q	0.012	0	0	0	8
L299	PR		Azoles q	0.016	0	0	0	8
L314	PR		Azoles q	0.015	0	0	0	8
L757	PR		Azoles q	0.018	0	0	0	8
L798	PR		Azoles q	0.019	0	4 BR side	0	6
N106	SG		None	1098	0	0	0	8
N133	SG		None	1125	0	0	0	8
N148	SG		None	1066	0	0	0	8
N156	SG		None	1158	0	0	0	8
N158	SG		None	1107	0	0	0	8
N56	SG		None	1089	0	0 ht, 9 mm sap	0	8
N73	SG		None	1096	0	0	0	8
N88	SG		None	1140	0	0	0	8
N89	SG		None	1061	0	0	0	8
N97	SG		None	1034	0	0	0	8

AFS Clayton embedded test installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A291	PR	9	Water	473	0	0	16,0 BR	4
A293	PR	11	Water	465	0	0	16,8 BR	3
A323	PR	18	Water	445	0	0	70+BR end	0
A353	PR	15	Water	480	0	6 BR	0	6
A386	PR	21	Water	574	0	0	70+BR end	0
A408	PR	13	Water	529	0	6 BR	9,0 BR	6
A429	PR	2	Water	438	Fully	decayed	BR	0
A433	PR	23	Water	493	0	0	0	8
A493	PR	5	Water	415	10,9,8,5 BR	0	6,2 BR	4
A500	PR	5	Water	386	Fully	decayed	BR	0
E456	PR	22	ACQ q	0.08	0	0	4,2 BR	6
E472	PR	2	ACQ q	0.092	0	0	70+BR end	0
E477	PR	17	ACQ q	0.093	0	0	50 BR end	0
E494	PR	20	ACQ q	0.087	18,13 BR	0	70+BR end	0
E518	PR	6	ACQ q	0.097	0	0	12,10,10,10	3
E587	PR	8	ACQ q	0.084	0	0	17,11,9,5 BR	3
E670	PR	10	ACQ q	0.09	0	0	50 BR end	0
E686	PR	3	ACQ q	0.083	0	0	70+BR end	0
E690	PR	18	ACQ q	0.086	0	0	70+BR end	0
E697	PR	14	ACQ q	0.089	0	0	0	8
F432	PR	16	TBTN q	0.054	0	0	70+BR end	0
F438	PR	12	TBTN q	0.049	0	0	4,0 BR	7
F497	PR	8	TBTN q	0.058	0	0	0	8
F533	PR	2	TBTN q	0.04	0	0	16,16,7,4BR	1
F535	PR	7	TBTN q	0.056	1,1 BR	0	0	7
F624	PR	17	TBTN q	0.059	0	0	0	8
F649	PR	3	TBTN q	0.062	0	0	0	8
F828	PR	19	TBTN q	0.061	0	0	0	8
F833	PR	11	TBTN q	0.051	0	0	0	8
F835	PR	22	TBTN q	0.045	0	0	5,4 BR	6
G423	PR	20	CCA q	0.084	10,6,6	0	12,8,8,5 BR	4
G448	PR	7	CCA q	0.11	0	0	0	8
G455	PR	1	CCA q	0.087	0	22 BR	16,14,14,12BR	2
G484	PR	17	CCA q	0.091	0	0	3,0 BR	7
G501	PR	14	CCA q	0.096	0	0	0	8

AFS Clayton embedded test installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G549	PR	23	CCA q	0.1	0	0	0	8
G555	PR	16	CCA q	0.104	0	0	70+BR end	0
G588	PR	12	CCA q	0.08	0	0	0	8
G627	PR	8	CCA q	0.094	0	0	0	8
G632	PR	4	CCA q	0.107	0	0	0	8
J413	PR	21	HFK	21.26	Fully	decayed	BR	0
J417	PR	1	HFK	26.01	Fully	decayed	BR	0
J509	PR	14	HFK	24.84	0	0	0	8
J542	PR	22	HFK	27.77	Fully	decayed	BR	0
J572	PR	9	HFK	26.69	0	0	6,0 BR	6
J607	PR	16	HFK	19.52	Fully	decayed	BR	0
J613	PR	3	HFK	24.74	0	0	70+BR end	0
J622	PR	11	HFK	22.99	0	0	0	8
J782	PR	19	HFK	28.64	Fully	decayed	BR	0
J788	PR	6	HFK	29.41	Fully	decayed	BR	0
L425	PR	1	Azoles q	0.012	0	0	2,1 BR	7
L490	PR	6	Azoles q	0.015	0	0	60 BR end	0
L548	PR	8	Azoles q	0.017	0	0	0	8
L556	PR	13	Azoles q	0.018	0	0	0	8
L563	PR	21	Azoles q	0.014	0	0	0	8
L605	PR	19	Azoles q	0.017	0	0	6,0 BR	6
L611	PR	22	Azoles q	0.016	4,0 BR	11 BR	0	5
L622	PR	15	Azoles q	0.014	0	0	0	8
L656	PR	5	Azoles q	0.015	35 x 4 BR	0	16,2 BR	0
L657	PR	11	Azoles q	0.013	0	0	0	8
N236	SG	10	None	1142	0	0	1,1,1,1 BR	7
N258	SG	13	None	1031	0	0	0	8
N262	SG	7	None	1067	0	0	0	8
N277	SG	20	None	1117	0	0	12 BR cnr	5
N290	SG	4	None	1083	0	0	0	8
N310	SG	24	None	1077	0	0	0	8
N320	SG	18	None	1092	0	0	0	8
N321	SG	2	None	1125	0	0	1,1,1,1 BR	7
N325	SG	15	None	1051	0	0	0	8
N331	SG	10	None	1001	0	0	2,1,1,1 BR	7

AFS Clayton PAINTED embedded test installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A282	PR/pt	15	Water	434	0	0	4,4 BR	6
A378	PR/pt	8	Water	466	0	0	16,16,5,2 BR	1
A380	PR/pt	18	Water	489	0	0	70+BR end	0
A390	PR/pt	6	Water	609	Fully	decayed	BR	0
A411	PR/pt	20	Water	536	0	0	140 BR end	0
A419	PR/pt	13	Water	491	12,5,5,4 BR	0	5,0 BR	4
A436	PR/pt	22	Water	447	0	0	18,0 BR	4
A448	PR/pt	11	Water	474	0	0	18,16,5,4BR	1
A509	PR/pt	3	Water	421	Fully	decayed	BR	0
A513	PR/pt	3	Water	394	Fully	decayed	BR	0
E448	PR/pt	4	ACQ q	0.098	0	0	11,5 BR	4
E453	PR/pt	2	ACQ q	0.087	0	0	60 BR end	0
E459	PR/pt	7	ACQ q	0.089	0	0	4,0 BR	7
E512	PR/pt	14	ACQ q	0.095	0	0	0	8
E553	PR/pt	12	ACQ q	0.082	0	0	15,0 BR	5
E578	PR/pt	17	ACQ q	0.091	0	0	14,0 BR	5
E598	PR/pt	18	ACQ q	0.092	0	0	70+BR end	0
E607	PR/pt	23	ACQ q	0.084	0	0	0	8
E628	PR/pt	20	ACQ q	0.076	0	0	13,8,7,3 BR	4
E685	PR/pt	10	ACQ q	0.085	0	0	50 BR end	0
F475	PR/pt	5	TBTN q	0.048	35x4BR	0	12,10,5 BR	0
F493	PR/pt	7	TBTN q	0.06	0	0	0	8
F504	PR/pt	1	TBTN q	0.063	0	0	8,6 BR	5
F619	PR/pt	10	TBTN q	0.061	0	0	3,2,2,2 BR	7
F688	PR/pt	9	TBTN q	0.047	0	0	0	8
F790	PR/pt	23	TBTN q	0.051	0	0	0	8
F799	PR/pt	21	TBTN q	0.058	0	0	2,0 BR	7
F805	PR/pt	15	TBTN q	0.054	0	0	0	8
F820	PR/pt	17	TBTN q	0.038	0	0	11,6,3,3 BR	4
F858	PR/pt	13	TBTN q	0.057	0	0	0	8
G433	PR/pt	21	CCA q	0.083	0	0	7,7,6,5 BR	5
G437	PR/pt	13	CCA q	0.081	0	0	0	8
G462	PR/pt	8	CCA q	0.094	0	0	0	8
G488	PR/pt	4	CCA q	0.091	0	0	0	8
G516	PR/pt	1	CCA q	0.108	0	0	70+BR end	0

AFS Clayton PAINTED embedded test installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G523	PR/pt	22	CCA q	0.102	0	0	0	8
G540	PR/pt	5	CCA q	0.101	0	0	0	8
G564	PR/pt	10	CCA q	0.09	0	0	14,13,11 BR	2
G617	PR/pt	16	CCA q	0.085	0	0	70+BR end	0
G649	PR/pt	18	CCA q	0.096	0	0	6,0 BR	6
J389	PR/pt	1	HFK	21.91	0	0	70+BR end	0
J447	PR/pt	16	HFK	25.03	Fully	decayed	BR	0
J455	PR/pt	9	HFK	24.62	0	0	6,2 BR	6
J471	PR/pt	4	HFK	25.91	0	22 BR	0	3
J493	PR/pt	24	HFK	27.24	0	0	0	8
J503	PR/pt	21	HFK	27.49	0	0	70+BR end	0
J531	PR/pt	6	HFK	23.09	Fully	decayed	BR	0
J555	PR/pt	12	HFK	31.1	0	0	1,0 BR	7
J582	PR/pt	19	HFK	28.34	0	0	70+BR end	0
J795	PR/pt	14	HFK	19.84	0	0	0	8
L421	PR/pt	20	Azoles q	0.013	0	0	0	8
L427	PR/pt	2	Azoles q	0.014	0	0	2,2 BR	7
L455	PR/pt	9	Azoles q	0.017	0	0	10,5 BR	5
L517	PR/pt	4	Azoles q	0.016	14,13 BR	0	0	2
L519	PR/pt	12	Azoles q	0.014	0	0	0	8
L557	PR/pt	23	Azoles q	0.018	0	0	0	8
L586	PR/pt	19	Azoles q	0.014	0	0	0	8
L592	PR/pt	15	Azoles q	0.015	0	0	0	8
L600	PR/pt	7	Azoles q	0.016	0	0	0	8
L658	PR/pt	11	Azoles q	0.012	0	0	14,0 BR	5
N228	SG/pt	19	None	1075	0	0	0	8
N238	SG/pt	5	None	1083	0	0	0	8
N246	SG/pt	23	None	1098	0	0	0	8
N273	SG/pt	12	None	1015	0	0	0	8
N276	SG/pt	17	None	1039	0	0	0	8
N300	SG/pt	6	None	1137	0	0	0	8
N315	SG/pt	9	None	1105	0	0	0	8
N335	SG/pt	3	None	1149	0	0	0	8
N341	SG/pt	14	None	1058	0	0	0	8
N365	SG/pt	16	None	1065	0	0	0	8

AFS Clayton INOCULATED embedded test, installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A285	PR	32	Water	437	Fully	decayed	BR	0
A316	PR	33	Water	426	Fully	decayed	BR	0
A326	PR	30	Water	457	Fully	decayed	BR	0
A342	PR	36	Water	398	Fully	decayed	BR	0
A375	PR	25	Water	479	Fully	decayed	BR	0
A412	PR	28	Water	476	Fully	decayed	BR	0
A415	PR	34	Water	447	10 BR	0	80+ BR end	0
A424	PR	27	Water	502	0	0	70+BR end	0
A444	PR	31	Water	539	Fully	decayed	BR	0
A519	PR	29	Water	550	0	0	90+ BR end	0
E458	PR	36	ACQ q	0.091	0	0	14,12,8,5 BR	3
E469	PR	28	ACQ q	0.086	0	0	0	8
E473	PR	32	ACQ q	0.086	0	0	0	8
E572	PR	30	ACQ q	0.089	0	0	70+BR end	0
E611	PR	26	ACQ q	0.083	0	0	0	8
E616	PR	33	ACQ q	0.095	0	0	14,7,5 BR	3
E620	PR	28	ACQ q	0.079	0	0	0	8
E662	PR	25	ACQ q	0.09	0	0	0	8
E680	PR	35	ACQ q	0.097	0	0	14,0 BR	5
E707	PR	31	ACQ q	0.084	0	0	14,10 BR	3
F442	PR	27	TBTN q	0.062	0	0	0	8
F444	PR	30	TBTN q	0.049	0	0	7,6 BR	5
F470	PR	26	TBTN q	0.045	0	0	0	8
F639	PR	27	TBTN q	0.059	0	0	0	8
F781	PR	35	TBTN q	0.053	0	0	8,3 BR	5
F806	PR	33	TBTN q	0.054	0	0	0	8
F811	PR	36	TBTN q	0.058	0	0	3,2 BR	7
F827	PR	29	TBTN q	0.057	0	0	0	8
F829	PR	28	TBTN q	0.063	0	0	0	8
F846	PR	32	TBTN q	0.046	0	0	11,5 BR	4
G445	PR	33	CCA q	0.084	0	0	8,0 BR	6
G452	PR	27	CCA q	0.082	0	0	0	8
G524	PR	26	CCA q	0.106	0	0	0	8
G527	PR	31	CCA q	0.099	0	0	0	8
G533	PR	34	CCA q	0.102	0	0	0	8

AFS Clayton INOCULATED embedded test, installed 1 Nov 2007 inspected 28 Oct 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G558	PR	29	CCA q	0.089	0	0	0	8
G562	PR	36	CCA q	0.103	0	0	11,6,5,4 BR	4
G590	PR	35	CCA q	0.08	0	0	9,0 BR	6
G620	PR	29	CCA q	0.094	0	0	0	8
G674	PR	25	CCA q	0.091	0	0	8,3 BR	5
J434	PR	30	HFK	24.15	Fully	decayed	BR	0
J448	PR	25	HFK	19.34	Fully	decayed	BR	0
J456	PR	28	HFK	27.87	Fully	decayed	BR	0
J475	PR	26	HFK	28.54	0	0	110 BR end	0
J502	PR	35	HFK	25.04	Fully	decayed	BR	0
J524	PR	32	HFK	22.57	0	0	70+BR end	0
J527	PR	29	HFK	30.35	0	0	70+BR end	0
J536	PR	33	HFK	26.44	Fully	decayed	BR	0
J593	PR	34	HFK	26.43	0	0	18,7,6,5 BR	3
J793	PR	31	HFK	21.3	0	0	80+ BR end	0
L434	PR	31	Azoles q	0.015	0	0	0	8
L515	PR	34	Azoles q	0.015	0	0	0	8
L537	PR	36	Azoles q	0.014	0	0	2,2 BR	7
L604	PR	34	Azoles q	0.017	0	0	9,0 BR	6
L613	PR	30	Azoles q	0.012	0	0	6,5,3 BR	5
L616	PR	27	Azoles q	0.013	0	0	3,0 BR	7
L633	PR	26	Azoles q	0.016	0	0	11,8 BR	4
L634	PR	32	Azoles q	0.013	0	0	2,0 BR	7
L659	PR	28	Azoles q	0.018	0	0	0	8
L668	PR	25	Azoles q	0.017	0	0	19,0 BR	4
N231	SG	25	None	1135	0	0	2,0 BR	7
N248	SG	34	None	1201	0	0	0	8
N292	SG	35	None	1049	0	0	0	8
N302	SG	29	None	1087	0	0	2,0 BR	7
N313	SG	26	None	1075	0	0	0	8
N316	SG	30	None	1034	0	0	0	8
N333	SG	33	None	1067	0	0	0	8
N342	SG	31	None	1098	0	0	0	8
N344	SG	27	None	1106	0	0	0	8
N348	SG	32	None	999	0	0	0	8

AFS Clayton in-ground stake test, installed 26 Oct 2007 inspected 26 Oct 2011

No.	Wood	Row	Treat	Retn %m/m or air density	sides in-gd, mm and rot	Rating
A303	PR	3	Water	500	12,12,11,10 SR	3
A311	PR	1	Water	443	13,12,10,10 SR	3
A339	PR	8	Water	419	16,15,15,12 SR	2
A352	PR	4	Water	571	17,17,16,15 SR	1
A422	PR	6	Water	523	All SR	0
A443	PR	10	Water	450	All SR	0
A449	PR	7	Water	476	All SR	0
A451	PR	2	Water	535	All SR	0
A460	PR	9	Water	436	All SR	0
A504	PR	5	Water	398	All SR	0
E444	PR	5	ACQ q	0.086	14,12,11,10 SR	3
E462	PR	3	ACQ q	0.085	All SR	0
E467	PR	10	ACQ q	0.099	12,12,7,5 SR	3
E493	PR	7	ACQ q	0.082	8,8,6,6 SR	4
E549	PR	4	ACQ q	0.081	3,3,2,2 SR	6
E555	PR	9	ACQ q	0.09	5,4,4,3 SR	6
E582	PR	2	ACQ q	0.089	14,12,12,10 SR	3
E623	PR	8	ACQ q	0.093	6,6,5,5 SR	5
E699	PR	1	ACQ q	0.088	All SR	0
E701	PR	6	ACQ q	0.092	14,13,9,9 SR	2
F482	PR	3	TBTN q	0.062	14,13,12,10 SR	2
F560	PR	10	TBTN q	0.039	16,14,13,12 SR	2
F561	PR	6	TBTN q	0.061	10,10,9,9 SR	4
F575	PR	8	TBTN q	0.056	13,13,13,13 SR	3
F610	PR	4	TBTN q	0.059	16,16,14,10 SR	1
F677	PR	1	TBTN q	0.054	9,8,7,7 SR	4
F691	PR	5	TBTN q	0.06	11,11,10,10 SR	3
F776	PR	9	TBTN q	0.051	11,11,11,11 SR	3
F825	PR	7	TBTN q	0.053	12,11,8,8 SR	3
F847	PR	2	TBTN q	0.047	11,11,10,9 SR	3
G440	PR	9	CCA q	0.082	15,14,13,13 SR	2
G451	PR	2	CCA q	0.095	12,10,10,8 SR	3
G472	PR	10	CCA q	0.098	7,6,5,4 SR	5
G475	PR	1	CCA q	0.082	13,12,10,10 SR	3
G536	PR	5	CCA q	0.093	12,12,12,12 SR	3

AFS Clayton in-ground stake test, installed 26 Oct 2007 inspected 26 Oct 2011

No.	Wood	Row	Treat	Retn %m/m or air density	sides in-gd, mm and rot	Rating
G548	PR	4	CCA q	0.089	10,10,8,7 SR	4
G578	PR	6	CCA q	0.086	12,10,9,8 SR	3
G624	PR	3	CCA q	0.102	All SR	0
G626	PR	8	CCA q	0.107	16,16,15,14 SR	1
G653	PR	7	CCA q	0.103	All SR	0
J429	PR	10	HFK	26.79	7,7,7,7 SR	5
J460	PR	5	HFK	28.55	16,15,14,14 SR	2
J492	PR	7	HFK	19.18	9,9,8,7 SR	4
J514	PR	2	HFK	25.78	All SR	0
J545	PR	1	HFK	22.68	16,14,13,12 SR	2
J603	PR	3	HFK	21.26	16,16,16,16 SR	1
J620	PR	8	HFK	27.8	17,16,16,16 SR	1
J776	PR	6	HFK	24.58	9,8,6,5 SR	4
J796	PR	9	HFK	24.85	All SR	0
J800	PR	4	HFK	29.72	12,10,9,9 SR	3
L423	PR	9	Azoles q	0.018	12,12,12,11 SR	3
L465	PR	3	Azoles q	0.016	4,3,3,2 SR	6
L510	PR	7	Azoles q	0.017	14,13,9,8 SR	2
L558	PR	5	Azoles q	0.012	10,10,10,10 SR	4
L627	PR	6	Azoles q	0.013	10,10,8,6 SR	4
L639	PR	1	Azoles q	0.015	12,12,11,10 SR	3
L645	PR	10	Azoles q	0.013	7,5,3,3 SR	5
L649	PR	8	Azoles q	0.014	7,6,5,4 SR	5
L652	PR	4	Azoles q	0.015	16,10,7,7 SR	3
L666	PR	2	Azoles q	0.016	7,6,6,6 SR	5
N226	SG	1	None	1043	1,1,1,1 SR	7
N250	SG	5	None	1058	1,1,1,1 SR	7
N271	SG	8	None	1071	1,1,1,1 SR	7
N312	SG	6	None	1069	1,1,1,1 SR	7
N324	SG	10	None	1130	1,1,1,1 SR	7
N334	SG	7	None	1086	3,2,1,1 SR	7
N347	SG	9	None	937	1,1,1,1 SR	7
N353	SG	4	None	1109	1,1,1,1 SR	7
N363	SG	3	None	1100	1,1,1,1 SR	7
N370	SG	2	None	1176	1,1,1,1 SR	7

AFS Rotorua rot box installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A114	PR	5	water	451	6 BR	5 BR	10,14	3
A137	PR	6	water	446	25 BR	25 BR	70+,70+	0
A145	PR	5	water	480	13 BR	18 BR	12 BR	0
A158	PR	6	water	523	3 BR	5 BR	22,15 BR	0
A166	PR	5	water	500	4 BR	2 BR	0	6
A174	PR	6	water	424	4 BR	23 BR	26,18	0
A472	PR	5	water	526	3 BR	0	0	7
A475	PR	5	water	494	6 B R	2 BR	0	5
A71	PR	6	water	409	12 BR	9 BR	27,22	0
A78	PR	6	water	379	7 BR	13 BR	21,3 BR	2
E107	PR	6	ACQ q	0.075	1 BR	0	0	7
E151	PR	5	ACQ q	0.103	1 BR	0	0	7
E170	PR	5	ACQ q	0.092	0	0	0	8
E187	PR	5	ACQ q	0.089	0	0	0	8
E189	PR	5	ACQ q	0.098	2 BR	3 BR	0	6
E202	PR	6	ACQ q	0.085	0	0	0	8
E271	PR	6	ACQ q	0.081	0	0	0	8
E307	PR	6	ACQ q	0.088	0	0	0	8
E318	PR	5	ACQ q	0.079	0	0	0	8
E335	PR	6	ACQ q	0.078	1 BR	1 BR	0	7
F127	PR	5	TBTN q	0.061	3 BR	0	0	7
F163	PR	5	TBTN q	0.048	0	0	0	8
F167	PR	6	TBTN q	0.053	3 BR	8 BR	0	5
F185	PR	6	TBTN q	0.044	25 BR	25 BR	0	0
F192	PR	5	TBTN q	0.047	0	0	0	8
F207	PR	6	TBTN q	0.041	2 BR	11 BR	29,0 BR	2
F217	PR	6	TBTN q	0.039	21 BR	17 BR	33,1 BR	1
F229	PR	6	TBTN q	0.055	2 BR	6 BR	0	5
F248	PR	5	TBTN q	0.058	11 BR	2 BR	0	4
F92	PR	5	TBTN q	0.062	1 BR	0	0	7
G120	PR	5	CCA q	0.106	0	0	0	8
G124	PR	5	CCA q	0.099	0	0	0	8
G150	PR	6	CCA q	0.094	0	0	0	8
G159	PR	6	CCA q	0.085	0	0	0	8
G172	PR	5	CCA q	0.103	0	0	0	8

AFS Rotorua rot box installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G182	PR	5	CCA q	0.098	0	0	0	8
G188	PR	6	CCA q	0.096	0	0	0	8
G213	PR	5	CCA q	0.105	0	0	0	8
G305	PR	6	CCA q	0.092	0	0	0	8
G95	PR	6	CCA q	0.086	0	0	0	8
J115	PR	6	HFK	22.28	0	0	15,0 BR	5
J116	PR	5	HFK	26.19	1 BR	2 BR	0	7
J138	PR	6	HFK	24.79	2 BR	1 BR	7,0 BR	6
J163	PR	6	HFK	29.75	5 BR	3 BR	24,9 BR	1
J179	PR	5	HFK	28.49	1 BR	0	4,4 BR	6
J183	PR	6	HFK	20.24	2 BR	2 BR	13,0 BR	5
J199	PR	6	HFK	22.57	3 BR	6 BR	23,0 BR	3
J262	PR	5	HFK	28.08	0	4 BR	14 BR	5
J274	PR	5	HFK	25.08	0	2 BR	0	7
J89	PR	5	HFK	23.81	0	3 BR	9,3 BR	5
L181	PR	6	Azole q	0.019	1 BR	7 BR	0	5
L185	PR	5	Azole q	0.019	0	0	0	8
L199	PR	5	Azole q	0.018	0	4 BR	0	6
L268	PR	6	Azole q	0.013	2 BR	0	0	7
L296	PR	6	Azole q	0.016	25 BR	25 BR	70+,50	0
L297	PR	6	Azole q	0.016	0	2 BR	0	7
L760	PR	5	Azole q	0.012	4 BR	0	0	6
L809	PR	6	Azole q	0.014	2 BR	2 BR	5,0 BR	6
L91R	PR	5	Azole q	0.018	0	1 BR	0	7
L98R	PR	5	Azole q	0.017	0	0	0	8
N122	SG	6	none	1103	0	0	0	8
N132	SG	5	none	1098	0	0	0	8
N153	SG	6	none	1055	0	0	0	8
N48	SG	6	none	1132	0	0	0	8
N57	SG	5	none	1114	0	1 WR	0	7
N71	SG	5	none	1093	0	0	0	8
N74	SG	5	none	1068	0	0	0	8
N75	SG	6	none	1018	0	0	0	8
N85	SG	5	none	1118	0	0	0	8
N90	SG	6	none	1161	0	0	0	8

AFS Rotorua inoc rot box installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
A111	PR	8	water	507	Fully	decayed	BR	0
A123	PR	7	water	459	Fully	decayed	BR	0
A143	PR	7	water	476	Fully	decayed	BR	0
A193	PR	7	water	421	Fully	decayed	BR	0
A204	PR	8	water	543	Fully	decayed	BR	0
A467	PR	8	water	491	Fully	decayed	BR	0
A479	PR	8	water	522	Fully	decayed	BR	0
A69	PR	7	water	443	Fully	decayed	BR	0
A73	PR	8	water	402	Fully	decayed	BR	0
A79	PR	7	water	416	Fully	decayed	BR	0
E108	PR	8	ACQ q	0.08	1 BR	0	0	8
E111	PR	8	ACQ q	0.078	0	2 BR	0	7
E137	PR	7	ACQ q	0.091	0	0	0	8
E144	PR	7	ACQ q	0.103	0	0	0	8
E147	PR	7	ACQ q	0.098	0	0	0	8
E154	PR	7	ACQ q	0.093	2 BR	0	11,0 BR	5
E159	PR	7	ACQ q	0.086	1 BR	0	0	7
E192	PR	8	ACQ q	0.081	0	0	0	8
E232	PR	8	ACQ q	0.074	0	0	0	8
E325	PR	8	ACQ q	0.086	0	1 BR	0	7
F113	PR	8	TBTN q	0.062	1 BR	1 BR	0	7
F122	PR	8	TBTN q	0.06	0	1 BR	0	7
F146	PR	8	TBTN q	0.054	1 BR	2 BR	0	7
F149	PR	7	TBTN q	0.046	0	0	0	8
F197	PR	7	TBTN q	0.043	0	14 BR	0	4
F242	PR	8	TBTN q	0.057	2 BR	2 BR	0	6
F296	PR	7	TBTN q	0.048	0	2	0	7
F297	PR	7	TBTN q	0.039	4 BR	1	0	6
F305	PR	8	TBTN q	0.053	0	0	0	8
F725	PR	7	TBTN q	0.048	1 BR	0	0	7
G105	PR	8	CCA q	0.084	0	0	0	8
G115	PR	7	CCA q	0.096	3 BR	13 BR	12,0 BR	4
G127	PR	8	CCA q	0.102	0	2 BR	0	7
G203	PR	8	CCA q	0.087	2 BR	0	0	7
G217	PR	7	CCA q	0.107	1 BR	0	16,0 BR	4

AFS Rotorua inoc rot box installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Box no.	Treat	Retn %m/m or air density	Top face, mm and rot	Btm face, mm and rot	Each end, mm and rot	Rating
G233	PR	7	CCA q	0.093	10 BR	1 BR	0	5
G246	PR	7	CCA q	0.098	1 BR	0	0	7
G253	PR	7	CCA q	0.088	22 BR	0	7,0 BR	2
G270	PR	8	CCA q	0.1	2 BR	0	0	7
G294	PR	8	CCA q	0.103	4 BR	1 BR	5,0 BR	6
J131	PR	7	HFK	25.81	23 BR	13 BR	34,33	0
J137	PR	8	HFK	24.15	25 BR	25 BR	75+,18	0
J145	PR	8	HFK	20.33	25	25 BR	23,13	0
J161	PR	8	HFK	23.37	25 BR	25 BR	70+,15	0
J169	PR	7	HFK	27.21	25 BR	25 BR	44,37	0
J248	PR	8	HFK	21.27	1 BR	22 BR	12,6 BR	1
J249	PR	7	HFK	28.77	Fully	decayed	BR	0
J263	PR	7	HFK	26.68	Fully	decayed	BR	0
J264	PR	8	HFK	29.46	Fully	decayed	BR	0
J706	PR	7	HFK	24.52	25 BR	25 BR	70+,0	0
L175	PR	7	Azole q	0.013	25 BR	25 BR	0	0
L184	PR	7	Azole q	0.019	25 BR	25 BR	0	0
L191	PR	8	Azole q	0.015	0	6 BR	0	6
L224	PR	7	Azole q	0.019	25 BR	25	70+,3	0
L238	PR	7	Azole q	0.018	9 BR	0	0	5
L246	PR	8	Azole q	0.016	25	25 BR	0	0
L275	PR	8	Azole q	0.017	25 BR	25	70+,42	0
L305	PR	8	Azole q	0.017	25 BR	25 BR	0	0
L311	PR	8	Azole q	0.015	7 BR	4 BR	0	5
L796	PR	7	Azole q	0.012	Fully	decayed	BR	0
N102	SG	8	none	1120	0	0	0	8
N108	SG	8	none	1104	0	0	0	8
N113	SG	8	none	1145	0	0	0	8
N115	SG	8	none	1085	0	0	0	8
N150	SG	7	none	1116	0	0	0	8
N155	SG	7	none	1159	0	0	0	8
N58	SG	8	none	1041	0	0	0	8
N64	SG	7	none	1037	0	0	0	8
N87	SG	7	none	1071	0	0	0	8
N98	SG	7	none	1110	0	0	0	8

AFS Rotorua embedded test installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A305	PR	5	water	568	0	0	70+ end BR	0
A341	PR	5	water	425	0	0	70+ end BR	0
A350	PR	5	water	389	0	0	70+ end BR	0
A358	PR	4	water	504	0	0	70+ end BR	0
A395	PR	5	water	444	0	0	70+ end BR	0
A406	PR	4	water	465	0	0	35 x 4 BR	0
A407	PR	5	water	524	0	0	21,8,8,2 BR	2
A417	PR	5	water	477	0	0	70+ end BR	0
A437	PR	5	water	435	0	0	70+ end BR	0
A496	PR	5	water	486	0	0	70+ end BR	0
E481	PR	5	ACQ q	0.099	0	0	22,5 BR	2
E483	PR	5	ACQ q	0.094	0	0	21 BR	4
E536	PR	5	ACQ q	0.087	0	0	35 x 4 BR	0
E563	PR	4	ACQ q	0.089	0	0	22,21	0
E575	PR	4	ACQ q	0.085	0	0	7,1 BR	6
E591	PR	5	ACQ q	0.09	0	0	70+ end BR	0
E624	PR	5	ACQ q	0.081	0	0	70+ end BR	0
E631	PR	5	ACQ q	0.085	0	0	70+ end BR	0
E654	PR	5	ACQ q	0.092	0	0	0	8
E691	PR	5	ACQ q	0.078	0	0	70+ end BR	0
F446	PR	4	TBTN q	0.048	0	0	6 end BR	6
F498	PR	5	TBTN q	0.059	0	0	0	8
F530	PR	5	TBTN q	0.063	0	0	3,1 BR	7
F541	PR	5	TBTN q	0.055	0	0	14,3,2 BR	4
F588	PR	5	TBTN q	0.053	0	0	1 BR	7
F606	PR	5	TBTN q	0.058	0	0	3,1 BR	7
F671	PR	5	TBTN q	0.061	0	0	7 BR	6
F803	PR	5	TBTN q	0.056	0	0	1 BR	7
F837	PR	5	TBTN q	0.05	0	0	0	8
F850	PR	4	TBTN q	0.04	0	0	4 BR	7
G458	PR	5	CCA q	0.11	0	0	0	8
G515	PR	5	CCA q	0.089	0	0	13,11,10 BR	3
G534	PR	5	CCA q	0.103	0	0	9,8 BR	4
G541	PR	4	CCA q	0.097	0	0	0	8
G546	PR	5	CCA q	0.082	0	0	5,1 BR	6

AFS Rotorua embedded test installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G552	PR	4	CCA q	0.091	0	0	0	8
G607	PR	5	CCA q	0.085	0	0	21 BR	4
G613	PR	5	CCA q	0.094	0	0	16,13,6 BR	2
G645	PR	5	CCA q	0.08	0	0	12,3 BR	5
G658	PR	5	CCA q	0.1	0	0	70+ end BR	0
J430	PR	5	HFK	29.61	0	0	23,20,13,5BR	0
J458	PR	5	HFK	22	0	0	13,11,4,2 BR	3
J529	PR	5	HFK	22.92	0	0	35,35 BR	0
J570	PR	5	HFK	20.98	0	0	70+ end BR	0
J571	PR	5	HFK	28.33	0	0	1 BR	7
J577	PR	4	HFK	25.91	0	0	70+ end BR	0
J579	PR	5	HFK	25.53	0	0	53 end BR	0
J580	PR	4	HFK	27.03	0	0	70+ end BR	0
J605	PR	5	HFK	23.72	0	0	70+ end BR	0
J790	PR	5	HFK	27.84		All BR		0
L442	PR	5	Azole q	0.013	0	0	16,13 BR	2
L444	PR	5	Azole q	0.013	0	0	0	8
L477	PR	5	Azole q	0.016	0	0	17,8,6 BR	3
L489	PR	4	Azole q	0.015	0	0	3,2 BR	7
L562	PR	5	Azole q	0.017	0	0	4,4 BR	6
L566	PR	5	Azole q	0.015	0	0	7,3 BR	6
L614	PR	4	Azole q	0.016	0	0	0	8
L615	PR	5	Azole q	0.014	0	0	3 BR	7
L630	PR	5	Azole q	0.018		All BR		0
L670	PR	5	Azole q	0.012	0	0	70+ end BR	0
N241	SG	5	none	1076	0	0	3,1 BR	7
N249	SG	5	none	1069	0	0	1,1,1 BR	7
N261	SG	5	none	1061	0	0	1,1,1BRWR	7
N267	SG	5	none	1135	sl wr cnr 0	0	0	8
N280	SG	5	none	1028	0	0	9,1 BR	6
N311	SG	5	none	930	0	0	1,1 WR	7
N314	SG	5	none	1143	0	0	1 BR	7
N357	SG	4	none	1090	0	0	2 BR	7
N361	SG	5	none	1103	sap cnr 0	0	3 BR	7
N369	SG	4	none	1083	0	0	0	8

AFS Rotorua INOC embedded test installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
A399	PR	3	water	541	35	200	35,35 BR	0
A314	PR	4	water	575		All BR		0
A327	PR	4	water	443	35	200	35 BR	0
A330	PR	4	water	466	0	0	70+ end BR	0
A331	PR	3	water	409		All BR		0
A349	PR	4	water	398	0	200	35,35 BR	0
A420	PR	3	water	491	0	0	70+ end BR	0
A459	PR	4	water	478		All BR		0
A512	PR	3	water	487	0	0	48 end BR	0
A514	PR	4	water	436		All BR		0
E451	PR	4	ACQ q	0.093	0	0	22,20,6,2	0
E454	PR	3	ACQ q	0.086	0	0	35,35 BR	0
E471	PR	3	ACQ q	0.091	0	0	35,35,11,11	0
E509	PR	4	ACQ q	0.088	0	0	11,4,1 BR	5
E526	PR	4	ACQ q	0.082	0	0	26,2 BR	2
E530	PR	4	ACQ q	0.078	0	0	35 x 4 BR	0
E551	PR	4	ACQ q	0.084	0	0	13,7,3 BR	4
E576	PR	3	ACQ q	0.086	0	0	1,1 BR	7
E585	PR	4	ACQ q	0.092	0	0	11,5,4,2 BR	4
E663	PR	3	ACQ q	0.098	0	0	32 end BR	1
F437	PR	4	TBTN q	0.063	0	0	2,1 BR	7
F487	PR	4	TBTN q	0.043	0	0	2,1 BR	7
F551	PR	3	TBTN q	0.06	0	0	1	7
F559	PR	3	TBTN q	0.059	0	0	1,1 BR	7
F621	PR	4	TBTN q	0.051	0	0	2,1 BR	7
F632	PR	3	TBTN q	0.062	0	0	0	8
F782	PR	3	TBTN q	0.055	0	0	4,2 BR	6
F802	PR	4	TBTN q	0.047	0	0	0	8
F809	PR	4	TBTN q	0.049	0	0	0	8
F832	PR	4	TBTN q	0.054	0	0	3,1 BR	7
G556	PR	4	CCA q	0.094	0	0	5 BR	7
G569	PR	3	CCA q	0.08	0	0	1 BR	7
G576	PR	3	CCA q	0.084	0	0	2,1 BR	7
G639	PR	4	CCA q	0.097	0	0	6 BR	6
G642	PR	4	CCA q	0.109	0	0	13,10,5 BR	3

AFS Rotorua INOC embedded test installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Frame	Treat	Retn %m/m or air density	Top sides, mm and rot	Top end, mm and rot	Lower sides, mm and rot	Rating
G648	PR	4	CCA q	0.105	0	0	16 end BR	4
G656	PR	3	CCA q	0.084	0	0	8,7 BR	5
G663	PR	4	CCA q	0.091	0	0	7,6,4 BR	5
G669	PR	3	CCA q	0.088	0	0	5,3 BR	6
G673	PR	4	CCA q	0.101	0	0	12,10 BR	3
J401	PR	3	HFK	27.71	0	0	65 end BR	0
J470	PR	4	HFK	25.38		All BR		0
J487	PR	4	HFK	30.07		All BR		0
J506	PR	3	HFK	25.98	0	0	70+ end BR	0
J559	PR	3	HFK	24.46	0	0	70+ end BR	0
J562	PR	4	HFK	20.33		All BR		0
J573	PR	4	HFK	21.1	0	0	70+ end BR	0
J576	PR	4	HFK	22.91	35	200	35,35 BR	0
J591	PR	3	HFK	26.55	0	0	35 x 4 BR	0
J619	PR	4	HFK	29.23	0	0	70+ end BR	0
L501	PR	4	Azole q	0.012	0	0	35,35 BR	0
L544	PR	4	Azole q	0.017	0	0	6,2 BR	6
L555	PR	4	Azole q	0.017	0	0	7,1 BR	6
L573	PR	3	Azole q	0.016	0	0	11,8 BR	4
L582	PR	4	Azole q	0.014	0	0	35,35,3 BR	0
L603	PR	4	Azole q	0.013	0	0	35 x 4 BR	0
L606	PR	3	Azole q	0.015	0	0	22,6,1 BR	2
L626	PR	4	Azole q	0.015	0	0	29,3 BR	1
L632	PR	3	Azole q	0.016	0	0	25,5 BR	2
L663	PR	3	Azole q	0.013	0	0	31,31 BR	0
N221	SG	4	none	1100	0	0	1 BR	7
N230	SG	4	none	1146	0	0	0	8
N253	SG	3	none	1128	0	0	8 BR	6
N264	SG	3	none	1079	0	0	3,2 WR	7
N304	SG	3	none	1044	0	0	1 end WR	7
N305	SG	4	none	1110	0	0	0	8
N317	SG	4	none	1088	0	0	0	8
N332	SG	3	none	975	pale	0	1 BR	7
N337	SG	4	none	1068	0	0	1 WR	7
N340	SG	4	none	1061	0	0	0	8

AFS Rotorua in-ground stake test installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	Sides in-ground each side, mm and rot	Rating
A300	PR	7\1	water	493	All SR	0
A320	PR	3\1	water	432	All SR	0
A359	PR	1\1	water	476	20,16,14,13	0
A387	PR	4\2	water	579	All SR	0
A401	PR	5\1	water	524	All SR	0
A423	PR	3\2	water	445	Missing	0
A491	PR	5\2	water	399	All SR	0
A494	PR	1\2	water	432	All SR	0
A495	PR	6\1	water	480	All SR	0
A497	PR	2\2	water	453	All SR	0
E445	PR	5\1	ACQ q	0.095	All SR	0
E463	PR	2\2	ACQ q	0.081	15,13,13,10	2
E470	PR	7\1	ACQ q	0.093	All SR	0
E488	PR	1\1	ACQ q	0.084	16,15,12,8	2
E497	PR	3\2	ACQ q	0.087	12,10,8,7	3
E569	PR	4\1	ACQ q	0.091	16,14,13,8 SR	2
E602	PR	6\1	ACQ q	0.079	15,14,13,9 SR	2
E615	PR	6\2	ACQ q	0.089	All SR	0
E693	PR	1\1	ACQ q	0.085	17,13,13,12	2
E710	PR	4\2	ACQ q	0.098	Missing	0
F499	PR	7\2	TBTN q	0.057	All SR	0
F505	PR	4\1	TBTN q	0.06	All SR	0
F506	PR	2\1	TBTN q	0.052	14,13,12,11	2
F562	PR	7\1	TBTN q	0.059	All SR	0
F563	PR	5\1	TBTN q	0.063	All SR	0
F605	PR	6\1	TBTN q	0.054	All SR	0
F645	PR	1\2	TBTN q	0.046	All SR	0
F676	PR	3\2	TBTN q	0.061	35,35,15,11	0
F818	PR	2\2	TBTN q	0.05	19,15,14,14	1
F851	PR	4\1	TBTN q	0.04	35,35,19,13	0
G429	PR	2\1	CCA q	0.094	All SR	0
G432	PR	2\1	CCA q	0.101	18,16,15,13	1
G450	PR	5\2	CCA q	0.084	All SR	0
G468	PR	1\2	CCA q	0.098	14,9,7,6	4
G471	PR	6\2	CCA q	0.087	14,13,10,8 SR	2

AFS Rotorua in-ground stake test installed 22-23 Nov 2007 inspected LJC+DP 2 Dec 2011

No.	Wood	Row	Treat	Retn %m/m or air density	sides in-ground, mm and rot	Rating
G478	PR	7\2	CCA q	0.082	All SR	0
G489	PR	7\2	CCA q	0.081	All SR	0
G513	PR	3\1	CCA q	0.104	14,14,13,13	2
G553	PR	4\1	CCA q	0.093	All SR	0
G600	PR	5\1	CCA q	0.109	All SR	0
J399	PR	3\1	HFK	26.17	22,21,12,7	0
J421	PR	5\2	HFK	25.18	All SR	0
J441	PR	6\2	HFK	19.22	All SR	0
J444	PR	2\2	HFK	27.34	All SR	0
J488	PR	1\1	HFK	21.88	23,15,15,12	2
J508	PR	6\1	HFK	23.13	All SR	0
J513	PR	1\2	HFK	26.59	All SR	0
J608	PR	7\2	HFK	24.77	All SR	0
J626	PR	3\2	HFK	30.54	All SR	0
J780	PR	4\2	HFK	28.45	All SR	0
L447	PR	4\2	Azole q	0.016	All SR	0
L479	PR	2\1	Azole q	0.013	All SR	0
L532	PR	6\2	Azole q	0.017	All SR	0
L540	PR	6\2	Azole q	0.018	All SR	0
L567	PR	2\2	Azole q	0.014	All SR	0
L572	PR	1\2	Azole q	0.014	19,18,16,15	0
L594	PR	7\1	Azole q	0.015	All SR	0
L621	PR	4\2	Azole q	0.015	All SR	0
L648	PR	5\2	Azole q	0.016	Missing	0
L660	PR	3\1	Azole q	0.012	All SR	0
N232	SG	4\1	none	1093	1,1,1,1 SR	7
N265	SG	2\1	none	1064	2,2,1,1 SR	7
N278	SG	3\2	none	1046	2,1,1,1 SR	7
N294	SG	1\1	none	1080	2,1,1,1 SR	7
N297	SG	5\2	none	1141	2,1,1,1 SR	7
N303	SG	5\1	none	1123	2,2,2,1 SR	7
N308	SG	7\2	none	1026	5,3,2,2 SR	6
N326	SG	3\1	none	1087	2,1,1,1 SR	7
N330	SG	7\1	none	1118	2,2,2,2 SR	7
N345	SG	6\1	none	986	2,2,2,1 SR	7