

CCA-C Treated Posts in Mississippi Test: No Failures after 35 Years

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In December of 1976, Forest Products Laboratory (FPL) researchers installed 91 CCA-C treated (oxide formulation) southern pine post specimens in a test plot in southern Mississippi. The site is within Harrison Experiment Forest near Saucier, Mississippi, and presents a severe deterioration hazard (AWPA Deterioration Zone 5). The retentions of the posts ranged from 0.22 to 1.05 lb/ft³ (3.52 to 16.82 kg/m³), with the retentions of the majority of the posts in the range of 0.5 to 0.9 lb/ft³ (8.0 to 14.4 kg/m³). The condition of the posts was assessed with pull tests in 1984 and again in March of 2012 (after just over 35 years in test). Posts are considered to have “failed” if they break when a pulling force of approximately 50 lbs (22.7 kg) is applied to the top of the posts.

After 35 years, none of the treated posts have failed. This includes 5 posts that were treated to below the AWPA specified minimum retention of 0.4 lb/ft³ (6.4 kg/m³) for CCA-C treated posts. In addition, 24 of the posts were treated to below the AWPA specified minimum of 0.6 lb/ft³ (9.6 kg/m³) for poles, and 66 of the posts were treated to below the AWPA specified minimum of 0.8 lb/ft³ (12.8 kg/m³) for southern pine terrestrial piles. In contrast, untreated southern pine post specimens fail within 2 to 5 years at this site. The durability of these CCA-C treated posts corroborates the observed in-service performance of CCA-C treated round-stock commodities such as posts, poles and piles. Because none of the posts have failed, we cannot yet calculate an estimate of average years to failure. Additional inspections are planned at 5 year intervals.

It is important to note that although post tests provide an indication of the long-term durability of treated wood, they do not incorporate some factors that could affect the service life of treated commodities. These factors include geographic distribution, variability in treatment quality, types of loads applied, and in-service fabrication.