



Long-Term Performance of Adhesively Bonded Timber-Concrete-Composites

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Summary:

Timber-concrete-composite (TCC) floors are a successful example of hybrid structural components. TCC are composed of timber and concrete layers connected by a shear connector and are commonly used in practical civil engineering applications. The connection of the two components is usually achieved with mechanical fasteners where relative slip cannot be prevented and the connection cannot be considered rigid. More recently, an adhesively bonded TCC system has been proposed, and has been shown to perform predictably under static short-term loading. One of the main considerations when designing TCC floors is their long-term performance. In the research presented herein, two adhesively bonded TCC beams were exposed to serviceability loads for approximately 4.5 years. During this time the environmental conditions and the deflections were monitored. After having been loaded for 4.5 years, the beams were tested to failure, resulting in findings that long-term loading caused no degradation of the adhesive bond. This research provides input data to develop design guidance for adhesively bonded TCC under long-term loading.

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Resource Link

http://scho.wshosted_files/wcte2014/bd/ABS357_Tannert_web.pdf