Long-Term Performance of Timber-Concrete Composite Flooring Systems

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Author:	Hailu, Mulugheta
Organization:	University of Technology Sydney
Year of Publication:	2015
Format:	Thesis
Material:	LVL (Laminated Veneer Lumber)
	Timber-Concrete Composite
Application:	Floors
Topic:	Connections
	Mechanical Properties
	Serviceability
	Moisture
Keywords:	Serviceability Limit States
	Deflection
	Long-term Behaviour
	Creep
	Mechanosorption
	Eurocode
Research Status:	Complete

Summary:

The objectives and scope of this study are to conduct long-term experimental test on timber-concrete composite beams, analyse the results to determine the creep coefficient of the composite system and compare the experimental results with the analytical solutions in accordance with Eurocode 5, in which the effective modulus method is used to account the effect of creep. To achieve the aforementioned objectives, a long-term laboratory investigation was started in August 2010 on four 5.8m span TCC beams with four different connector types. The specimens have been under sustained loads of 1.7kPa and subjected to a cyclic humidity conditions whilst the temperature remains quasi constant (22 °C). During the test, the mid-span deflection, moisture content of the timber beams and relative humidity of the air are continuously monitored. The long-term test is still continuing, two TCC beams were unloaded and tested to failure after 550 days, while the other two TCC beams are still being monitored and this report included experimental results up to the first 1400 days only. The long-term investigation on the two timber only composite floor beams commenced on March 2013 and the results are reported for the first 800 days from their commencement.

Online Access: Free

Resource Link

http://hdl.handle.net/10453/38958