

Marc Aguanno

Title

Fire Resistance Tests on Cross-Laminated Timber Floor Panels: An Experimental and Numerical Analysis

Abstract

Cross-laminated timber (CLT) is an innovative wood technology currently gaining popularity in Canada. However, there is little published information available regarding its performance in fire. The focus of this research is on a series of eight medium-scale, fire-resistance CLT floor tests. Parameters such as charring rate, temperature profile, deflection, gypsum protection and adhesive performance, as well as the overall fire resistance of the floors when subjected to both standard and non-standard fire exposures were evaluated. The results, which compare favourably to past standard full-scale CLT floor tests, were used to develop a numerical model capable of predicting the performance of various CLT floor configurations exposed to any possible fire or load. The experiments demonstrate that CLT panel constructions can be designed to possess a fire-resistance that complies with building code requirements. The additional fire performance data provided from the results of these tests will help facilitate the incorporation of CLT into design standards and building codes.

Degree

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Supervisors

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