



Fire Resistance of Laminated Veneer Lumber (LVL) and Cross-Laminated Timber (XLAM) Elements

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Summary:

This research investigates the fire behaviour of laminated veneer lumber elements and cross-laminated timber panels. The study focused on some research questions regarding the fire resistance of unprotected and protected timber structural elements, the possibility to predict accurately the fire behaviour of timber elements through numerical modelling, and the accuracy of analytical estimations of fire resistance using simplified design methods. Experimental tests of small and large specimens exposed to fire on one or more sides and subjected to different types and levels of load were performed. The results highlight the good performance of timber structural elements in fire conditions. The collected data were used to validate two- and three-dimensional models implemented in the general purpose finite element code Abaqus. Thermal and mechanical analyses were carried out to estimate the temperature distribution within unprotected and protected cross-sections of different sizes, the fire resistance and the displacement of timber elements loaded inplane and out-of-plane

Online Access: Free

Resource Link

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