



Experimental and Numerical Investigation of Novel Steel-Timber-Hybrid System

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Summary:

This paper summarises the experimental and numerical investigation conducted on the main connection of a novel steel-timber hybrid system called FFTT. The component behaviour of the hybrid system was investigated using quasi-static monotonic and reversed cyclic tests. Different steel profiles (wide flange I-sections and hollow rectangular sections) and embedment approaches for the steel profiles (partial and full embedment) were tested. The results demonstrated that when using an appropriate connection layout, the desired strong-column weak-beam failure mechanism was initiated and excessive wood crushing was avoided. A numerical model was developed that reasonably reflected the real component behaviour and can subsequently be used for numerical sensitivity studies and parameter optimization. The research presented herein serves as a precursor for providing design guidance for the FFTT system as an option for tall wood-hybrid buildings in seismic regions.

Online Access: Free

Resource Link

https://www.researchgate.net/profile/Marjan-Popovski/publication/280560632_Experimental_and_Numerical_Investigation_of_Novel_Steel-Timber_Hybrid_System/links/55b96a3608aed621de08684d/Experimental-and-Numerical-Investigation-of-Novel-Steel-Timber-Hybrid-System.pdf