Robustness Analysis of Multi-Storey Massive Timber Buildings

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Abstract

During the 1990's the use of massive timber in multi-storey residential buildings has increased significantly in Northern Europe. At first it was a slow reaction, but during the last years, many projects on multi-storey and massive timber buildings have been launched. The timber-producing companies are also showing interest in delivering new products as well as in the development of products, production and knowledge. Massive timber structures have especially been proposed, planned, constructed and erected in three to six storeys. Even though the technology of massive timber is becoming well-known by production of multi-storey residential buildings, this structural system still needs further development on several levels from material utilization to applications in construction. Whereas the codes and regulations for the design of concrete and steel have undergone a remarkable modernisation over the last two to three decades, codes and regulations for the design of timber structures are falling somewhat behind. The aim of the present paper is to investigate robustness characteristics of a multi-storey massive timber building using a probabilistic approach based on the Danish code and JCSS PMC.