

Documents

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Structural design and analysis of high-rise building using ultra-lightweight floor system

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Abstract

The main objective of this paper is to study feasibility of using ultra-lightweight (ULW) slab as an alternative design solution for floor component used in high-rise buildings. The main method is numerical case study by comparing the structural performances of 60-storey building in which floor component designed using one type of ULW called cross laminated timber (CLT) relative to floor component designed using conventional reinforced concrete (RC) slab using ETABS. The structural performances were compared between the two types of floor system including: Total drift, inter-story drift, and base reaction which results in smaller frame sections and less reactions for the foundation demands by using ultra-lightweight (ULW). Additional survey to assess the awareness level of the public and engineering professionals about general high-rise building demand and new alternative building materials such as timber and its potential application in Saudi Arabia was also conducted. Copyright © 2017 ISEC Press.

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