



Comparative Energy Consumption Study on Tall Cross Laminated Timber Buildings for U.S. Climates

<https://research.thinkwood.com/en/permalink/catalogue1636>

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Year of Publication: 2016

Format: Conference Paper

Material: CLT (Cross-Laminated Timber)

Application: Wood Building Systems

Topic: Energy Performance

Keywords: US
 Energy Efficiency
 Internal Loads
 Climate

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
 p. 3134-3141

Summary:

Tall building (higher than 8 stories) construction using Cross laminated timber (CLT) is a relatively new trend for urban developments around the world. In the U.S., there is great interest in utilizing the potential of this new construction material. By analyzing a ten-story condominium building model constructed using building energy simulation program EnergyPlus, the energy efficiency of this emerging building type was evaluated and compared with a light metal frame building system (currently viable construction type for this height based on the U.S. building code). A sensitivity analysis was also conducted to study the impact of different weather and internal load conditions on building energy performances. It was concluded that efficiency of CLT envelope is high for heating energy savings, but its energy performance efficiency can be greatly affected by other factors including weather, internal loading, and HVAC control.

Online Access: Free

Resource Link

<http://hdl.handle.net/20.500.12708/172> ↗