



## Solutions for upper mid-rise and high-rise mass timber construction: seismic performance of braced mass timber frames, year 1

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Abstract: Braced mass timber (MT) frames are one of the most efficient structural systems to resist lateral loads induced by earthquakes or high winds. Although braced frames are presented as a system in the National Building Code of Canada (NBCC), no design guidelines currently exist in CSA O86. That not only leaves these efficient systems out of reach of designers, but also puts them in danger of being eliminated from NBCC. The main objective of this project was to develop the technical information needed for development of design guidelines for braced MT frames as a lateral load resisting system in CSA O86. In the first year of the project, the seismic performance of thirty (30) braced MT frames with riveted connections with various numbers of storeys, storey heights, and bay aspect ratios were studied by conducting non-linear pushover and dynamic time-history analyses. Also, fifteen (15) glulam brace specimens using bolted connections with different slenderness ratios were tested under monotonic and cyclic loading. Results from this multi-year project will form the basis for developing comprehensive design guidelines for braced frames in CSA O86.

### Documents

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and High-Rise Mass Timber  
Construction: Seismic  
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