A Global Overview of Steel-Timber Hybrid High Rise Buildings

Antony Wood President, CTBUH



Steel-Timber Hybrids: Setting the Scene

Antony Wood President, CTBUH



CTBUH Research Project

The Future Potential of Steel-Timber Hybrid Buildings

Project Start: July 2021

Project Completion: June 2023

Funding Partners:

construct**steel**





CTBUH Research Project

The Future Potential of Steel-Timber Hybrid Buildings

Research Objective

To capture the current state-ofthe-art and full potential of steel-timber hybrid structures for high-rise buildings, globally



Advisory Committee / Contributors

80+ members; multi-disciplinary, multi-national



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Countries

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Australia • China

Costa Rica

- Belgium
 - Canada Finland
 - Chile France
- Industries
 - Real Estate Development
 - Construction / Fabrication
 - Architecture
 - Engineering

Italy

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- Luxembourg
- New Zealand
- Norway

- Singapore
- South Korea
- United Kingdom
- United States

- Suppliers (Steel & Timber)
- Consultancies (BIM, Fire, Cost, Etc.)

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• Academic / Non-Profit Associations

Jeff Spiritos Spiritos Properties LLC *Tall Timber Panel Chair*

Outputs

CTBUH Technical Guide, incorporating:

- **Detailed Case Studies**
- Data!
- **Full LCA: Scenarios**
- Recommendations



CTBUH Technical Guides

























Mass Timber & Timber-Hybrid Buildings

Global Audit

February 2022



Interactive Study on Mass Timber

The State of Tall Timber: A Global Audit Explore 139 mass timber buildings of eight stories or higher, globally

Today there are 139 mass timber buildings around the world of eight stories or higher, either complete, under construction or proposed. CTBUH reviews a decade of scholarship to analyze the significant recent momentum of the mass-timber movement worldwide.

View the Study



There are 66 completed mass timber buildings globally, 8 stories or higher

84 Mass Timber Projects Worldwide, 8 stories or higher



by project status



84 Mass Timber Projects Worldwide, 8 stories or higher



84 Mass Timber Projects Worldwide, 8 stories or higher



by structural type

84 Mass Timber Projects Worldwide, 8 stories or higher



History of the World's Tallest Timber / Hybrids

The progression of the World's Tallest Timber Building has been swift, from 29 meters in 2009 to 87 meters in 2022; a 300% increase.





*Note: These buildings also employ concrete in the hybrid systems

The Initial Case for Steel-Timber Hybrids

- Greater spanning strength and ductility (than timber alone)?
- Better suitability for lateral restraint systems, especially for taller buildings?
- Better Carbon / LCA implications (than concrete-timber hybrid)?
- More flexibility with layouts, and later renovations / change of use?
- Ease of assembly and lower weight (than concrete-timber hybrid)?
- Greater dimensional accuracy, steel akin to mass timber?
- The greater potential for aesthetic expression of timber / biophilic benefits?
- Other? (to be determined over the next two days!)