

*Special Issue Reprint*

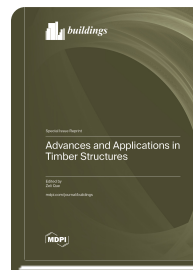
## **Advances and Applications in Timber Structures**

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Edited by  
Zeli Que

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This Special Issue showcases cutting-edge research dedicated to advancing the use of wood and bio-based materials in modern construction, a cornerstone of green building. The collected papers explore the mechanical behavior, seismic performance, and innovative applications of timber structures, bridging historical wisdom with contemporary engineering.

The significance of this issue lies in its comprehensive approach to sustainable building science. It delves into the performance of traditional wooden joints and ancient structures, offering valuable insights for restoring historical buildings and informing new, resilient designs. Simultaneously, it features pioneering work on modern engineered wood products like Cross-Laminated Timber (CLT) and Glulam, investigating their connections, composite systems, and behavior under various loads, including seismic events. Furthermore, this issue addresses critical aspects of material science, such as the hygrothermal response of screws in mass timber and the thermal performance of bio-based insulation panels.

By encompassing topics from the analysis of millennia-old Tang Dynasty structures to the biaxial testing of pre-engineered beam hangers, this Special Issue provides a vital knowledge base. It underscores the role of wood as a renewable, low-carbon material and contributes directly to the development of safer, more efficient, and truly sustainable construction practices for the future.

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