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Structures and Buildings

Editorial

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I am pleased to present the editorial for the December 2024 issue of *Structures and Buildings*. This journal is one of the longest-standing publications in the field of structural engineering, with a rich history of supporting the advancement of civil engineering practice. It remains one of the few journals globally to publish both theoretical and practical papers on structural engineering topics.

This edition covers a diverse range of subjects, materials, and structural types through four insightful papers. With contributions from researchers across the world, the journal underscores its international reach, with authors hailing from the UK, Italy, Brazil, UAE, Sri Lanka, India, and China. The topics explored include the seismic behaviour of reinforced concrete structures, steel-concrete composite slabs, building vulnerability due to floor vibrations, and the compressive properties of bamboo lumber.

The first paper in this issue, from Peradeniya, Sri Lanka, authored by Saharsha Charumuka Rathnasiri and colleagues (Rathnasiri *et al*., 2024), addresses the seismic performance of irregular buildings. The paper begins with the well-established fact that earthquakes tend to have a more destructive impact on buildings with irregular shapes due geometrical discontinuities impacting their strength and stiffness. It explores how global geometric irregularities affect seismic vulnerability and proposes a simplified method for assessing the seismic risk of irregular reinforced concrete buildings. The study is based on extensive numerical simulations and offers valuable insights into future research directions in this critical area.

The second paper, from India by Sumit Kumar (Kumar *et al*., 2024), investigates the effect of blast-induced ground vibrations on buildings. It explores the correlation between seismic resistance and the structural response to mine blasts, ultimately examining whether separate design provisions are needed to account for blast-induced ground motion. This work is important for determining the extent to which seismic design standards can be applied to structures subjected to blast forces.

The third paper, a collaboration between researchers from the UK, UAE, and Brazil (Tsavdaridis *et al*., 2024), examines the vibration response of ultra-shallow composite floors. The study focuses on the human comfort aspects of vibrations induced by normal building usage, specifically in steel-concrete composite floors with asymmetrical steel sections and embedded concrete slabs. The authors present an analytical model that simplifies the calculation of the equivalent stiffness of these slabs, making it easier to model them in current design practice.

The final paper, from China and Italy (Li *et al*., 2024), reports on an experimental study of the compressive performance of laminated bamboo lumber under varying temperature conditions. The research evaluates the failure mechanisms and compressive strength of bamboo specimens tested in different orientations and temperatures. An empirical formula is also developed to predict the effect of temperature on compressive strength, contributing to the understanding of bamboo as a sustainable construction material.

I hope you find these papers both insightful and thought-provoking. As always, we encourage feedback and discussion from our readers, and we look forward to your continued engagement with the journal.

REFERENCES

Kumar S, Dutta SC and Debnath P (2024) Vulnerability of structures designed with seismic provision due to explosions in mines. *Proceedings of the Institution of Civil Engineers – Structures and Buildings* **177(12)**: 1036–1055, https://doi.org/10.1680/jstbu.23.00038.

Li H, Xu W, Chen C, Yao L and Corbi O (2024) Effect of temperature on the compressive performance of laminated bamboo lumber. *Proceedings of the Institution of Civil Engineers – Structures and Buildings* **177(12)**: 1069–1081, https://doi.org/10.1680/jstbu.23.00034.

Rathnasiri SC, Jayasinghe SC and Bandara CS (2024) Simplified method for seismic vulnerability of plan irregular RC buildings using degree of irregularity. *Proceedings of the Institution of Civil Engineers – Structures and Buildings* **177(12)**: 1018–1035, https://doi.org/10.1680/jstbu.23.00123.

Tsavdaridis KD, Giaralis A, Wang Z and Ferreira FPV (2024) Vibration response of ultra-shallow floor beam composite floors. *Proceedings of the Institution of Civil Engineers – Structures and Buildings* **177(12)**: 1056–1068, https://doi.org/10.1680/jstbu.23.00043.