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Data Analysis and Modelling of Buildings, Environments, Building Materials, and Sustainability

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Deadline for manuscript submissions:
30 September 2024

Message from the Guest Editors

Timber is a major building material that has been used in the construction for thousands of years due to its durability, sustainability, maintainability, and comfort, which is key for the development of cities and towns. To save the forest resources, the environment and the climate, it requires a deep understanding of timber materials, building structures, the environment, and weather conditions. Turning guesswork around how to maintain our buildings earlier into more precise measurement and calculation of the evolution of buildings is in need. Thanks to developed sensor technologies, lots of sensors have been installed, which enable us to analyze and scrutinize various parts and components of buildings and develop many methods to maintain buildings in the last decade.

We welcome submissions in the following areas:

1. Data models for timber constructions;
2. Data analysis approaches to buildings in cities;
3. Moisture transfer patterns for wood constructions;
4. Weather impact patterns for timber buildings;
5. Relation models of climates and constructions;
6. Machine learning methods in timber structures in cities;
7. Digital manufacturing of building materials of timber–bamboo.

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Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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