Special Issue

Adaptive Lightweight Materials and Systems for Sustainable Construction: Innovations and Future Directions

Message from the Guest Editors

This Special Issue focuses on the sustainability of lightweight, flexible, and high-performance construction materials, addressing recent challenges and advancements in adaptable building systems. Topics include lightweight approaches for adaptability, innovative building systems, fibrous and composite materials, smart materials integration, and bio-fibres in construction, with an emphasis on design for disassembly and end-of-life strategies. We seek to compile a comprehensive collection of research that covers the following topics, among others:

- Achieving adaptability through lightweight approaches;
- Innovative lightweight building systems;
- Utilisation of fibrous systems and composites;
- Auto-reactive lightweight systems for thermal load reduction;
- Integration of smart materials in lightweight systems;
- Textile materials for construction applications;
- Design for disassembly and end-of-life strategies;
- Bio-fibres and bio-composites in construction;
- Bio-inspired resilient skins for novel adaptive constructions.

Guest Editors

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About the Journal

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.

Editor-in-Chief

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