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Towards Zero-Emission, Hazard-Resilient Buildings and Infrastructure: Advanced Material, Construction, and Energy Systems

Guest Editor:

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Deadline for manuscript submissions:
28 February 2025

Message from the Guest Editor

This issue explores, but is not limited to, the following central topics:

Zero-Emission Technologies: Investigating the latest breakthroughs in energy-efficient systems and renewable energy integrations for both buildings and broader infrastructure. We aim to showcase innovations that not only reduce operational emissions but also consider the embodied carbon throughout the lifecycle of structures.

Hazard-Resilience: In a world where extreme weather events are becoming more frequent, the designs of our buildings and infrastructure need a paradigm shift. This section highlights advanced modeling and simulation methods for accurate quantification of natural hazard impacts; cutting-edge design and construction methodologies that stand strong against natural disasters, ensuring longevity and safety.

Advanced Materials: A deep dive into novel construction materials that promise both sustainability and durability. Through rigorous experiments, simulations and data analyses, discover how the very fabric of our built environment is transforming.

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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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