Special Issue

Carbon-Neutral Pathways for Urban Building Design

Message from the Guest Editors

Urban buildings are both a major carbon source and essential human habitats, making their sustainable development critically important. Under carbon neutrality goals, the sector faces challenges including fragmented technology integration and imprecise carbon management. A systematic whole-lifecycle approach is therefore essential. Building design serves as the cornerstone, integrating structures with urban energy networks and ecological cycles. This Special Issue on *Carbon-Neutral Pathways for Urban Building Design* compiles cutting-edge research on carbon reduction, lifecycle mitigation, building retrofitting, resource recycling, and climate adaptation. Emerging areas like renewable energy integration and urban water-energy systems are also highlighted. We welcome original research and case studies addressing:

- Whole-lifecycle carbon-neutral design strategies
- Low-carbon retrofitting and performance enhancement
- Collaborative energy systems with storage integration
- Water-energy synergy for ecological regulation
- Circular potential from construction waste recycling
- Carbon reduction in water systems and resilient design

We look forward to your contributions.

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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manuscripts are peer-reviewed and a first decision is provided to authors approximately 15.1 days after submission; acceptance to publication is undertaken in 2.9 days (median values for papers published in this journal in the second half of 2025).