Special Issue

Sustainable Building Practices for a Net-Zero Future: Enhancing Energy Efficiency and Carbon Reduction

Message from the Guest Editors

Because they account for a sizeable share of global energy consumption and carbon emissions, buildings play a pivotal role in shaping a sustainable future and, as we move toward a net-zero carbon world, enhancing the sustainability of building design, construction, and operation has become essential. In short, the built environment must adapt to growing environmental challenges while improving energy efficiency, reducing emissions, and optimizing resource use. This Special Issue focuses on innovative strategies, technologies, and practices that enable buildings to achieve net-zero energy consumption and significantly reduce carbon footprints. The emphasis will be placed on building design and construction techniques that promote sustainability, energy efficiency, and carbon reduction, alongside the integration of renewable energy systems, smart technologies, and low-carbon materials. We look forward to receiving high-quality submissions that contribute to the advancement of sustainable building practices, enabling the built environment to play a central role in achieving global carbon reduction and energy efficiency goals.

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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