Special Issue

Innovating Sustainable Built Environment Integrating Low-Carbon Energy, Energy Efficiency Solutions, and Environmental Considerations

Message from the Guest Editors

While progress is being made in decarbonising grid energy, achieving net-zero targets will require a list of actions to decarbonise buildings and communities. Buildings and the built environment, interacting closely with the grid, pose a major challenge to emission reduction. There are a range of interrelated challenges: the imperative for decarbonisation, escalating energy costs, concerns over both indoor and outdoor environmental quality, and the operational complexity of integrating decentralised sustainable systems. Topics of interest include energy-efficient and sustainable building technologies, low-carbon heating and cooling systems, energy storage integration, indoor environmental quality and occupant wellbeing, and digital modelling for energy optimisation and decarbonisation. We particularly welcome interdisciplinary contributions that combine engineering innovations, data-driven control strategies, and policy insights to support climate-resilient, occupant-centred transitions in the built environment.

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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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