Special Issue

Advanced Technologies in Energy Consumption and Optimization for Residential Buildings

Message from the Guest Editors

The pursuit of energy-efficient, resilient, and intelligent residential buildings is driving significant advancements in technology, sustainability, and construction design. This Special Issue invites pioneering research that explores how advanced technologies and interdisciplinary strategies can optimize energy consumption and enhance energy efficiency, specifically within the context of the building sector.

To ensure alignment with the scope of Buildings, the focus is on innovations that directly impact residential building design, construction, operation, and performance. We aim to integrate diverse fields—including energy systems, Artificial Intelligence (AI), Internet of Things (IoT), Machine Learning (ML), and sustainable living environments—to highlight the latest methodologies and technologies contributing to energy-efficient residential buildings. This Special Issue aims to bring together cutting-edge research that advances the design and operation of energy-efficient residential buildings. We encourage submissions that present innovative solutions, practical implementations, and theoretical advancements with clear relevance to the building sector.

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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