



Advanced Building Technologies for Energy Savings and Decarbonization

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Message from the Guest Editors

The building sector is one of the primary consumers of energy. Since decarbonization and electrification are our new goals, new and/or advanced building operation strategies or building equipment are needed to maintain or improve indoor environmental quality while minimizing building energy consumption.

The aims and scope of this Special Issue are to introduce advanced building energy technologies, measurement and verification approaches, and fault detection and diagnosis methods using simulation and/or experimental studies to minimize building energy consumption, reduce CO₂ emissions, and improve indoor environmental quality.

To achieve the goals of this Special Issue, we welcome submissions from interdisciplinary and multidisciplinary professional areas, such as computer science, mechanical engineering, and civil engineering, in collaboration with building science and architecture researchers.

We welcome the submission of research that presents views on the utilization of new and advanced technologies in various professional areas to save energy, reduce CO₂ emissions, and improve indoor environment quality in buildings.



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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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