



Smart and Sustainable Buildings: Energy Use, Indoor Environmental Quality and Occupant Satisfaction

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Message from the Guest Editors

Despite the abundance of promising new technologies, we are still witnessing a significant mismatch between potential advancements and the current situation on the market. The European Commission has recently published a methodology to quantify the smartness of a building using a parameter called the Smart Readiness Indicator (SRI). This aims to bring measurable improvements to three key functionalities: 1) maintaining energy efficiency performance and operation, 2) adapting the operation mode to occupant needs, i.e., user friendliness, healthy indoor climate, reporting energy usage, and 3) flexible electricity demand in buildings, i.e., demand-response from the power grid.

The main aim of this Special Issue is to explore best practices and new developments towards smart and sustainable buildings in line with the SRI philosophy. The topics include but are not limited to:

- Smart buildings;
- User-centred control;
- Strategies for improved indoor environmental quality and user satisfaction;
- Performance measurements;
- Reduction in the building energy performance gap;
- Building information and energy modelling;



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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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