

## Smart and Sustainable Buildings: New Trends, Technologies, and Integration in the Energy Transition

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### Message from the Guest Editors

Dear Colleagues,

Buildings' energy consumption represents more than 40% of the energy produced worldwide: about the 50% of this energy is consumed in heating, cooling, and air conditioning (HVAC). Several milestones have been accomplished in the building technology sector in order to improve energy efficiency, with the use of innovative applications able to reduce energy consumption and enhance ... The purpose of this SI is to collect all of the recent and novel contributions, both in the form of theoretical and field-validated studies, on the following topics:

- Efficient management of the building energy footprint;
- Integration of energy generation from renewable sources in architecture and buildings;
- Novel materials, technologies and building techniques for energy efficiency;
- Thermal and environmental modelling of buildings;
- IoT applications in the environmental, energetic, and anthropic monitoring of buildings;
- Energy demand management and forecasting

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# Special Issue

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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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