Special Issue

Building Energy Performance and Simulations

Message from the Guest Editors

The renovation of buildings poses a significant challenge worldwide to achieve sustainable development, to reduce natural resource consumption, and to mitigate climate change. In Europe, this issue has gained prominence due to ambitious targets for 2030 and 2050, aiming to achieve climate neutrality. Achieving these goals requires innovative approaches, with building simulation and modeling becoming essential tools for studying and implementing energy retrofit solutions. This Special Issue focuses on exploring innovative approaches in building energy performance through models and simulations, aiming to showcase innovative technologies and tools that facilitate these objectives and comply with the new Energy Performance of Buildings Directive IV (EPBD). Contributions are invited on a wide range of topics, including energy audits, energy model development, application of innovative tools and algorithms, impact of renewable energy sources, retrofitting measures, and HVAC systems. Additionally, studies on retrofitting historical buildings and integrating sustainable materials are welcome.

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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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