Special Issue

Buildings and Urban Microclimate Challenges: Impacts on Thermal and Wind Environments

Message from the Guest Editors

This Special Issue focuses on the core role of buildings in the urban microclimate environment, aiming to explore the impact of building form, layout, and spatial scale on the urban thermal and wind environments, as well as the corresponding climate-adaptive design and optimization strategies. We welcome research results from various means, such as theoretical research, empirical analysis, numerical simulation, and architectural design practice, to promote the development of climate-adaptive buildings and urban environments. Relevant topics include (but are not limited to) the following:

- The impact of building form and distribution on urban thermal and wind environments;
- The impact of building layout on urban heat island effect and local climate;
- Building and street block design strategies to improve thermal and wind environments;
- Building and urban climate assessment and regulation through big data or AI;
- Microscale and mesoscale local climate analysis based on remote sensing, GIS, CFD, ENVI-met, etc.

For further reading, please follow the link to the Special Issue Website at:
https://www.mdpi.com/journal/buildings/special_issues/KXD9O4890I

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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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