Special Issue

Synergistic Interactions Between Urban Climate and Building Energy System

Message from the Guest Editors

In the face of the huge threats posed by global climate change to human society and the ecosystem, the national strategy of "carbon peak and carbon neutrality" emerged. Cities are confronted with multiple challenges such as frequent extreme weather events, increasing energy demand and rising pressure on environmental sustainability. Especially, urban climate continuously influences the supply and demand balance of urban energy systems and presents temporal and spatial heterogeneity due to the complicated functions and layouts of local-scale urban areas. Urban energy consumption and the corresponding carbon emissions, in turn, have also exacerbated urban climate changes such as global warming and urban heat islands. The coupling and interactions between energy-system optimization and climate-resilient urban construction have become a key factor in promoting urban sustainability. For more information, please visit the homepage of the special issue: https://www.mdpi.com/journal/buildings/special_issues/4A9544PX9Q

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Deadline for manuscript submissions

31 July 2026

Buildings

an Open Access Journal by MDPI

Impact Factor 3.1
CiteScore 4.4

mdpi.com/si/263876

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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.

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