Special Issue

Advances in Phase Change Materials for Thermal Energy Storage in Buildings

Message from the Guest Editors

The need for energy-efficient and sustainable building solutions has driven the development and integration of advanced thermal energy storage systems. Among these, Phase Change Materials (PCMs) stand out due to their superior capability to store and release thermal energy through phase transitions, making them highly effective in regulating building temperatures and reducing energy consumption. With the growing emphasis on sustainable and green buildings, PCMs are expected to become an increasingly important element in modern building practises. This Special Issue aims to highlight the latest advancements in PCM research and application within the context of thermal energy storage in buildings. We invite original research articles, comprehensive reviews, and case studies that address various aspects of PCM development, performance, and integration in building environments to bring together the latest advancements in the use of PCMs for minimizing energy use and enhancing thermal comfort in buildings.

Guest Editors

Dr. Cagri Kutlu

Prof. Michele Bottarelli

Dr. Yuanlong Cui

Dr. Mehmet Tahir Erdinç

Prof. Dr. Yuehong Su

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Buildings
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
buildings@mdpi.com

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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

Prof. Dr. David Arditi
Construction Engineering and Management Program, Department of Civil, Architectural, and Environmental Engineering, Illinois Institute of Technology, 3201 South Dearborn Street, Chicago, IL 60616, USA

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