

Phase Change Materials for Building Applications

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Message from the Guest Editors

Buildings are the most energy-consuming structures, demanding nearly two-fifths of the world's energy generation. Recent studies have shown that building energy consumption could be reduced by using phase change materials (PCMs). This would be an economically viable method of efficiently maintaining buildings' indoor thermal comfort.

In this Special Issue, we invite original research and review articles related to the application of different kinds of PCMs for improving the energy efficiency of buildings. Research areas may include (but are not limited to) the following:

- Preparation and characterization of PCMs for building applications.
- Improving the properties of PCMs using nanomaterials for building applications.
- Stability and reliability studies of PCMs for building applications.
- Numerical analysis of the building structures using PCMs
- Zero energy buildings using PCM.
- Heat transfer study on buildings using PCMs
- Experimental studies on buildings with PCM integrated ceiling, wall and floor.
- Studies on the energy efficiency of the building's glazing windows using PCMs.
- Studies on reducing carbon emissions of buildings using PCMs.



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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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