Special Issue

New Building Materials and Advanced Energy Systems: High-Performance, Low-Carbon, and Environmentally Friendly

Message from the Guest Editors

As the issue of energy consumption becomes increasingly severe, building energy conservation is no longer an option but a necessity. In addition, building materials and energy systems play a vital role in enhancing the overall energy efficiency of buildings. In other words, developing high-performance building materials to reduce heat and cold losses in building envelopes and exploring new energy systems that integrate solar, wind, and geothermal energy in buildings is essential. Relevant research may involve green insulation materials, renewable energy, distributed energy systems, energy storage, solid waste utilization, energy efficiency, zero-energy buildings, etc. These factors form the foundation of future energy-efficient and environmentally friendly buildings, inaugurating a new era of sustainable construction. This Special Issue in *Buildings*, "New Building Materials and Advanced Energy Systems: High-Performance, Low-Carbon, and Environmentally Friendly", welcomes high-quality original contributions and high-impact works that are relevant to the topics stated above.

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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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