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Energy Efficiency and Sustainability in Construction and Building Materials

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Message from the Guest Editors

Dear Colleagues,

With growing concerns over climate change and the depletion of natural resources, the construction industry has recognized the urgent need for energy-efficient and environmentally friendly practices. This Special Issue delves into the latest advancements, challenges, and opportunities in the realm of energy-efficient and sustainable construction and building materials. With a strong emphasis on energy-efficient practices and environmental responsibility, this Special Issue explores key topics such as phase change materials (PCMs), sustainable building materials, concrete innovations, and thermal insulation.

The selected articles and studies within this Special Issue highlight recent research and developments in energy-efficient building design, showcasing the potential of phase change materials (PCMs), proper thermal insulation, and innovative building envelope design to optimize thermal performance and reduce energy consumption. Furthermore, the importance of sustainable building materials derived from renewable sources, recycled materials, and low-carbon alternatives are also emphasized in this 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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