Special Issue

The State-of-the-Art Technologies for Zero-Energy Buildings

Message from the Guest Editors

Transformation of the building sector is one of the most important challenges of today's economy. Increasing the energy efficiency of buildings is an essential step for the future of our planet. This applies to both new and existing buildings. In the area of newly designed buildings, many countries have near-zero energy building standards, while many other countries are just developing such standards. A huge challenge is the thermal modernization of existing buildings, taking into account historic buildings, for which there are often no requirements for improving energy efficiency. Energy transformation of the building sector must be based on scientific analysis and experience. Only by optimizing energy, cost, and environmental impact and with optimal multi-faceted comfort can a new model for the design and construction of new-generation buildings be created. It is also important to work on new, innovative technologies, without which the ambitious goals will not be achieved. We invite everyone to publish their research work in our Special Issue. Your work will help in the inevitable transformation of the construction sector.

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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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