



Healthy, Digital and Sustainable Buildings and Cities

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Message from the Guest Editors

The construction sector, one of the largest industries in the world, is nowadays integrating concepts of Industry 4.0, a practice known as Construction 4.0. Construction 4.0 is based on the digitalisation of industry and the industrialisation of processes. Technologies used for this purpose must also fulfil sustainability measures with respect to environmental, economic and social factors. Economic factors may be analysed from a circular economy point of view. Life Cycle Assessment, a comprehensive tool used to evaluate different products, buildings and systems throughout their life cycle, can be used to fulfil environmental requirements. Social aspects could be analysed in different ways. Thus, ensuring good environmental and thermal comfort conditions for people staying indoors is essential. However, this presents a challenge to establishing energy efficiency in buildings.

Topics of interest include current research in the following areas:

- Sustainable buildings and cities;
- Digitalisation of the construction sector;
- Life Cycle Assessment of buildings materials, systems and buildings;
- Indoor air quality and thermal comfort;
- Energy efficiency in sustainable buildings.





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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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