

Advances in the Implementation of Circular Economy in Buildings

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Message from the Guest Editors

Dear Colleagues,

Society and governments require a more efficient and sustainable built environment. An emergent trend is the circular economy, which aims at decoupling economic growth from resource consumption. Construction has been identified as a field of action by the European Commission's Circular Economy Action Plan. The application of circular economy principles in real estate and building design and use (adaptability, durability, waste reduction and high-quality management according to the European Commission) is mainly focused on new buildings where circularity can be embedded and facilitated since the early design stage and consequently throughout the whole life cycle of a building and its components and materials. Conversely, circularity in the context of existing buildings is not as well defined. Moreover, the lack of a common understanding and open tools to classify buildings' circularity, at any stage in their lifecycle, is a barrier in the application of circular thinking.

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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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