



Low Carbon and Green Materials in Construction

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Message from the Guest Editors

The amount of CO₂ emissions caused by construction industry makes up about half of total CO₂ emissions in the world, and a large portion is generated due to the production of construction materials. For example, the production of construction materials contributes to about 27% of total CO₂ emissions in China. Therefore, the development of low-carbon materials in construction is very important in order to realize carbon neutrality.

A large amount of construction and demolition waste materials (e.g., waste concrete, brick, glass, wood, timber and so on) are generated every year. The recycling of construction and demolition wastes in construction materials can effectively reduce the amount of waste to landfill and save the natural sources. This is important for the sustainable development of the construction industry.

Topics for the Special Issue include (but are not limited to) the following:

- Low-carbon concrete;
- Recycled concrete;
- Alkali-activated materials;
- Ultra-high performance concrete;
- 3D-printed concrete;
- Carbonation.



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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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