Special Issue

Research on the Sustainability of Building Materials: From Laboratory Tests to Real Construction Projects

Message from the Guest Editor

The construction industry, which is responsible for around 40% of global carbon emissions, plays a major role in the deterioration of our environment. Sustainability is an imperative demand for the sector. Historically, the choice of building materials was mainly dictated by local building cultures. The 20th century marked a paradigm shift with the use of industrial materials whose physical and economic performances and production efficiency improved. This Special Issue proposes to study the significant challenges that these materials face in terms of market acceptance and scale-up. For example, economic barriers, such as higher upfront costs and regulatory aspects that prevent the integration of innovative materials into existing building practices, are obstacles that require further study. By studying the deployment of these materials in real construction projects, valuable information on their performance, durability and environmental impact under real conditions may be obtained. Case studies provide critical information on material performance, sustainability benefits and practical challenges encountered during implementation.

Guest Editor

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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.

Editor-in-Chief

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