Special Issue

Durability, Physical Properties and Mechanical Properties of Low-Carbon Concrete Materials

Message from the Guest Editors

Low-carbon concrete—realized through clinker reduction, the use of supplementary cementitious materials and recycled aggregates, as well as CO2 curing/carbonation—has become central to decarbonizing the construction sector. This Special Issue, '**Durability, Physical Properties and Mechanical Properties of Low-Carbon Concrete Materials**,' invites experimental, theoretical, and numerical studies that rigorously characterize, model, and enhance these performances, including fiber-reinforced and self-compacting low-carbon concretes. We also welcome concise contributions that use AI/data-driven methods to accelerate performance prediction and mix-design optimization. Topics of interest include **service-life prediction and reliability assessment**; **coupled deterioration mechanisms (carbonation-chloride ingress, freeze-thaw, sulfate attack, high temperature)**; **fracture toughness, ductility, and energy dissipation**; **as well as standardized/rapid testing methods, databases and multi-scale modeling**. More details: https://www.mdpi.com/journal/buildings/special_issues/7S1WW5H9NE

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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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