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 selfcompacting low-carbon concretes. We also welcome concise contributions that use Al/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

Guest Editors

Dr. Dianchao Wang

Dr. Bochao Sun

Dr. Fubin Zhang

Dr. Chang Sun

Dr. Gaovu Liao

Dr. Nangiao You

Deadline for manuscript submissions

10 May 2026



an Open Access Journal by MDPI

Impact Factor 3.1 CiteScore 4.4



mdpi.com/si/250290

Buildings Editorial Office MDPI, Grosspeteranlage 5 4052 Basel, Switzerland Tel: +41 61 683 77 34 buildings@mdpi.com

mdpi.com/journal/ buildings





an Open Access Journal by MDPI

Impact Factor 3.1 CiteScore 4.4





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

Prof. Dr. David Arditi

Construction Engineering and Management Program, Department of Civil, Architectural, and Environmental Engineering, Illinois Institute of Technology, 3201 South Dearborn Street, Chicago, IL 60616, USA

Author Benefits

High Visibility:

indexed within SCIE (Web of Science), Scopus, Ei Compendex, Inspec, and other databases.

Journal Rank:

JCR - Q2 (Construction and Building Technology) / CiteScore - Q1 (Architecture)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 14.9 days after submission; acceptance to publication is undertaken in 2.7 days (median values for papers published in this journal in the first half of 2025).