# Special Issue

# Advancements in Sustainable Cement-Based and Recycled Materials: Pathways to Eco-Friendly Materials for Buildings

## Message from the Guest Editors

The construction industry is responsible for nearly 40% of global $CO_2$ emissions and generates large volumes of construction and demolition waste (CDW) annually. Despite its potential for reuse, only a small fraction of CDW—including concrete, wood, gypsum, asphalt, and bricks—is recycled. This leads to resource shortages and environmental concerns. The effective recycling and valorization of CDW can help reduce landfill waste, conserve natural resources, and promote sustainable construction practices. This Special Issue focuses on innovative approaches to recycling and reusing waste materials in construction to minimize environmental impact. We invite original research, reviews, and interdisciplinary studies addressing key topics such as:

- Sustainable cement-based materials
- Recycling and upcycling of CDW
- Eco-friendly building material innovations
- Life-cycle assessment of recycled materials
- Policies promoting circular economy in construction
- Industrial applications and case studies

We encourage submissions that integrate scientific research with practical applications, providing insights into the future of sustainable building materials.

## Guest Editors

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## Deadline for manuscript submissions

31 December 2025

**Buildings**

an Open Access Journal by MDPI

Impact Factor 3.1
CiteScore 4.4

mdpi.com/si/228796

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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

Prof. Dr. David Arditi
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