Special Issue

Advances in Sustainable Concrete with Waste Glass: Valorization and Emerging Technologies

Message from the Guest Editors

This Special Issue focuses on recent advances in the valorization of waste glass for the production of sustainable concrete. Waste glass, derived from post-consumer and industrial streams such as container glass, flat glass, and specialty glass, represents a valuable secondary resource within circular economy strategies in the construction sector. Its incorporation into cement-based materials—as an aggregate, a supplementary cementitious material, or a precursor for alternative binders—offers promising pathways through which to reduce environmental impacts while improving performance. We welcome contributions addressing innovative processing technologies for waste glass (mechanical, thermal, and chemical activation), as well as its influence on fresh and hardened concrete properties, long-term durability, and performance under various service conditions. Studies linking waste glass utilization to life cycle assessment, carbon footprint reduction, and resource efficiency are especially welcome. Furthermore, contributions exploring cutting-edge valorization technologies and emerging applications for waste glass in construction materials will enrich this collection.

Guest Editors

Dr. Raphaele Malheiro

Centre for Territory, Environment and Construction, University of Minho, 4800-058 Guimarães, Portugal

Prof. Dr. João Castro-Gomes

Centre of Materials and Civil Engineering for Sustainability, University of Beira Interior, 6200-358 Covilhã, Portugal

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

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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.

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

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