Special Issue

Application of Nanotechnology in Building Materials

Message from the Guest Editors

Nanomaterials, due to their unique physical and chemical properties, such as their high specific surface area, small size effect, and quantum effects, have become a research hotspot in the field of performance enhancement for building materials such as reinforced concrete. These materials show great potential in improving the mechanical properties, durability, and self-healing ability of concrete. In particular, the introduction of nanomaterials can significantly reduce the permeability of concrete, thereby enhancing its anti-corrosion performance, which is crucial for concrete structures used in marine and highly polluted environments. Although nanomaterials have shown positive effects in laboratory environments, they still face a series of challenges in practical engineering applications. These challenges include ensuring the uniform dispersion of nanomaterials in the concrete matrix, long-term performance stability, and considering environmental and health impacts. In view of this, the goal of this Special Issue is to compile and showcase the latest advances in the research and application of nanomaterials in building engineering.

Guest Editors

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Deadline for manuscript submissions

closed (31 July 2025)

Buildings

an Open Access Journal by MDPI

Impact Factor 3.1
CiteScore 4.4

mdpi.com/si/229210

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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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