Special Issue

Building Structural Health: Advanced Technologies and Applications in Monitoring and Evaluation

Message from the Guest Editors

This Special Issue, Building Structural Health, provides a platform for cutting-edge research in **structural health monitoring (SHM)**, **nondestructive evaluation (NDE)**, and **smart diagnostics** for civil, architectural, and infrastructure systems. We welcome academic and industry contributions. Topics include: **Advanced sensing technologies** for **SHM; NDE** methods and **field applications; Data-driven diagnostics** using machine learning, deep learning, and statistical models; **Digital twins** and cyber–physical systems for structural simulation and prediction; **Damage detection, localization, and quantification** techniques; **Signal processing and feature extraction** in time–frequency–wavenumber domains; **Smart materials and embedded sensors** for self-sensing capabilities; Integration of SHM with building information modeling (**BIM**); **Multiscale modeling and performance-based evaluation; Structural behavior under multi-hazard scenarios** (e.g., earthquake, wind, fire, or corrosion); **SHM applications to concrete, steel, composite, and masonry structures; Real-time monitoring systems** for additive and modular construction; **Life-cycle assessment and decision-making tools** for maintenance.

Guest Editors

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Deadline for manuscript submissions

31 October 2025

Buildings

an Open Access Journal by MDPI

Impact Factor 3.1
CiteScore 4.4

mdpi.com/si/240442

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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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