Special Issue

Earth-Based Eco-Efficient Architecture and Construction

Message from the Guest Editors

The built environment is transitioning toward sustainability, low-carbon construction, and resilience. This Special Issue invites research and reviews on earth-based materials, e.g., earthen construction techniques, vernacular architecture, low-embodied-energy formulations, nano-modified/by-product-enhanced earthen mortars, and nature-inspired earthen composites that advance eco-efficient practices. Earth-related contributions on these topics include, but are not limited to:

- Structural and building engineering
- Materials and products: lifecycle assessment
- Heritage and conservation: innovative techniques,
- Earthen contemporary architecture and construction
- Digital technologies for documentation, monitoring, & management of earthen heritage
- Regenerative design and nature-based earthen solutions
- Hygrothermal, acoustic, & energy performance

By bridging traditional materials and cutting-edge technologies, the Special Issue seeks to highlight pathways for sustainable, resilient, and culturally meaningful construction. We encourage interdisciplinary contributions reflecting engineering, architecture, conservation, and sustainability perspectives.

Guest Editors

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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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