Special Issue

Innovative Structural Systems for High-Rise and Large-Span Buildings

Message from the Guest Editors

While conventional mechanical analysis relies on linear and nonlinear analytical theories to ensure structural safety, advanced software and AI systems are being developed to optimize structural shapes for efficiency and performance, leading to increasingly free-form design. At the same time, innovation in structural systems inspired by natural and historical precedents—developing structural solutions through human intelligence—remains important for practical applications. The evolution of structural systems is also increasingly focused on sustainable materials, energy efficiency, and intelligent construction processes. This Special Issue aims to include new theories of structural analysis and smart manufacturing. Submissions focusing on novel approaches using cables, membranes, timber/wood panels, structural glass panels, and folding structures are encouraged, in addition to work on steel, concrete, and related systems. Submissions should clearly articulate both the conceptual development and mechanical principles of the proposed structural forms. We look forward to receiving contributions that will advance contemporary and future architectural design.

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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