Special Issue

Advances in Steel Structures: Testing, Modelling and Design

Message from the Guest Editors

Steel has the equivalent strength of traditional construction material that is three times its weight. Owing to its superior strength-to-weight ratio, steel allows for designing lightweight structural components and is thus increasingly used in construction. The use of structural steel in construction can also reduce the impact of building activities on the environment since it is a recyclable material, presenting a smaller carbon footprint throughout its lifecycle. Moreover, steel can also be prefabricated with highly accurate automation machineries or facilities, enabling improved productivity and quality control. This Special Issue aims to present the state-of-the-art advances in steel-related topics in structural engineering. Topics of interest include, but are not limited to:

- High-strength steel, stainless steel and aluminum alloy structures;
- Hybrid structures with mixed use of different materials;
- Regular and irregular cross-sections;
- Built-up section members;
- Steel–concrete composite structures;
- Steel joints and connections;
- 3D printing;
- Machine-learning-based design;
- Extreme loading conditions, e.g., fire, impact, etc.

Guest Editors

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Deadline for manuscript submissions

closed (10 January 2024)

Buildings

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CiteScore 4.4

mdpi.com/si/134811

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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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