



Latest Advances in Optimized Concrete Mix Design: Assessing Physical Properties, Mechanical Performance and Long-Term Durability

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Message from the Guest Editors

Concrete, a key material in construction, faces demands for improved performance in complex settings. Its mechanical properties are influenced by various factors, making mixed design predictions crucial. AI methods are used to optimize concrete types. Challenges remain in creating durable formulas. This Special Issue highlights recent advancements in concrete performance, durability, life prediction, and mix design modeling, emphasizing carbon reduction and infrastructure resilience.

Contributions to this Special Issue are welcomed in the form of original research articles and reviews, including, but not limited to:

- Optimal design and development of new concrete formulations.
- Algorithmic methods for predicting concrete properties and correlating them with mix design.
- Modeling of concrete properties and their correlation with mixed design.
- Composite structures and steel structure design.
- Analysis methods for structures.
- Dynamic behaviour of structural elements under blast/explosive loads.
- Buckling strength estimation of steel structural elements.

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Special Issue

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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.

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