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Digital Technologies Transforming Construction Design

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Message from the Guest Editors

Due to today's economic, cultural, and political panorama, construction is being pushed to industrialisation.....As a machine, the building is controlled remotely by a digital twin model. Hence, automation is now a part of building processes during construction and in service.

This “digital revolution” has inevitably transformed construction design processes from architecture to engineering. 3D printing has allowed customised pre-fabrication and the return to monolithic construction. Artificial intelligence is giving design the capacity to predict infinite variations. Virtual and augmented reality empowers constructors and building users to connect directly to management processes.

In this Special Issue, a reflection is made on the transformations this digital revolution is generating in construction design, from architecture to engineering, gathering new research trends, case studies, pilot projects, reviews, and state-of-the-art discussions.

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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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