Special Issue

Industrial Manufacturing and Digitalization in the AEC Industry

Message from the Guest Editors

The construction industry continues to face long-standing challenges, including low productivity, fragmented supply chains, skilled labor shortages, and high levels of waste and carbon emissions. Traditional project delivery methods often lack the standardization, scalability, and predictability needed to meet growing demands for sustainable and affordable infrastructure. At the same time, industries such as manufacturing have undergone profound transformation through digitalization, automation, and lean practices, unlocking gains in efficiency, quality, and flexibility. The AEC sector stands at the threshold of a similar revolution, where the convergence of industrial manufacturing and digital innovation offers a unique opportunity to reimagine how we design, deliver, and operate the built environment. This Special Issue seeks to explore how principles and technologies from industrial manufacturing, when integrated with digital tools such as BIM, digital twins, AI, and IoT, can enable new models of construction that are more agile, data-driven, and sustainable.

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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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