Special Issue

Evaluation and Design of Smart-Built Environments Based on Advanced Performance Simulation: From Building to Regional Scales

Message from the Guest Editors

- The global energy shortage and climate change are imposing considerable challenges on architecture, while satisfying the thermal, visual, aesthetic, and sustainability demands. Because of the comprehensiveness of the architecture design targets and their interactions, it can sometimes be difficult for architects and engineers to fully consider the energy efficiency and environmental performances of the various plans while optimizing building designs, whether it is in relation to a single building or a complex of buildings.
- We expect to achieve this target by collecting a series of original research works on architectural and urban designs that are aided by the latest computer simulation and artificial intelligence methods. The works should explore the roles, methods, and potential contributions of the simulation and artificial intelligence techniques in relation to recent designs and optimizations on aspects including indoor environment quality and energy performance, as well as environment, aesthetics, communication, cost, etc., in various spatial and temporal scales, from both architectural and engineering perspectives.

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Deadline for manuscript submissions

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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.

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