Topical Collection

Performance-Based Urban Design: Integrated Urban Analytics, Simulation and Climate-Responsive Design

Message from the Collection Editors

The Topical Collection aims to collect cutting-edge studies related to the application of performance-based urban design in addressing the environmental and social challenges of the cities. In particular, it will carry the advancements in research and practice using urban analytics and simulation to examine the performance of cities with regard to energy use, carbon emissions, urban heat island, daylight availability, wind, outdoor thermal comfort, air quality, and other related indicators. Following sub-themes (not limited) are encouraged:

- Review of historical trends and literature in performance-based urban design
- Novel methods and tools, integrated with urban analytics, simulation and other approaches to examine the environmental and social performance of cities
- Innovative research and case studies of using performance-based interventions in neighborhoods and cities based on criteria such as energy, carbon, urban heat island, and thermal comfort
- Best practices, as well as successful or unsuccessful endeavors, in performance-based urban design
- Future directions in addressing environmental and social issues in cities using performance-based design.

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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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