

Advanced Technologies for Successful and Sustainable Construction and Maintenance Projects

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Message from the Guest Editor

What constitutes a successful project? The recent debate on this question refutes the well-known “iron triangle” to include more factors other than cost, time and quality, such as safety, environmental impact, and client and user satisfaction. Similarly, the environmental concerns of recent decades have posed the question what is a sustainable project? It is well known that factors gravely contributing to climate change and global warming during construction are increased levels of carbon emissions and other atmospheric pollutants, waste generation and natural resource consumption. Therefore, construction projects that cause the least detrimental effect on the environment can be considered sustainable. These can be projects that encompass environmentally friendly construction materials and techniques during their initial construction as well as ecological retrofitting methods and materials during operation. Environmental protection issues augment the complexity of construction and maintenance projects, thus resulting in a greater need for new advanced management and decision-making tools and techniques.



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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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