



Urban Underground Space Design: Structural Stability and Mechanics Analysis

Guest Editors:

Prof. Dr. Jun Wu

Dr. Hao Zhang

Dr. Zhehao Zhu

Prof. Dr. Yi Rui

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Message from the Guest Editors

Dear Colleagues,

As cities globally grapple with the challenges of population growth and limited surface, the use of underground spaces emerges as a solution with great potential. This necessitates a reasonable assessment of structural stability and a serious geotechnical analysis to ensure the safety and longevity of such spaces. From a structural stability standpoint, the intricate network of tunnels, subways, and other underground structures requires a meticulous design to withstand various loads, ground movements, and possible natural hazards. Geotechnical analysis is similarly important, involving the understanding of soil and rock mechanics, groundwater conditions, and the interaction between the subsurface and the constructed elements. These two facets not only respond to the pressing requirement for efficient space utilization in densely populated urban areas but also underscore the academic pursuit of pioneering practical solutions.

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Editor-in-Chief

Prof. Dr. David Arditi

Construction Engineering and
Management Program,
Department of Civil,
Architectural, and Environmental
Engineering, Illinois Institute of
Technology, 3201 South
Dearborn Street, Chicago, IL
60616, USA

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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Buildings Editorial Office
MDPI, St. Alban-Anlage 66
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