

Special Issue

Innovative and Sustainable Materials for Strengthening and Rehabilitation of Building Structures

Message from the Guest Editor

The built heritage of many countries throughout the world is mainly composed of masonry and reinforced concrete buildings, which may have not been designed according to the current regulations and standards or against the seismic action. Moreover, over time, their structural performances could have degraded. Therefore, we must retrofit and strengthen these constructions considering both gravitational and seismic loads. With this purpose, in recent years, the use of innovative materials, e.g., high-performance fibers and different types of organic and inorganic matrices, has become widespread. It is well known that the construction sector is responsible for a huge amount of CO₂ emission and to achieve carbon neutrality in the future, the novel materials must be durable and sustainable. In this framework, experimental evidence supported by numerical simulations should determine the efficiency of these solutions, and, when possible, provide definitions for the design criteria and formulations. This Special Issue aims to collect original papers about innovative and sustainable materials for the strengthening and rehabilitation of existing masonry and reinforced concrete buildings.

Guest Editor

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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

Prof. Dr. David Arditi

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