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Research on Energy Efficiency and Indoor Ventilation Performance in Buildings

Guest Editor:

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Message from the Guest Editor

The energy sector is responsible for a high share of human environmental impact, and this impact is caused by energy production which emits greenhouse gases in the atmosphere and intensifies climate change. Specifically, the building sector is among the main consumers of energy in communities. In addition, more than half of the total building energy consumption is due to heating, ventilation and air-conditioning (HVAC) systems, putting significant pressure on energy supply systems and leading to substantial environmental and economic impacts. Focusing on building energy consumption and ventilation systems, this Special Issue invites contributions describing new research trends, case studies, pilot-projects, reviews and state-of-the-art discussions related to building energy efficiency, ventilation performance, etc.

Submissions may concern theoretical or applied research concerning the analysis and development of building physics and performance evaluations; architectural and constructive solutions; materials characterization and preservation approaches; indoor comfort; or inhabitants' experiences in space use and energy consumption.

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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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