

Special Issue

Physiological Mechanisms of Comfort, Health, and Cognitive Performance in Built Environment

Message from the Guest Editors

The paradigm shift from viewing the occupants as passive objects to active participants is underway. Prior knowledge of human comfort is essential for the optimal control of indoor climate; therefore, to overcome this limitation, a human-centered intelligence control loop (HCICL) has been proposed, where a HVAC system includes the occupants in the control loop. The main objective is to collect real-time subjective opinions from occupants and facilitate data-driven self-learning methods. Setpoint temperature adjustment that incorporates occupant feedback and a personal comfort system (PCS) for individual thermal comfort has already been widely investigated, but such systems have been based mostly on the feedback of users in a stable environment.

This Special Issue endeavors to advance scientific studies focusing on physiological applications in built environments, with the goal being to deepen our understanding of the existing status and limitations of physiological mechanisms in human–building interactions.

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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.

Editor-in-Chief

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