



## SPECIAL SESSION XX

### Systems and strategies for environmental comfort and energy savings in indoor and outdoor spaces

ORGANIZED AND CHAIRED BY

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Energy efficiency actions have a key role to achieve important energy saving. On the other hand, the indoor and outdoor environmental quality (IEQ) monitoring where people spend most of their time is essential for ensuring their well-being. The design and implementation of efficient systems offer various benefits beyond energy efficiency, including enhanced visual comfort, well-being, safety, and productivity. Advanced technologies in systems, such as lighting and HVAC, encompass both hardware and software components, including control algorithms. The selection and installation of new efficient technologies should be aligned with methods and tools for optimizing the design, installation, and testing of the systems and their control, such as Building Automation and Control (BAC) systems and Information and Communication Technology (ICT). To achieve the aforementioned advantages, it is necessary to optimize and test all steps of implementation, ranging from design to post-operational tests. This includes aligning the choice of technology characteristics with methods for evaluating actual performance through measurements and simulation, such as Building Information Modeling (BIM) and Digital Twin implementation and validation of simulation software. Topics for this Special Issue include the following:

- **Optimization methods for smart systems design;**
- **Predictive methods for evaluation of energy savings and environmental comfort;**
- **Digital twin models;**
- **Application of Building Automation Control Systems;**
- **Post-occupancy evaluation to evaluate energy efficiency and environmental comfort;**
- **Building Energy Models (BEM) and Building Information Models developments;**
- **Retrofit actions on lighting, envelope and HVAC systems;**
- **Algorithms and tools for controlling automated systems;**
- **BACs for safety in indoor and outdoor spaces;**
- **BACs for visual, acoustic and thermo-hygrometric comfort.**