

Editorial

International Conference on Building Envelope Systems and Technologies – ICBEST is the premier conference for attendees to benefit from the cutting-edge information on building envelope systems and technologies. ICBEST is a worldwide forum for building envelope architecture and engineering. It provides information exchange, networking, and discussions of recent developments and their application, thus bridging the gap between architects, designers, engineers, manufacturers, and researchers.

The first ICBEST Conference was held in 1994 in Singapore, continuing in Bath (UK), Ottawa (Canada), Sydney (Australia), again in Bath (UK), Vancouver (Canada), and finally in Aachen (Germany), with generally three year intervals between.

ICBEST Istanbul is the eighth conference series that focuses on various aspects of building envelope design and engineering in which the approach is interdisciplinary. Therefore, the main theme of the conference is “interdisciplinary perspectives for future building envelopes”. Main sub-themes supporting the conference topic are Performance & Sustainability, Structural Systems, Materials & Components, Life Cycle, Envelope Technologies, Failures & Refurbishment, and Case Studies. To address the conference theme, nine papers were selected for publication in the special issue of Journal of Facade Design and Engineering (JFDE) from the submitted conference papers, following a blind review process conducted by guest reviewers. The guest editors believe that these papers will contribute to the cutting-edge research and practice in building envelope systems and technologies.

The following papers are included in this special issue:

- In the context of envelope technologies, an innovative approach to retrofitting as it relates to the use of the adaptive ventilated facade module developed in the EU project E2VENT is presented by Basso et al. in “E2VENT: design and integration of an adaptable module for residential building renovation”.
- “Used building materials as secondary resources – Identification of valuable building material and automatized deconstruction”, by Zabek et al., deals with a new approach for deconstructing used building elements and re-introducing them in new construction on a regional scale.
- Basso & Del Grosso have discussed differences concerning the applicability of adaptive structures to engineering problems of different fields in “Directions for the design of energy efficient kinematics in adaptive solar building envelopes”.
- Bauer et al.’s paper, entitled “Climate based daylight simulations with EvalDRC : Analysis of daylight redirecting components”, discusses the tool that was applied to a daylight optimization case study in order to introduce the new developments in daylight redirection simulation into architectural and engineering study programs.
- “Modelling of active solar building envelopes for cost-effective evaluation”, by Maurer & Kuhn, explains the complexities of, and solutions for, solar building envelopes for cost-beneficial designs.
- “A literature review of experimental setups monitoring thermal performance of vegetated facade systems” by Yuksel & Turkeri aims to explain the existing experimental setups for evaluation of the thermal performance of a felt type vegetated facade system, conducted in a temperate humid climate.
- Models of two Daylight Redirecting Components (DRCs) that are generated from measurements are presented in “High-resolution data-driven models of Daylight Redirecting Components” by Grobe et al. The paper concludes that different measurement and modelling protocols should be applied to different class systems, rather than aiming at a common low-resolution discretization.

- The paper entitled “Towards facades as Make-To-Order products: The role of Knowledge-Based Engineering to support design”, by Montali et al., illustrates how Knowledge-Based Engineering (KBE) can potentially support early-stage design integration through the development of a facade product model for automatic rule checking and knowledge reuse.

The relationship between research and practice is an important part the idea of JFDE. Under the chapter 'Applied Sciences' in this issue, we feature a paper entitled “Arup Solar: An innovative app for a parametric, holistic and multidisciplinary approach to early design stages” by Donato et al. which addresses how an app developed by Arup aims to investigate the relationships between envelope features (e.g. window to wall ratio, g values, etc.) and cooling strategies, as well as to identify potential opportunities for renewable solar energy production.

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