

## International Conference on Sustainability in Energy and Buildings

### Invited Sessions

**Title of Session: Advanced building envelope technologies for high energy performance**

**Name of Chairs: dr. Alfonso Capozzoli**

**Description:**

The building enclosure plays a relevant role in the management of the energy and mass flows in buildings and in the exploitation of the solar energy at building scale. The new and tighter regulations concerning energy efficiency in buildings (European EPBD recast), pose new challenge on the research of components, technologies and advanced integrated systems for building envelope. An optimized configuration of the opaque and transparent building façade is considered a crucial step towards the nearly Zero Energy/Emission Building target. In recent years advanced insulating materials and components presenting very high thermal performance or dynamic properties (VIPs, PCMs) have been developed. Moreover some of the most important manufacturers in the field of façade technology have started to develop integrated modular solutions that show an active and dynamic behaviour, that incorporates various components and materials for environmental control and solar energy exploitation, and that can be connected with the building services network.

However, to achieve a satisfactory market penetration and an effective applications of such envelope solutions, some barriers have to be overcome and knowledge needs to be deepened. The main issues are to: find innovative solutions, optimize existing technologies, provide testing procedures and develop suitable numerical models to properly analyze and design these building envelope components. Moreover, their application at a real building scale requires a careful attention to the construction details which mostly affect building envelope performance such as the thermal bridging effect.

Finally, it is also necessary to identify/develop accurate simulation methods and procedures in order to appreciate and certify their energy benefits.

Research and studies on the most promising strategies for the building envelope of the future, including innovative materials, active components and dynamic and integrated solution system to optimize whole building thermal performance will be discussed in this session.

Original papers are invited for consideration on a range of topics related to this special session's theme, that is, but not limited to:

- innovative technologies,
- pilot studies and experimental applications;
- numerical models and theoretical investigations;
- literature critical review;
- energy performance assessment,
- innovative materials and components,
- testing method and experimental procedures.

***Paper formatting and submission procedure***

Submissions for the conference must be made as complete papers (there is no abstract submission stage) submitted as PDF documents through the [PROSE online submission and review system](#).

The accepted and presented papers may be published after the conference in Elsevier's **Procedia Energy** open access journal, available in ScienceDirect and indexed/abstracted in EI Compendex, Engineering Index and Scopus.

The submitted papers will be sent to at least two anonymous referees for review process. After review the editable source files for the paper will be requested for publication.

Full Track papers should be detailed academic articles in conventional format. The guide length for full papers is

8 to 10 pages (maximum).

Guidance notes for the preparation of Full Papers is available [.. here ..](#) and an MS Word template is available [.. here ..](#)

The Australian Research Council Excellence for Research in Australia survey in 2010 (ERA2010) rated SEB as a Grade 'A' (top grade) conference.

## Important Dates & Deadlines

Submission of Full Papers for Review (complete papers, not abstracts): **10 March 2014**

Notification of Acceptance: **10 April 2014**

Upload of Final Camera-Ready Publication Files: **1 May 2014**

### Email & Contact Details:

Alfonso Capozzoli

Politecnico di Torino

e-mail: [alfonso.capozzoli@polito.it](mailto:alfonso.capozzoli@polito.it)