

International Conference on Sustainability in Energy and Buildings

Invited Sessions

Title of Session: Advances in passive cooling techniques

Name of Chair: Dr. Giacomo Chiesa and Dr. Marco Simonetti

Description:

Energy consumption for cooling buildings is a rising voice in national energy balances. This is related to several causes such as climate changes and urban heat islands, international style of buildings, changing in the comfort culture and improvement in life standards, increasing in internal gains. Furthermore, the need for reducing energy consumptions and consequent GHG emissions is an essential challenge for researchers, architects and engineers. Unfortunately, energy standards do not generally consider passive solutions for cooling, considering the high amount of possible tools and the site-specific applicability of these techniques. The session aims in presenting case studies, laboratory tests and breakthrough on passive/hybrid cooling techniques both for preventing/modulating heat gains, and for dissipating heat through thermal sinks (air, water, ground, night sky). Furthermore, the session considers models and design tools for calculating the energy performances of passive/hybrid cooling systems and building integration.

A list of possible topics is:

- Natural controlled ventilation systems
- Direct and indirect evaporative cooling systems
- Earth-to-fluid heat exchangers (air or water)
- Radiative cooling techniques
- Passive and hybrid cooling systems
- Solar cooling systems
- Solar control and mitigating techniques for reducing building cooling load

Website URL (if any):

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