

International Conference on Sustainability in Energy and Buildings

Invited Sessions

Title of Session: Sustainable bio-based building materials and technologies

Name of Chair:

Dr. Giada Giuffrida, Department of Civil Engineering and Architecture, University of Catania, Italy
Prof. Rosa Caponetto, Department of Civil Engineering and Architecture, University of Catania, Italy
Prof. Francesco Nocera, Department of Civil Engineering and Architecture, University of Catania, Italy
Prof. Vincenzo Costanzo, Department of Civil Engineering and Architecture, University of Catania, Italy

Description:

The lively national and international debate on the future of the built environment, called upon to meet increasingly high-performance requirements with adequate environmental sustainability of the entire production and construction chain has, as is well known, placed the emphasis on the possibilities offered by green buildings.

The advantages of using bio-based, natural, recycled, or recyclable materials and green technologies are well known: if produced through a properly controlled and optimised supply chain, these products are non-polluting, reusable, recyclable, and allow the design of solutions with low environmental impact and economic sustainability ensuring, at the same time, satisfactory energy performance and environmental comfort.

The use of natural materials is deeply rooted in vernacular construction, but nowadays these materials need to be enfranchised from this traditional image and aspire to become a competitive alternative in contemporary construction market, guaranteeing measurable performance responses and a real certifiable environmental benefit compared to synthetic and industrial products.

The success of building materials such as unfired earth and, in general, composites based on the use of bio-based materials, depends on the correct and precise characterisation of their mechanical, physical, hygrothermal and durability properties. It also involves certifying the actual environmental potential of bio- and earth-based building materials from a life-cycle perspective, and developing appropriate and dedicated standards which can guide designing with these materials.

This Invited session welcomes original research articles, case studies and reviews.

Topics of interest for the session include, but are not limited to:

- Design and characterisation of innovative bio-based, earth-based, recycled, and waste-based building materials;
- Improvement of mechanical, physical, hygrothermal performances of bio based building materials;
- Durability of bio-based, recycled, earth-based and waste-based building materials;
- Acoustic of bio-materials;
- Hygrothermal and energy performances of green buildings;
- Circular economy strategies for building sustainability;
- Circular building design methods and assessment;
- Life cycle sustainability assessment of building materials and technologies;
- Environmental sustainability of green buildings;
- Innovative technologies for low energy buildings;
- Development of new testing methodologies;
- Construction materials and technologies for sustainability, energy efficiency
- Advances in research methodologies and bio-materials testing
- Green and renewable energy applications in construction

Website URL (if any):

Email & Contact Details:

giada.giuffrida@unict.it

rosa.caponetto@unict.it

francesco.nocera@unict.it

vincenzo.costanzo@unict.it

