

INVITED SESSION SUMMARY

Title of Session:

Sustainable, affordable and smart renovation of existing and historic buildings

Name, Title and Affiliation of Chair:

Dr. Gianluca Maracchini, Università Politecnica delle Marche (Italy)

Dr. Elisa Di Giuseppe, Università Politecnica delle Marche (Italy)

Details of Session (including aim and scope):

Buildings sector accounts for one third of global final energy consumption and around 40% of total direct and indirect CO₂ emissions. Energy demand from this sector has risen globally in recent years and is expected to rise further in the future due to improved access to energy in developing countries, greater use of energy-consuming devices and rapid growth in global buildings floor area.

In the European Union, energy savings in the building sector is considered a top priority in the policy agenda of the Green Deal. **Energy efficiency renovation of existing building stocks towards the so-called “nearly Zero Energy” (nZE) target** will be critical in achieving EU and global climate targets.

However, the current EU annual buildings' energy renovation rate is low at some 1%. To contribute globally to the sustainable development of the building sector, there is a growing need to support and push the so-called **EU “Renovation Wave”**.

States should define proper **support policies, financial incentives and retrofit strategies, pursuing a balance of energy, economic and environmental targets**. In doing so, they should not neglect some others important aspects, such as the indoor thermal comfort and air quality, the historic and artistic value of the building, the involvement of people and their safety.

Indeed, in existing and historic buildings, **energy-saving, sustainable and affordable solutions are not so easily implementable** as in new buildings. There are intrinsic constrains related to technical, regulative and economic barriers. These and other elements still require considerable research and investigation.

This session aims to disseminate knowledge about these issues, with the aim of **finding the best ways to assess and improve the energy performance of existing/historic buildings**.

Original papers are invited for consideration on a range of topics concerning building retrofitting and the several related aspects, i.e.: energy efficiency, indoor air quality, internal comfort, sustainability, costs-benefits, architectural preservation, etc....

Main Contributing Researchers / Research Centres (tentative, if known at this stage):**Website URL of Call for Papers (if any):****Email & Contact Details:**

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