

INVITED SESSION SUMMARY

Title of Session:

Towards Nearly Zero Energy Buildings: issues and potentials

Name, Title and Affiliation of Chair:

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

Details of Session (including aim and scope):

The relationship between a building construction and its final energy consumptions is usually translated into a simplistic deduction: to ensure that the energy consumption of a building is close to zero, it is primarily necessary to dissipate very low heat during the cold season. A global building thermal resistance and airtightness, aiming to minimize heat dispersions by conduction and infiltration, seems then to be one of the most important prerequisites to achieve a "Nearly Zero Energy Building" (NZEB).

According to the EPBD recast 2010/31/EU, a "Nearly Zero Energy Building" means "*a building that has a very high energy performance [...] and in which the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby*". Since EPBD recast does not provide harmonized requirements and details of energy performance calculation framework, it will be up to the European Member States to define what "*a very high energy performance*" and "*a very significant extent by energy from renewable sources*" mean.

Consequently, during last years, several countries have increased their airtightness and thermal resistance requirements in buildings, and the construction market is always more oriented towards "overinsulated" lightweight envelopes and a global reduction of air permeability of windows. Also renovation techniques aim to obtain the same prerequisites, for instance by replacing single glazed windows by new very tight double or triple glazed windows, or by adding interior or exterior insulation. These and other measures, if on the one hand greatly increase the energy performance of buildings, could on the other hand lead to negative consequences, above all in hot climates.

This session aims to disseminate knowledge about the issues and potentials of NZEB in different climatic context and the best ways to improve the energy performance without neglecting the Indoor Air Quality (IAQ) and the general building sustainability.

Original papers are invited for consideration on a range of topics related to this theme: application, case studies, critical review of literature, methodologies, strategies in different climatic context, remedial actions, 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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