ANNOUNCEMENT AND CALL FOR ABSTRACTS

EXPERT MEETING - WORKSHOP ON

HIGH PERFORMANCE BUILDINGS

- Design and Evaluation Methodologies -

24 - 26 June 2013, Brussels
(during the EU Sustainable Energy Week)

Organised by EC-JRC-IET, INIVE-DYNASTEE, ENEA

A **High Energy Performance Building** is a building that consumes as little as possible energy during a whole year for heating, cooling, ventilation, light, hot water and copes with the presence of people and domestic appliances. Such a building is expected to have a climate optimised insulation of its skin and profits from renewable energy resources while using thermal mass to balance thermal energy flows. The building energy systems are very high efficient and innovative technologies that optimise the use of the available energy resources, delivered to the building or available in the environment of the building.

The Energy Performance of Buildings Directive (EPBD) 2010/31/EU (recast) was adopted by the EU Council and the European Parliament on 19 May 2010. It requires that from the year 2020 onwards all new buildings will have to be '**nearly zero energy buildings**' and comply with high energy-performance standards and supply a significant share of their energy requirements from renewable sources.
The development of new design approaches is required focusing more on the energy flows in buildings and requires a more dynamic approach in all topics. The general trend for energy consumption in buildings is a decrease of thermal energy for space heating (more related to energy savings) and an increase of electricity for installations and appliances (more related to energy efficiency). In addition to improved new building design, a more dynamic and intelligent local energy management (ICT) is required that takes into consideration local climate, distributed energy generation and demand and interaction with the grid. Major renovation is seen as an important focus for reducing energy consumption. The significant share and integration of renewable energy technologies in the built environment will be essential for reducing final energy consumption and in particular the reduction of GHG emission. This concept will be applied to building retrofit also.

A philosophy for energy reduction in the built environment should include the methodological approach as well, e.g.:

- Minimise or reduce energy need of the building by improving the envelope insulation
- Maximise or improve energy efficiency of buildings plants (or building energy systems) and equipment (or plug-in equipment, or appliances)
- Optimise or increase use of renewable energy technologies in the built environment
- In relation to primary energy consumption: use fossil fuels as less as possible and if used as efficient possible aiming to reduce the associate CO_2 emissions to the energy need of the building.

- With a better integration of buildings into communities by improving the urban design/planning and the urban energy management in order to optimise the energy performance at community level.

Further reading
The definition of nZEB is one of the hot topics in many recent papers and articles. BPIE [Atanasiu et al. 2011] presents principles for nZEB and the definition problem is discussed in [P. Torcellini et al. 2006]. Also REHVA questions how the definition of nZEB can be made in a harmonised way [REHVA 2011]. These interesting references however are not the intended discussion subject for this workshop.

A solid energy performance assessment for new and renovation buildings is required. Apart from the calculation method itself one needs to know what the boundaries are and how to calculate the energy consumption of a particular building, group of buildings, or community. CEN is currently working on bringing the present EPBD related energy standards in line with these requirements. This needs consideration of renewable energy technologies, the dynamic nature of the building energy flows and occupancy behaviour.

High energy performance buildings can become reality when the design process takes into account the energy flows, in particular from passive solar and landscape design (orientation and immediate environment, including soil) integrated with architectural design. This design will have to incorporate technologies that are related to the envelope (ambient exposed surface area) and space (volume contained by the envelope). In addition information and communication technology is expected to play an important role in optimisation of distributed energy supply and demand.

The organisers would like to focus on the energy related part in the design process of new or renovation buildings that will cover calculation methods (in relation to EU standards and building simulation software), performance assessment methods (including evaluation of data from energy meter readings), integration of renewable energy technologies and variable aspects such as consumer behaviour in relation to smart metering. Through case studies the pitfalls and recommendations in the process towards high performance buildings can be demonstrated.

Submitted abstracts to this event therefore should focus on the most important parts of building energy consumption:

- building energy **needs** and the auxiliary gains due to climate boundary conditions.
- aspects of **efficiency** of building energy installations, **energy resources** and technology
- **consumer** behaviour and thermal gains,
- calculation methods, **standards** and regulation (CEN and national standards)
- **optimisation** of energy use using ICT (intelligent environments, urban areas)
- design **case studies** and building simulation for nearly-zero energy buildings

DEADLINES (severe deadlines)
Deadline abstracts 28 April 2013. E-mail to: hans.bloem@jrc.ec.europa.eu
Notification of accepted abstracts by 15 May 2013
Deadline for Papers 9 June 2013

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