

JRC review

– evidence based recommendations for IEQ inclusion in EPBD

JRC has completed and published the assessment report of the implementation status of the EPBD by the EU MS in terms of ventilation and indoor air quality criteria and requirements, and whether these are enough to guarantee that existing or future high energy-efficient buildings will be also healthy for their occupants. By this report, JRC and the advisory board there REHVA was represented by Jarek Kurnitski, Olli Seppänen and Anita Derjanecz provided an evidence based contribution to the EPBD review process.

The report concludes that a co-ordinated and coherent implementation of IEQ related requirements in building related policies in EU is still missing as from a regulatory point of view this remains under the competencies and responsibilities of the EU Member States with no binding requirements at EU level. This was seen creating obstacles for the implementation of an integrated performance-based approach for buildings' related energy and IEQ issues in Europe. The report stresses that the progression towards meeting the targets for Nearly Zero Energy Buildings (NZEB) by 2020 should be implemented in an integrated fashion together with appropriate strategies dealing with indoor and outdoor pollution sources, ventilation, thermal comfort, acoustics and lighting.

An important finding is that gaps in the national regulatory framework were observed regarding the indoor environment quality (i.e. indoor air quality, thermal comfort, noise and lighting) and ventilation requirements, in particular for existing buildings where health-based mandatory minimum IEQ requirements can hardly be found in several national/regional building codes.

Regarding the ventilation systems, the main conclusions based on the literature review are:

- The reviewed studies show that mechanical ventilation systems in energy-efficient buildings, if properly operated and maintained, lead to an increased removal of pollutants, and thus to an overall improvement of the IAQ and reduction of reported comfort and health related problems.
- In practice, design, installation and operation of mechanical ventilation systems is not an equally preferred solution across the entire building stock of the EU MS due to climatic, cultural and social characteristics and economic possibilities (e.g. different

practices observed among Northern and Southern European countries).

- Generally, the report gives no recommendation on ventilation system type however it acknowledges heat recovery and demand controlled ventilation – the main recommendation is to set a health based ventilation rates.

As a main conclusion, the report suggests to prepare a common health-based ventilation guidance in Europe, that will reinforce the definition and setting of ventilation requirements and metrics based on health criteria to be applied after all possible control strategies of indoor and outdoor pollution sources have been exploited. It is found that there is a need to provide guidance at EU level on proper design, construction, installation, maintenance and inspections of ventilation systems. Inspection and compliance checks of ventilation systems are recommended to become part of energy and IAQ auditing under the EPBD

It can be summarized that this JRC report reveals that the statement in the current EPBD “avoid possible negative effects such as inadequate ventilation“ has been too soft formulation without expected effect. JRC review developed evidence based recommendation how to include IEQ and ventilation issues in energy regulation which are implemented in proposed changes to the EPBD in EC Energy Efficiency Package 30.11.2016. In this new EPBD proposal being now in the EU Parliament, adequate ventilation and minimum health and comfort levels are clearly mentioned in the EPBD Annex 1:

“The energy needs for space heating, space cooling, domestic hot water and adequate ventilation shall be calculated in order to ensure minimum health and comfort levels defined by Member States.” Therefore, it can be expected that in order to implement the proposal all MS should establish minimum ventilation requirements for new buildings and major renovations.

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