

Towards nearly Zero Energy Buildings



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REHVA Journal has recently published several articles on energy efficiency of buildings, particularly after 2010 when the revised Energy Performance of Buildings Directive (EPBD) was adopted. The major challenge in the directive is the requirement for all new buildings to be nearly zero energy buildings (nZEB) by 2020. The definition of how close to the zero the “nearly zero” means was left to Member States. An article in last issue showed how different the current definitions are and how difficult it is to compare the national definitions. In general it is acceptable that all Member States define the national level of energy efficiency depending on their cultural and economic background, but the basic principles should be similar regarding which energy flows are included and how the energy use is expressed. In this area REHVA has done important work which has had an influence on national definitions and European standards. Still many issues are open, like how the renewable energies are dealt with. Should the definition include only on-site energy or should the near-by or even distant sources of renewable energy be included? The debate is understandable as in many instances the investments in renewable energies are more cost effective in large scale central systems than in individual small renewable systems, however, the tradition between the use of centralised and distributed/individual systems vary between Member States. Critical in on-site production and use is how to balance the production and use, an article in this issue addresses this question.

Member States are requested to report regularly to the Commission how the Energy Related Directives are implemented. The next round of National Energy Efficiency Action Plans (NEEAP) is due in April. Some Member States are more active in implementation than others, some even fail to implement and report. A model country in the implementation and reporting has been Denmark. In this issue we publish a summary of Danish policy towards nearly zero energy.

The cases of nearly zero building in this issue show that it is possible to reach very low energy use with minor extra cost, which of course will decrease further when the technology becomes more commonly used. The cases in the issue also show that the requirements can be achieved in many building types and climatic conditions while maintaining IEQ and other attributes: Industrial building and hotel in Austria, single family house in Finland and Belgium, office building in Sweden, an article illustrates that a lot can be done also with historical buildings.

For EU the energy efficient building stock is even more important than for some other countries due to heavy dependency on imported energy. The recent crisis in Ukraine further justifies the stringent energy policy of EU where better energy efficiency of buildings plays a key role. Hopefully, the Member States understand and accept the need of the mandatory requirements for energy efficiency of buildings, even after 2030, as REHVA pointed out in its position paper published in the last issue. Even though the Energy Efficiency Directive sets a target of 3% per year to the refurbishment rate of EU buildings, it will take decades to have all buildings on the same level of energy efficiency as the new buildings.

European technology for nZEBs is advanced and has gained international attention. An article in this issue describes a successful house with European technology in Ontario, Canada. Fortunately also countries outside Europe are interested in zero energy buildings; an article in this issue describes a test house of the leading research institute, National Institute of Standards and Technology in the USA. International cooperation in this area is needed, the challenges are global and the solutions are local, however, similar technologies can be used over the national boundaries. ■