

The road to energy efficient buildings through the eyes of environmental NGOs



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ECOS, a pan-European association of environmental NGOs, and a partner of CEN, is the only organisation representing the environmental interest in standardisation processes at European level. One of their many work areas includes the energy performance of buildings (EPB) set of standards under M/480, which will be published in 2017. Two ECOS representatives share their experiences from the process.

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For the past three years, ECOS has participated in a project to renew a set of CEN standards to support the EPBD recast, requested by the European Commission. In an area of wide national divergence in terms of approach, ECOS maintained a strong and ambitious objective: to contribute towards more energy efficient buildings in Europe by putting forth the environmental perspective, technical field expertise, and a call for harmonisation of European approaches. The project's wide scope and ambitious timeline demanded understanding of the main structure, systematic participation, coordination and cohesion between multiple Committees and experts.

Towards a right pathway

This new set of EPB standards under M/480 will be a valuable set of tools for technical experts, professionals and other stakeholders, offering more detailed possibilities for calculation. Considering the challenges, the size of the task, the timing constraints, and the mobilisation of a great number of experts and committees, the results of this project are truly creditable and valuable. At the same time, the challenges were amplified by the lack of sufficient willingness to harmonise the methodologies and reach a common agreement for parts where there was opportunity to do so. This signifies the need to revisit these standards in the future, in order to ensure their continuous improvement and a higher level of harmonisation.

Resistance to a common approach

The road to a harmonised and realistic methodology that would allow comparing the performance of buildings across Europe requires compromises amongst national representations. That is because the building regulation (mainly applicable for new buildings and building permits) in EU member states is subject of national legislation (the subsidiarity principle according the EU treaty). This means that EU-MS's are free to use the developed EPB standards. Different approaches are traditionally embedded in the methods of Member States without necessarily constituting realistic solutions for all climates. One example comes from prEN 16798-1 (former EN 15251), where four different possibilities to determine necessary air flow rates in residential buildings are accepted, based on air change per hour for each room or entity, outdoor air supply per person, required exhaust rates (bathroom, toilets, and kitchens) or on minimum opening areas. The M/480 requirements of having a common template for declaring national or regional options, boundary conditions and input data, do indeed offer flexibility and a level of transparency, but at the same time, prove insufficient for real and fair comparisons across Member States. The tables with default values offered by the CEN EPB standards provide a limited level of harmonisation being only voluntary.

Nearly zero energy buildings need revised thinking

Standards are living documents in the sense that they reflect state of the art and technological progress in terms of methodologies. That means making the methodology adaptable to taking into account a wider variety of possible use scenarios, different types of buildings and available technologies. The current methodologies still do not address those parameters sufficiently. For example, Nearly Zero Energy Buildings (NZEBs) would require calculation methods closer to the experiences gained from research and monitoring of such existing buildings. Some of these possibilities could now be incorporated in the new standards, such as the option to consider internal gains for the calculation of the heat load. This is necessary, as otherwise due to the

big time constant of NZEBs the calculations result in oversized heating systems.

At the same time, if the standards are to offer a useful and applicable tool for the assessment of real buildings and the implementation of legislation (e.g. certificates), they should be able to produce results that reflect the reality of the contemporary building stock and allow for a fair comparison of building performance across Europe. Therefore, whilst the **methodologies** in the standards should be adaptable and future-proof, the **data and values used as input** to those methodologies ought to be realistic and, as much as possible, harmonised. Otherwise, divergence in fundamental parameters would only portray a theoretical performance, and would not facilitate any comparison via the means of a certificate or other form.

The value of the partial performance indicators

Another issue of major importance in the new set of standards relates to the connection and interlinkages among them, and the detailed analysis of the different building entities of different usages and different mechanical systems. Therefore, partial performance indicators are introduced, which shows the characteristic values for each of these processes and building parts. This is a huge improvement for designers and auditors to identify problems for each part of an examined building, to facilitate the identification of areas of concern (e.g. energy waste), and to encourage long-term, energy-saving measures and investments. Providing a good analysis tool for professionals will also increase the acceptance for this complex calculation methodology. ■

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