

LESSONS LEARNED FROM THE EPBD CONCERTED ACTION

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ABSTRACT

The EPBD (EU Energy Performance of Buildings Directive) Concerted Action is a cooperative effort from all 27 EU Member States (MS), plus Norway and Croatia, together with the European Commission. It is running since 2004, under the Intelligent Energy programme since 2007. It aims at providing support to MS in their effort to transpose and then implement the EPBD, identifying the best solutions and practices that MS can then adopt and thus move towards harmonization throughout the EU. This report briefly describes the lessons learned, with a special highlight and focus on the issues related to ventilation and indoor air quality, as they relate to the preparation of a 2020 scenario of “nearly-zero energy buildings”.

KEYWORDS

Energy efficiency; indoor climate; ventilation; building regulations.

INTRODUCTION

The transposition and implementation of the EU Directive 2002/91/EC, on the Energy Performance of Buildings (EPBD) [1], posed important challenges and difficulties to the EU Members States. It required new building regulations using a more complex common methodology for the energy performance of buildings, as well as the setting up of Certification and Inspections schemes by Qualified Experts. Therefore, the national experts in charge of preparing the technical portions of the EPBD-derived regulations and organizational schemes for compliance checking, certification and inspections decided to informally gather and help one another in finding solutions well-suited for their own countries. The Concerted Action was created with precisely this objective and, in the process, it established close cooperation with CEN as it developed a new set of supporting standards, most notably EN ISO 13790 that is the formal or informal basis for most of the current EU building thermal regulations.

It is relevant to underline that the EPBD clearly states, as its basic objective, the improvement of energy efficiency without any compromises to comfort and indoor air quality, as well as other essential functional and safety requirements. However, still today, very few countries in Europe (and around the World) have integrated indoor air quality requirements in their building energy efficiency regulations [2].

LESSONS LEARNED 2010

The Concerted Action published a set of conclusions and recommendations in 2010 (http://www.epbd-ca.org/Medias/Pdf/CA_Summary%20report_Feb2010.pdf). They had been its contribution in 2009 to the EC and MS in the then ongoing effort to prepare the recast

EPBD. Most of the recommendations, especially those dealing with procedural aspects, were adopted and are now part of the legal requirements included in the recast EPBD [3]. The *lessons learned* are too many to be included here (the reader is advised to refer to the full report), but a few lessons that interact with ventilation rates as they relate to the quantification of the building behaviour can be highlighted next:

- *Intercomparisons of national requirement levels are almost impossible to achieve. Technical and climate conditions have to be included along traditional building styles and user behaviour. Comparisons will become even more complicated if cost aspects are added.*
- *Weather normalisation is a crucial task for both measured and calculated data. Heating and cooling needs cannot be simply corrected by degree days.*
- *The calculated energy rating is influenced by complexity in zoning and accreditation of software. Simplifications in the calculation methods have to be found whereas other methods need to be made more detailed in order to give reliable results with acceptable accuracy in specific situations.*
- *National procedures do not simply refer to CEN standards but, instead, the content is incorporated. Thus CEN standards should be further developed into general framework documents that fix general principles only and allow a maximum of flexibility for the countries' implementations.*

Checking compliance with building codes was identified as a special difficulty, both in terms of logistics and in technical aspects. If calculation methodologies are not clearly defined, it becomes very difficult to check compliance. Accounting for ventilation is a particularly hard task, especially when buildings are naturally ventilated, and this becomes especially important during summer and in the milder Southern European countries, where natural ventilation is an integral part of building tradition and where ventilation is used for controlling both indoor air quality and comfort (temperature and humidity).

CONCLUSION

Much progress has been achieved in the last decade. Building regulations have been involving more and more parameters, but some of the most difficult ones, e.g., natural ventilation, or daylighting, are still either missing or being included in very simplified ways in most countries. EU MS are now being called to transpose and implement the new recast EPBD which, among other items, requires that all new buildings designed and built in the EU must be “nearly-zero energy” buildings by 2018 (Public buildings) or 2020 (other buildings). Ventilation and air-tightness become a critical aspect in the design of such buildings, requiring innovative solutions and highly-skilled work-forces to build them and their technical systems. The Concerted Action continues its work until 2015 to help participating countries address these new challenges.

REFERENCES

- [1] Directive 2002/91/EC, on the Energy performance of Buildings (EPBD), EU Official Journal, 16 December 2002.
- [2] Implementing the Energy Performance of Buildings Directive (EPBD), including Country reports 2010. EU Report EA-30-11-026-EN-C, ISBN 978-92-9202-090-3, Brussels, April 2011.
- [3] Directive 2010/31/EU, on the Energy performance of Buildings (recast), EU Official Journal, 18 June 2010.