ENERGIA KLUB

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ENERGY CERTIFICATE, DISPLAY, LAKCÍMKE

HOW CAN WE USE THE INFORMATION TOOLS SERVING THE ENERGY EFFICIENCY OF BUILDINGS?

Introduction

The fact that the buildings of Europe are responsible for almost half of the total energy consumption is primarily a result of their thriftless energy use. This wasteful practice costs large amounts of money, and it is difficult to predict how long the ebbing fossil energy resources can cover our current demand. We cannot defer any longer the reduction of the energy consumption of our buildings and the related carbon dioxide emission by improving their energy efficiency. Buildings have enormous potential, with savings amounting to as much as ten thousand forints per household, or tens of millions on a local government level annually. Utilizing this potential requires investments, but it cannot be sufficiently emphasised how much the everyday habits of people and sensible energy usage count in this matter. The European Union's Energy Performance of Buildings Directive (EPBD) aims to improve the energy efficiency of buildings using as many of the numerous means as possible.

Adapting the EU legislation into the Hungarian law was a long and difficult procedure evoking conflicts, which divided engineers, local government experts, and decision-makers; but all parties who are devoted to energy efficiency have agreed that the area should be legislated. It is important, however, that the upcoming legislation be functional, that is, providing clean-cut instructions, feasible, easily implementable, harmonised with existing governing legislation, and enhancing energy efficiency. One of the EU's plans in this respect is the introduction of a stricter efficiency requirement system for public buildings.

The analysis of the Energia Klub aims to assist the future creation of public acts that allow sufficient preparation time for those affected and serve the improvement of the buildings' efficiency.

Questions and uncertainties regarding the energy certification of buildings have been rising since the legislation came into effect in 2009. In the one year since, more and more people have become familiar with the certification system, and debates of small expert circles have been replaced with practical questions affecting wider groups.

The original objective of the directive

In order to issue criticism on the related Hungarian legislation, or propose any modifications, all concerned parties must be familiar with the original objectives of the EU directive[1]; any practice deviating from this is deficient.

According to its first article, the objective of the EPBD directive is "to promote the improvement of the energy performance of buildings" (Article 1). Before talking about "promotion", it is sensible to clarify how the energy performance of buildings can be improved: on one hand, it can be done through **investments** (in terms of

[1] Directive 2002/91/EC on the energy performance of buildings

construction of new buildings or renovations); on the other hand, it can be achieved by changing our energy consumption **habits**. Changing our bad habits is especially important because it does not burden consumers with additional expenses; and certain simple solutions can result in savings. These habits can be changed by providing information, awareness campaigns, and setting good examples.

Promoting is done through **economic incentive** tools, and, again, by providing **good examples**. Good examples are necessary for the economic incentives as well.

The focus of the logic of the EPBD directive is an economic incentive idea: the decision of apartment buyers will be influenced by the energetic state of the apartment, verified by certification. The other side of the coin: the apartment owner will have interest in renovation, as it will have a value increasing effect. The legislation cannot pose renovation obligations on the owners; it can only determine minimum requirements for new constructions. Besides, many households have no opportunity to invest.

The directive provides a definitive point: "**Public authority** buildings and **buildings frequently visited by the public** should set an **example**" (16). The reason for this is that the practice of public authorities can set standards; and many visitors frequent these places, therefore numerous people can see an authentic message of improving the energy performance of buildings. Another section of the directive includes **institutions providing public services to a large number of persons** (Article 7 (3)).

The interpretation of such a "message" inevitably requires clear phrasing, an encouraging voice, and setting examples. This is clearly expressed in the directive as well when it advises that "the **dissemination** to the public of this **information** on energy performance should be enhanced by **clearly displaying** these energy certificates" (16), or (Article 7 (3)).

The directive allows the Member States to implement further tools and measures, including **information campaigns** incorporated into other Community programs (Article 12), in order to adequately **spread information** (Article 12) and to **encourage** enhanced energy performance (17).

Summary: the directive puts great emphasis on adequate incentives, information, setting examples; and suggests outstanding roles for buildings frequented by a large number of persons (from authorities to schools).

Forgotten local governments (gaps in the law)

The Hungarian legislations on the certification[2] do not provide easy understanding of the system, and the situation is further complicated if we compare the governing rules with the original EU legislation. While the European directive[3] comprehends the full complement of buildings, with outstanding importance attributed to public buildings visited by large amounts of persons, the Hungarian law leaves this area almost completely out of account. This reveals the most significant deficiency of the Hungarian legislation, namely that there is no obligation of certification for **buildings owned and/or operated by the local government** – schools, kindergartens, hospitals – as opposed to the EU directive.

Different methods, different results

The dispensation of justice is further complicated by the perplexity of methodology applied in certification: the regulations currently in effect[4] allow the use of both engineering calculation methodology (hereinafter calculation methodology) and the so-called measurement methodology based on energy bills (i.e. the actual energy consumption). Both methodologies have their advantages and disadvantages, but it is easily understandable that **it is sensible to use only one methodology for a given building, in a given situation**, as different methods can lead to different results that cannot be compared to one another, which can cause chaos, primarily on the real estate market.

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[2] Government Decree No. 176/2008. (VI. 30.) on the energy certification of buildings, and NTM Decree No. 7/2006 (V. 24.) on the definition of the energy characteristics of buildings

[3] Directive 2002/91/EC on the energy performance of buildings

[4] § 5 of Government Decree No. 176/2008 and § 3 of TNM Decree No. 7/2006

The calculation method

If the plans of the building are not available, the certifier has to **assess the parameters of the apartment on site**: the structures, the thickness of the walls, the size of the apartment, the engineering fixtures, the doors and windows, etc. In the course of the survey, the energetic characteristics of the building can be determined with a calculation similar to energetic engineering, and the results can be compared to the requirements. This method, preferred by engineering experts, is the so-called calculation-based certification. It is easy to see that this methodology reflects the real engineering state of the building accurately, which is necessary for a real estate transaction, for example. The disadvantage of this method is that it requires serious professional knowledge, therefore it is highly costly, especially in the case of a large building with specific functions.

The measurement method

There is another method for certifying buildings, based on consumption. With this method, the property is rated on the basis of **the building's actual energy consumption**. This methodology can be deceiving in the case of apartments, as it reflects the consumption habits of its inhabitants rather than the characteristics of the building, and can lead to different results for two identical buildings. For example, the number of people living in an apartment is an influencing factor. Using this methodology, even a building of very poor energetic state can receive an "A+" rating under extreme conditions, if it is unoccupied for several years, and thus consumes no energy. However, according to the professional analysis[5] made on the subject, and to the European practice, this measurement methodology can be used for buildings with useful floor space larger than 1000 square meters that are used by a large number of persons (most of the public buildings fall into this category), where different individual habits counterbalance each other, thus having a smaller effect on the total energy consumption. This is especially true if the certification's primary function is to inform visitors and alter their perspective; as no change of ownership takes place, thus no real estate transaction. The advantage of the method is that rating – if supported by a suitable software – does not require significant engineering knowledge, therefore it can be applied at a relatively low cost.

Public label, Display, audit...

There are numerous examples in Hungary for the calculation methodology, including the certifications of newly constructed residential properties, and the documents submitted with public energetic procurements; and our project called Lakcímke aimed at the public emphasises the advantages of this methodology. www.lakcimke.hu

The Display system, an informative and perspective-shaping project for local governments, now available in Hungary, also serves the awareness and acceptance of the certification. The support of the Ministry for National Development and Economy made the Display software available for use to local governments and their institutions free of charge in 2010, so that existing local government buildings should also be subject to the obligation of certification. Display provides the rating and the easily understandable communication of the energy consumption of public institutions on a measurement (i.e. actual consumption) basis. http://display.vati.hu

Certification and the Display (international overview)

The European Display Campaign was launched in 2004 on the initiative of Energie-Cités, partly as preparation for the certification, the expansion of which has been financially supported by the European Union for years. Now the Display's energy certification can be found on almost 12,000 public buildings of over 400 local governments. This makes Display the largest voluntary application of the Energy Performance of Buildings Directive (EPBD), and the larger database that enables the comparison of the energy performance of European public buildings.

When France implemented the directive in practice, the government chose to use Display as an additional online calculation and communication system. The administration decided to use the **consumption-based method** instead of the calculation method planned originally. They reduced the initially designed 9 categories (A to I) to

[5] Energy certification method of existing buildings – based on energy consumption, Comfort Consulting Mérnöki Tanácsadó Kft. 2009

the well-known categories from A to G, also used for household appliances. Thus France, similarly to England, is using a dual system: the consumption-based system of Display for public buildings, and the **calculation method** for private, residential buildings and in the service sector.

What is the secret of Display's success? The poster of the program provides information about the energy characteristics of the given building in a simpler, more spectacular and more easily understandable way. It can be a perfect incentive tool, an example to follow, displayed on buildings "frequently visited by the public" (up to a couple square meters in size); it fully functions as an information tool, and special events, games and other initiatives can be built on it (especially in schools) to enhance energy efficiency. Another virtue of Display is that it is much easier to use than the certification.

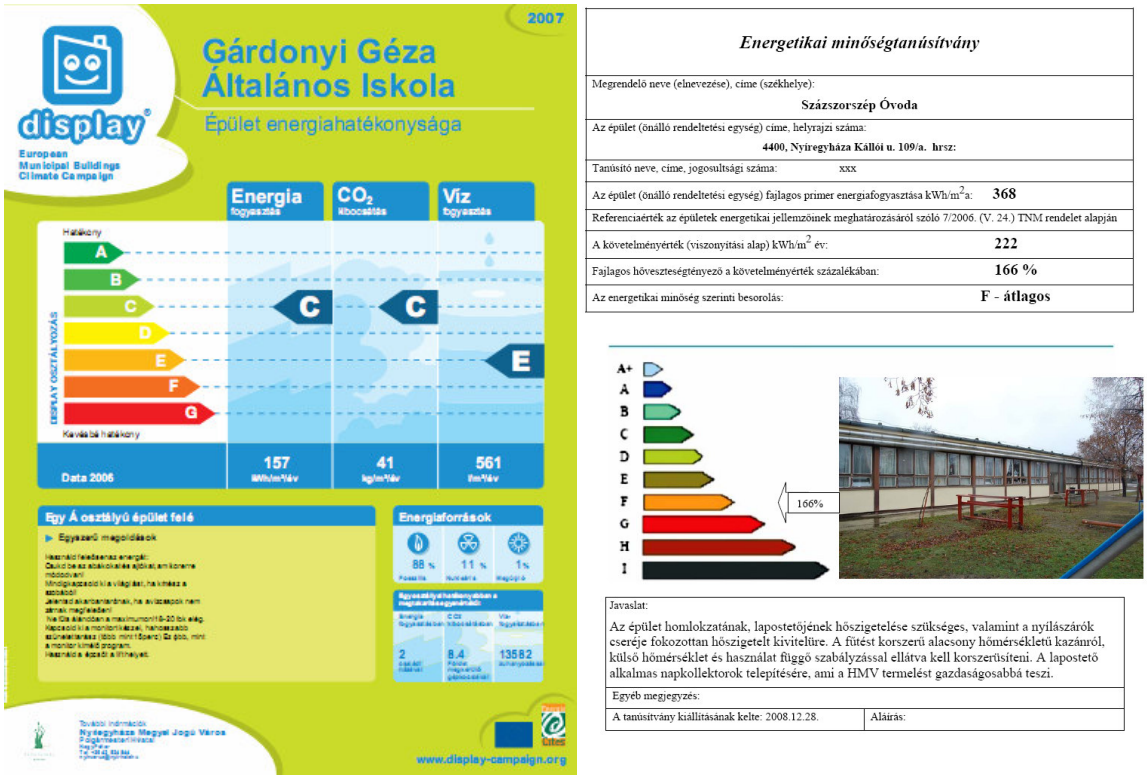

Figure 1: The Display label and the energy certificate specified in the Government Decree (credit: Péter Nagy)

The discrepancies in legislation, the various available methodologies and their contradictive expert valuation makes local governments utterly confused in terms of **what obligations** they have **concerning the certification** currently, and – what is an even more serious problem – they do not know what to anticipate in the future, and how they can prepare to the requirements set by the EU and the Hungarian government. It is difficult to give a definite yes or no answer to the frequently asked question whether the preparation of a Display poster for local government buildings **fulfils** the obligation of certification of local governments, which is not even in effect yet.

On one hand, the answer is no, as nor its scale system, neither its format complies with the currently effective government decree on the certification. According to the relevant government decree, certification can only be issued with authority given by chambers[6], whereas the Display poster of a given institution can be prepared by anyone (a diligent school director, a physics teacher, an agile financial administrator or a handy maintenance man) if they have the annual energy and water consumption data.

But the answer could be yes as well, as Display complies with the original objective of the EPBD: visible, understandable communication, and the exemplary role of public institutions; and the use of measurement or bill-based methodology is acceptable according to both the government decree No. 176/2008 and the TNM decree No. 7/2006.

[6] § 9 of Government Decree No. 176/2008

Why could local governments or state public institutions not certify their buildings using the simple, cost-efficient Display software that needs less expertise, and is used efficiently in several European countries? Why should they spend significant amounts on the work of an energy certifier authorised by the chamber if no engineering modernisation is planned in the given institution but its management finds it important to inform the users of the building on energy consumption and wishes to raise awareness on the importance of conscious energy consumption? Why could they not use the Display software to compare the energy consumption of their own institutions in order to filter out the ones using extreme amounts of energy or to facilitate decisions on which buildings should undergo certification or an engineering audit?

The free use of the Display system in 2010 provides local governments with an excellent opportunity to receive a comprehensive overview on the energy consumption indicators of their public buildings. This data stock could help local governments in making well-established, objective decisions in the framework of their annual renovation plans. In other words, with the use of Display the energy consumption could be more articulated in the decision-making process beside aesthetics (worn-down, shabby buildings) and function, and solutions enhancing energy efficiency would be favoured. They might even participate in energy efficiency procurements with greater enthusiasm and more often, as the characteristics of the buildings would be spectacularly shown in the Display statistical tables.

Suggestions

There is great need for clarification of the chaos surrounding the certification, and for **the creation of a comprehensive legislation** that gives **unambiguous answers** to the questions regarding **methodology** and application in different situations.

It is necessary **to harmonise and consolidate the two types of label systems** (that of Display and that of the Government Decree) because it would facilitate understanding. While the international practice has various label layouts and scales, the official Hungarian scale is one of the more difficult ones. The ten-stage scale (from A+ to I) is not necessarily warranted if the aim is considered to be comprehensible communication and the definition of categories that can be identified and understood by inexpert persons. Decision on the scale to be used should be made upon expert debate, but consolidation is warranted in any case.

Display is suitable – with some transformation or harmonisation, if needed – **to be a simple, cost-efficient certification system for public institutions that adequately serves communication goals as well**, which enables the operators of the buildings owned by the local or state governments to fulfil their legal obligations. In order to accurately determine the system characteristics customized for the Hungarian public institutions, a large number of institutional consumption data is needed, which is one of the reasons why more and more Hungarian local governments should start using Display.

When preparing large investments, however, when the given public institution requires state or EU subsidies, it is still warranted to employ a professional expert to issue an energy certificate based on calculation, **using the engineering parameters of the building**.

The Energia Klub prepared this analysis based on discussions, debates, and correspondence with energy experts, certifiers, local and state government persons and inexpert property owners, and written publications published on the topic. The contents of the analysis reflect the opinion of the Energia Klub, the opinion of the experts interviewed is not necessarily and completely equivalent with it.