# RECOMMENDATIONS TO IMPROVE THE EPBD IMPLEMENTATION IN BELGIUM

**December 2006**

## IMPACT

**Improving energy performance assessment and certification schemes by tests**

Report no.: IMPACT/ 27-28 / 2006/WP2.5
EC-contract: EIE/04/161/S07.38659
www.belgium.e-impact.org

Intelligent Energy Europe

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**Date:**
December, 2006

**Report no:**
IMPACT/28/2006/WP2.5

**EC contract:**
EIE/04/161/S07.38659

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**Supported by:**

Intelligent Energy Europe

# Project description

The background of the IMPACT project, which is conducted in the framework of the Intelligent Energy Europe Programme, is the implementation of the Directive on the Energy Performance of Buildings (EBPD) in 2006. In existing building certification schemes barriers have been reported regarding quality, the communication aspects, the certification of apartment buildings and lack of expert (auditor) capacity. In order to have an impact on the energy consumption of buildings all aspects in the certification process need to be addressed. In order to contribute to tackling these barriers IMPACT has the objective to:

1) Test energy performance certification for existing buildings in practice in 6 country pilots
2) Exchange experiences and success factors
3) Derive recommendations for improvement of tools, certification schemes, training of experts and communication
4) Support the EPBD implementation process in 6 countries
5) Disseminate project results on a National and EU wide scale

The tests are conducted in: Belgium, Denmark, France, Germany, The Netherlands and Spain.

Target groups for IMPACT are:

- National stakeholders responsible for EPBD implementation (ministries, building research institutes, national energy agencies)
- Market actors (experts, building owners, intermediary organisations like real estate agents or municipalities).

The project is divided in work packages with the following main deliverables:

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| WP1 | Test preparation | Overall report on national test approaches |
| WP2 | National tests | National test reports (6)<br>Overall report on national tests |
| WP3 | Evaluation and synthesis | Synthesis report with best-practice approaches and guidelines as basis for dissemination activities |
| WP4 | Dissemination | EU newsletter<br>National newsletters<br>National workshops for implementation stakeholders<br>National workshops for markets actors |

## Project partners

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| Ecofys<br>Netherlands | |
| SenterNovem<br>Netherlands | |
| Deutsche Energie-Agentur GmbH (dena)<br>Germany | |
| Tribu-energie<br>France | |
| Danish Building Research Institute (SBi)<br>Denmark | |
| Belgian Building Research Institute<br>BBRI / WCTB<br>Belgium | |
| 3E N.V.<br>Belgium | |
| Ecofys S.L.<br>in cooperation with Generalitat de Catalunya and ADIGSA<br>Spain | |

# 1 Introduction

During the European SAVE project impact; national tests about the implementation of the energy certification in existing dwellings have been conducted in Belgium. From these tests, recommendations to improve the EPBD implementation in Belgium have been derived. These recommendations only address the probably most visible part of this directive: the energy certification of building.
This report available in French and Dutch contains these recommendations. This report in extracted from the Belgian report (only English version) containing the complete results of the tests.

# 2 Recommendations to improve the implementation of the energy certification in existing residential buildings

## 2.1 Recommendations for national EPBD implementation

This chapter contains recommendations regarding the EPBD implementation in Belgium. It is more specifically the certification process that is considered here.
The first question about the certification procedure of existing buildings is which balance between the time required to deliver one certificate (and thus the cost of a certificate) and the level of detail / accuracy is desired. The choice of the adopted methodology should be done based on this starting point.

### *2.1.1 Harmonised framework*

The three Belgian Regions have developed the existing EAP scheme together. It is of first importance to keep a harmonised framework with the compulsory final certification scheme. The market penetration of the energy certification and the public awareness in all regions will be favourably influenced if coherent schemes and documents are delivered in the whole country (see also §2.2).
Mutual recognition of experts from other Regions is currently not foreseen, but would be highly appreciable.

### *2.1.2 Calculation procedure*

Regarding the calculation procedure, three procedures are mainly available in Belgium:

- The EPW procedure applying on new residential building in the Flemish Region,
- The EPU procedure applies on new schools and offices in the Flemish Region,
- The EAP that delivers energy advice on a voluntary basis to existing single-family buildings,

The comparison between the two procedures applicable on residential buildings has show that significant differences in the calculated energy consumption of a same building can be observed. These differences are mainly due to differences in convention that can easily be corrected.
Similar differences could be observed with other existing methodologies available in other countries. Attention should be paid to insure a maximal coherence between the different procedures applicable in Belgium in order to get comparable results when analysing a similar building with different methodologies.

The EAP contains a lot of default values. The training of experts are giving clear messages about the way to use default values or more precise information. The certification methodology should provide to experts a comparable methodology.
In the certification, specific attention should be paid to the evaluation of the available ventilation measures in the existing building stock. This allows comparison with new buildings, for which obligatory regulations exist. Possibly also other indoor comfort parameters that influence the energy consumption need to be addressed.

### 2.1.3 Experience in other European countries

Interesting experience e.g. in Denmark or in Germany are available. The realised analysis however shows that some mechanisms in place in these countries (e.g. ways flats are taken into account) are not transposable without any changes in the Belgian context. The experience available in other countries is helpful but always has to be considered by taking the local context into account.

### 2.1.4 Possibilities for simplification

The development of the EAP was started at a time when the discussion about EPBD had not started yet. The focus was to collect detailed information in order to be able to provide detailed advice to the building owner. On average, the existing EAP for residential building requires about 12 hours of work. The study realised during this project has shown simplification possibilities. Adaptations to the software could also allow reducing the time required for entering the data. However, the order of magnitude of the required effort to analyse one building with the EAP can not be reduced dramatically, except if an even more simplified version, working mainly with default values is elaborated. Default values for U-values and / or shell areas can highly reduce the inspection time but will reduce the accuracy as well. This option could be developed without significant development costs since it consists mainly in developing default values.
Still reducing the time necessary to deliver one certificate (e.g. to two hours per building) could be realised by adopting alternative procedure. The following elements have to be taken into account in this case:

- The procedure has to be adapted to the Belgian context. Several tools developed in other European countries are not always usable in the Belgian context because of lacks of these procedures on specific Belgian technologies (e.g. type of heating systems taken into account),
- The lower the level of detail of the data collected on site, the lower the possibility to deliver accurate recommendations,
- The highest possible coherence with other certification procedures (e.g. for new buildings) should be guaranteed,
- The compatibility of the existing training of energy experts organised up to now in Belgium should be guaranteed if a new procedure is adopted; even if a limited update of the already followed formation could be realised,

However the question remains if the procedure should be further reduced:

- If the advice is custom-made (not general), the experts are independent and if quality is guaranteed (by an official authority) end-users are willing to pay a fair price. Furthermore, the cost of certification will always be marginal compared to the purchase cost of a building.
- In the case of renting this cost is more of an issue, but reduction should maybe found on the level of legislation, rather than procedure-level. E.g. student housing, holiday flats <50m², … could have different requirements.
- A large number of experts will already be available through the existing schemes. This should be exploited to counter a possible lack of experts in the initial phase of the official certification.

### 2.1.5 Flats

Flats are raising specific questions compared to single-family buildings. A study about the way to extend the EAP to apartment building has been realised **Error! Reference source not found.**. This study points out a set of differences that require specific solutions. Sophisticated heating systems can for instance be installed in apartment buildings. The way to take these systems into account could require extra competence from energy experts. It is therefore not evident that certifiers working in the field of single-family residential building can also work in the field of flats or, even more, in non-residential buildings.
A pragmatic solution should in first instance be adopted. This solution could in the future be refined according to the experience with this procedure.

The energy certification of buildings is currently introduced in Belgium. Everyone renting or buying a building will be confronted with this document. The exact way this will occur still has to be developed. The credibility of the whole process is important to give the certificate a market value. Showing that a building complies with a given regulation is not sufficient. Wrong certificates presenting better results than in reality - even if the required levels are fulfilled - should also be penalised. The decision currently made by the Regions should keep this element into account.

## 2.2 Recommendations for other countries

The Belgian building stock is relatively old and important energy savings can be realised in this sector. In Belgium, it is very rare to find two similar buildings. Very limited scale effect can be realised at the level of the energy certification of buildings as it could be the case in The Netherlands for instance where the certification of one building could be used for the certification of a high number of similar buildings. A variety of different heating systems is also present in Belgium.
Belgium is a federal state and it is the Regions that are competent to implement the EPBD. It means that, in the worst case, 3 different solutions to implement the EPBD could be adopted in the three Regions in a country of about 10 million in-

habitants. Coherence at the national level of the tools and procedures implemented seems a must. The multiplication of specificities in the legal context at the Regional level highly increases the risk of confusion. It is highly desirable that a uniform energy certification system will be introduced in the different Regions. At least, the layout of the certificate should be coherent between the different Regions in order to increase the market penetration of this new document.

Up to now no practical experience is available with the official energy certification of buildings. A voluntary procedure (EAP) giving energy advice is implemented since September 2005. Practical experience with this procedure is growing. The start of this procedure in the Flemish Region is up to now rather timid with about 120 audits realised in 9 months.

Some interesting initiatives in the Belgian context can be mentioned:

- The creation of central database collecting the xml files each time a certificate is delivered. This will allow to have detailed statistics about the energy certificate an more in general about the building stock,
- The procedure implemented at the level of the building permit in the Flemish Region in order to guarantee an efficient control. The proof of compliance with the regulation has to be given at the end of the works. A dedicated actor (the reporter) is in charge to establish an as-build report describing the energy performance of the building as build. Fines are foreseen if the legal requirements are not fulfilled. It's possible to calculate this fine directly in the software, allowing making the calculation yourself before the building permit.
- A discussion forum for experts, under the supervision of the administration has been set up in the Flemish Region. This allows experts to discuss about the procedure and about specific cases. Answers to specific question are most of the time provided by other experts.

Some other elements should be avoided:

- The current version of the EAP advice provided to the owner contains too many pages and has a tendency to dilute the essential information. This document could be condensed into a shorter advice.
- The advice and the certificate should include a picture of the building allowing the owner to directly identify the building. This element is appreciated by the end-users.

The requirements about the qualification of energy experts (applying the voluntary procedure in existing dwellings) are also different according to the Regions. The future will show which option is the most relevant one.

- The Flemish Region requires a secondary school diploma and the experts have to succeed in an exam,
- The Walloon Region requires a degree equivalent to architect to be able to follow the training. At the end of the training, they also have to succeed in an exam.