



## Applying the EPBD to improve the Energy Performance Requirements to Existing Buildings – ENPER-EXIST

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by J.-C. Visier and R. Lahrech (CSTB)

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by H. Erhorn. H. Erhorn-Kluttig (FhG-IBP)

### Announcements workshops conferences etc.

First workshop of ENPER-EXIST in Brussels, 22

September 2005, at

AIVC conference for further information see:

[www.enper-exist.com](http://www.enper-exist.com)

AIVC conference on ventilation and energy efficiency in buildings in

Brussels, 21-23 September 2005

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### Start of ENPER-EXIST, a project in the EIE-programme of the EU supporting the implementation of the EPBD

The Energy Performance of Building Directive (EPBD) sets a series of requirements specifically dedicated to existing buildings but the member states are facing difficulties to implement quickly these requirements. The main goal of the ENPER-EXIST project, which has officially started in January 2005 is to support the take off of the Energy performance of building directive (EPBD) in the field of existing buildings.

ENPER-EXIST has 4 main objectives:

1. To de-fragment technical work performed on existing buildings. Indeed actions already launched in CEN to apply the EPBD are de-fragmented but mainly focus on new buildings. On the other hand different projects on certification procedures are going on at the European level but are not coordinated.
2. To de-fragment work on legal, economical and organisational problems such as the analysis of certification on the market, the human capital and the national administrations.
3. To achieve a better knowledge of the European building stock.
4. To define a roadmap for future actions regarding existing buildings.

ENPER-EXIST will use an intensive networking of existing national and international projects to reinforce efforts to solve these issues. It intends to work in close coordination with the Concerted Action set up by Member States to support the application of EPBD. The work program is split in 4 technical work packages in addition to dissemination and management activities.

### WP1: Tools application

WP1 will analyse how existing buildings are taken into account in technical tools such as CEN standards, national calculation procedures. Recommendations on how to improve the consideration of existing building will then be defined.

### WP2: Legal economical and organisational impact

WP2 will analyse the impact of the certification procedures and regulations of existing buildings on the market, on the human capital and on the national administration. Surveys will be carried out in the different member states and recommendations will be drawn up.

### WP3: Building stock knowledge

WP3 will analyse the level of information available in each country regarding the existing building stock. A procedure enabling to refine this information and ways to use the certification procedure as a tool to collect data regarding this stock will be developed.

### WP4: Roadmap

An overview of possible legal measures for existing buildings will be written. Indications are given about alternative strategies to improve on a wide scale the energy efficiency of existing buildings. Possibilities (including pro's and cons) to widen the scope of the EPBD in case of a future revision of the requirements of the directive will be described.

A website, newsletters and workshops will enable a strong interaction between ENPER-EXIST and different interest groups and a wide dissemination of ENPER-EXIST results. The workshops are organised with the different actors involved in the application of the EPBD.

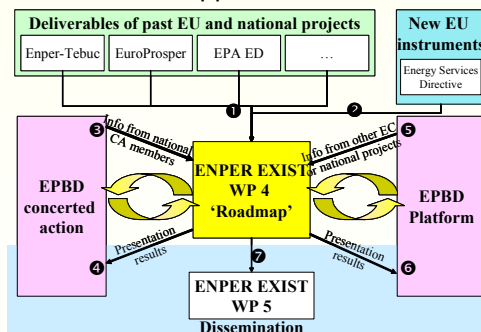


Figure 1: Interaction between ENPER-EXIST and other actions

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## Planned German implementation of the EPBD requirements: The new DIN V 18599, a holistic design tool

The series of regulations DIN V 18599, the German implementation of Art. 3 of the EPBD, provides a complex method to assess the total energy efficiency of buildings. The calculations allow to evaluate all energy demands for heating, domestic hot water, ventilation, cooling, air-conditioning and artificial lighting. The code also takes into account the interactions of energy flows and the resulting design consequences.

Besides the calculation method the DIN V 18599 also includes user dependent boundary conditions for a neutral assessment of the energy demands (independent from individual user behaviour and local climate data). The norm is appropriate to determine the long-term energy demand of buildings or building parts and to rate the possibilities to apply renewable energies to buildings. The code is designated for all, new and existing buildings and retrofit measures.

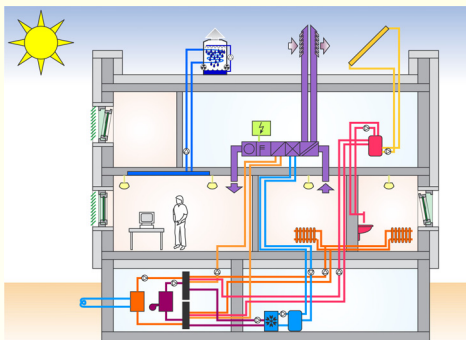


Figure 2: Building and HVAC components included in the calculation method of the DIN V 18599.

The code consists of 10 different parts. The rules for zoning and the interaction of the parts are defined in part 1, parts 2 to 4 contain the calculation methods for the net energy demand of the conditioned building zones. Part 5 to 9 deal with the final energy demand for different HVAC systems and part 10 comprises the boundary conditions and standard profiles for different building uses. The parts can be combined arbitrarily according to the system equipment. The interaction between room balance and HVAC system can be represented by interfaces.

The evaluation of the primary energy demand is carried out by factors depending on the energy source defined in part 1. Because of the multiple user profiles the calculation method can be applied to dwellings and to non-residential buildings as well as existing buildings. The series of regulation codes is leading the way in Europe and has significantly influenced the work in the CEN field. Presumably the code will be available at Beuth publishing in June 2005.

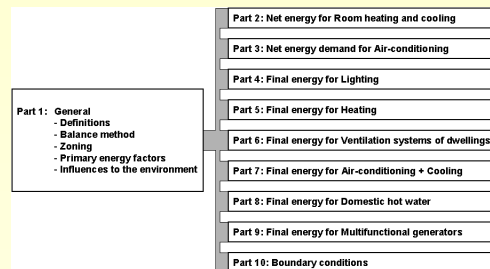


Figure 3: Structure and content of the standard.

The calculation method was first applied to the renovated headquarter of the EU-Commission in Brussels, the Berlaymont building. There the certificate will be presented in the main entrance. The method will be applied to other buildings within the ENPER-EXIST project and will be the German regulation code for energy certificates for non-residential buildings.

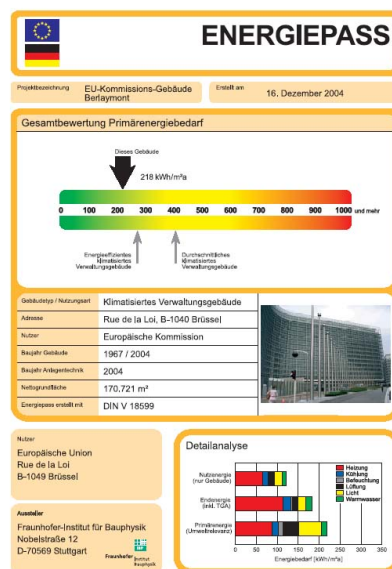


Figure 4: Energy Performance Certificate of the Berlaymont building in Brussels.

written by H. Erhorn and H. Erhorn-Kluttig, FhG-IBP

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[www.enper-exist.com](http://www.enper-exist.com)