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Newsletter

7, May 2006

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

Content:

Announcements workshops conferences etc.

4th European conference on energy performance and indoor climate in buildings (EPIC), 20-22 November 2006, Lyon including 3rd ENPER-EXIST workshop
for further information see:
http://epic.entpe.org

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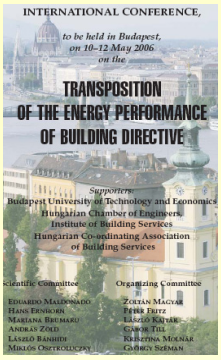
ENPER-EXIST informs on calculated and measured rating procedures at EPBD conference in Budapest (part 1)



The 2nd ENPER-EXIST workshop was held on May 10th, 2006 at the International Conference on Energy Performance of Building Directive in Budapest, Hungary.

The workshop under the header "Applied Science meets Daily Practice" was joined by the two other IEE SAVE projects EPA-NR and EPLabel as well as the EU Concerted Actions project and was given a prominent place in the conference as first session right after the opening session. About 120 participants, mostly from Hungary but altogether from 17 different countries, were informed on different possible rating procedures that are developed in the SAVE projects. Additionally a second part summarised Member States experiences with rating procedures contributed by the Concerted Action coreteam "procedures".

The workshop was chaired by Jean-Christophe Visier from CSTB and Hans Erhorn from Fraunhofer-IBP, coordinator respectively work package leader "dissemination" in the ENPER-EXIST project.

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It started with a presentation by Gordon Sutherland (up right) from the EU Intelligence Energy Europe Agency who is the project officer for the IEE SAVE projects. He told the audience about "what is Intelligent Energy Europe?" and reported on the SAVE projects of which 14 ongoing projects are supporting the EPBD implementation. Article 3 (calculation procedure) is covered by the projects ENPER-EXIST and EPA-NR, article 4 (minimum energy performance requirements) by E-Tool and additionally by ENPER-EXIST, EPA-NR, EPLabel. EPLabel and IMPACT are working mostly on Article 7 (energy performance certificate) whereas AUDITAC contributes to Article 9 (inspection of air-conditioning systems). Article 10 (qualification of certifiers) is covered by EEBD and BUDI and STABLE work on functional markets through information. The project TOWARDS CLASS A is preparing the ground for the take-off of the EPBD. For more information on the EPBD text including all articles see www.enper-exist.com. The SAVE projects share a common website portal at http://ec.europa.eu/energy/intelligent/projects/save_en.htm. A matrix on the projects and tasks gave an overview on what parts of the EPBD implementation are already supported by SAVE projects and what parts might need to be looked after in the future. G. Sutherland also informed the audience on an upcoming Info Day on Converting Policy to Action organised by IEEA in Brussels on Tuesday, May 30, which is also broadcasted on the internet (http://ec.europa.eu/energy/intelligent/events/infodays_en.htm). The IEE (Intelligent Energy Europe) programme is

ENPER-EXIST informs on calculated and measured rating procedures at EPBD conference in Budapest (part 1) (cont.)

running out at the end of 2006, but the Commission and the Agency are already working on IEE II, which will support projects in 2007 to 2013.

Jean-Christophe Visier explained the background of the ENPER-EXIST project that will at the end deliver a roadmap for actions that go beyond the EPBD. A toolbox on possibilities for supporting and accelerating a further development in the energy efficiency of buildings will accompany the roadmap. Other parts of the work in ENPER-EXIST cover the assessment of CEN standards for the EPBD with focus on the practicability for existing buildings, legal, economical and organisation issues in connection with the EPBD implementation, building stock knowledge and dissemination. He informed on the planned next ENPER-EXIST workshop, which will take place at the Lyon European Conference on Energy Performance & Indoor Climate in Buildings (EPIC) on November 20-22, 2006. (http://epic.entpe.org/).

The EPA-NR project was introduced by project coordinator Bart Poel (ebm-consult, down left). It develops an assessment based on calculated data. The assessment process deals with the trade-offs between effective and efficient process (costs vs. accuracy) and harmonisation vs. flexibility in practice. The EPA-NR procedure covers the basic stages: intake, data acquisition including the use of default values, calculation and analysis of the building as well as the report at the end of the assessment. Important points are the reproducibility in the certification and the accuracy in the assessment. EPA-NR includes deliverables to both, the policy makers and the practitioners. Pilot studies are conducted and observer countries can join the project with their own pilot projects and therefore contribute to the project with their experiences. For more information see www.epa-nr.org.

Robert Cohen (ESD) on the other hand talked about EPLabel – a graduated response to EPBD energy certification based on operational rating. He stated that two parallel universes exist: the IT world with asset/calculated rating and the real world with operational/measured rating. EPLabel works on a 5-step procedure for the assessment, that means a graduated response strategy, which include progressive levels for e.g. the benchmarking (from entry level to customised). He concluded his presentation with a demonstration of the software for the operational assessment of the energy performance of buildings. The software, a one page data input sheet that produces a certificate will be available on the website (www.eplabel.org) at the end of the project.

Dick van Dijk (TNO, down left) reported on the first results of the ENPER-EXIST work, the assessment of the applicability of the CEN standards to existing buildings. The work aimed at identifying gaps between CEN standards and the practice for existing buildings plus the recommendation for improvements to CEN. The assessed CEN standards were the standards on the energy needs for heating and cooling as well as the system standards (heating, cooling, ventilation and lighting). The main identified gaps are that some CEN standards require too much detail (e.g. calculation of thermal bridges) during the data acquisition and the calculation whereas other important influences like the ageing of products is not considered. The recommendations from ENPER-EXIST shall include the advice to use simplified methods in case of existing buildings such as alternative methods based on national experiences. For that the work package will conduct tests on the

acquisition of inspection data.

The first part of the session was closed by a an expert tandem interview and a discussion round. Jean-Christophe Visier (JCV) interviewed Bart Poel (BP) and Robert Cohen (RC) on the advantages and disadvantages of their assessment procedures (EPA-NR and resp. EPLabel). The first question was to which kind of buildings the measured or calculated rating was most adapted. RC answered that the measured rating suits best the public buildings as these are never subject to sale or rent and therefore the certificate on the energy used in the past is a good indicator for the future. BP stated that by using a standard user and a standard climate the focus is on the building independent from the current user behaviour, which makes the comparison with other buildings easier and more reliable, which is in line with the EPBD. RC agreed that for new buildings the rating has to be calculated and in the cases that new buildings are compared with existing ones, the existing

ENPER-EXIST informs on calculated and measured rating procedures at EPBD conference in Budapest (part 1) (cont.)

buildings should then also have calculated ratings. Yet after a few years the former new buildings are existing buildings and a measured rating is possible again. He also referred to possible massive gaps between design and reality. BP replied that the gaps are mostly caused by using wrong user behaviour used for the design calculations.

JCV then wanted to know what is the additional work that is required by the countries when using the two methods. BP elaborated that the EPA-NR method is a generic method. Adaptation would mainly be necessary at the inspection protocol. The software is applicable everywhere in Europe. The main work will be to assess for example the U-values during the inspection. This can be done with the help of national libraries and simplifications. RC answered that the only thing required is the energy supplier telling the customer how much energy is consumed in the building. Great Britain for example has fixed that as part of the EPBD implementation. JCV interjected that a benchmark is needed for the EPLabel method, but RC explained that the benchmark is not needed for the entry level, that means that simple certificate can be developed without a national benchmark. Additionally other projects like the DISPLAY project offer benchmarking data.

JCV asked how the EPLabel method manages to make people confident in the required advised improvements, as they can't be quantified based on the consumption data only. RC pointed out that the advices would focus on low-cost and zero costs measures and that most of the more expensive measures at for example the building envelope wouldn't be realised anyway because of too high investment costs. BP on the other hand insisted that it is important to advice actual measures at the building and system components and that these can only be done based on calculations.

The last question dealt with the pre-requisites for the experts. RC said that there would be no expertise necessary for the measured rating. The work is mainly an administrative action; the consumption data has to be assorted. The improvements can either come from a checklist (no expert necessary) or from a detailed energy survey in the building. The latter is more expensive and requires an expert, but the steps towards that can be done gradually. BP compared the EPA-NR calculation rating to a simpler method used in the Netherlands. There the inspection was rather easy, as only 10 different input data were needed. The EPA-NR method actually is of higher accuracy and includes more details; therefore an expert is needed for the inspection.

Then the audience was given the chance to ask questions. One question was that there are two identical buildings, one heated to 18°C and one to 25°C. In case of the measured rating the two buildings would get very different ratings (e.g. A or C), in case of the calculated rating the two buildings would get the same rating. Is it correct to base the rating only on the user behaviour? Is it correct not to take better management into account? BP said that better management should be honoured. Therefore the calculated rating should offer a place for the user aspect on a national level. RC said that there exist different views on the Energy Performance in Buildings Directive, but agreed that the energy label should also recognize indoor comfort. One comment from the audience was also that buildings should only be checked by experts and that maybe a mixture of both methods is necessary.

The second part of the workshop on the Member States experiences in Germany, Denmark and The Netherlands will be presented in the ENPER-EXIST newsletter no. 7. All presentations are available at http://www.enper-exist.com/wshops.html.

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Implementation of EPBD Article 7 in the UK

When the EPBD was ratified in January 2003, the task of implementing it in the UK fell to the Office of the Deputy Prime Minister (ODPM), which published a Consultation Document in July 2004, combining its reviews of energy related building regulations and of the EPBD.

Non-residential buildings

The Consultation Document proposed two types of rating to meet Article 7's energy certification requirement for non-domestic buildings: calculated 'Asset' and measured 'Operational' Ratings. The idea of calculated and measured ratings was initiated by ODPM research and the SAVE project Europrosper and was subsequently developed by the European standards body CEN. Responses to ODPM's Consultation Document are understood to have been broadly supportive.

Asset Ratings will be based on a calculation of annual energy use (and the associated CO_2 emissions) from building services (heating, cooling, hot water, ventilation and lighting) under standard conditions.

For building work, new construction (including the first fitout) and major alterations, the National Calculation Methodology (NCM) will use accredited commercial software or SBEM, the Simplified Building Energy Model being developed by the Building Research Establishment to calculate a Building Emission Rate (BER) and compare it with the emission rate calculated for a notional building designed to 2002 Building

Implementation of EPBD Article 7 in the UK (cont.)

Regulations standards and then reduced by a defined fraction to form the Target Emission Rate (TER). The building will pass the 2006 energy-related Building Regulations if the BER is no more than the TER.

Upon completion of building work, the BER / TER ratio will be used to calculate the Asset Rating for the Certificate, based on what actually got built, its equipment as installed and commissioned, and the results of any tests (e.g. the pressure test for air infiltration). A similar calculation could potentially be used for Design Ratings during the design stages. The form of these Ratings (eg A to G or a linear scale, etc., has yet to be announced).

For sale or let, as a property transaction not connected with building work, the NCM could be adapted to calculate an Asset Rating. However, in an existing building precise design information will often not be available and could be quite difficult to get. SBEM does allow these values to be estimated from a description of the building (form, construction materials, date of construction, type of building services, and so on) but further development is desirable.

Operational Ratings will be based on the total measured energy use (and the associated CO_2 emissions) for one year, or possibly the average of three years. It therefore covers all energy uses and actual conditions. The energy performance will be graded by comparing the total CO_2 emissions with suitable benchmarks.

The EPBD requirement for certificates to be displayed in public buildings over 1000 m² is most likely to be met by Operational Ratings (ORs). The Consultation suggested that the initial application of ORs should be to public buildings frequently visited by the public (i.e. not including private buildings such as hotels and supermarkets and also not including the buildings occupied by public authorities which are not visited by the public). However, with climate change rising up the political agenda, a growing body of opinion has been arguing that the proposed breadth of application should be wider.

An ODPM announcement about Articles 7 to 9 of the EPBD has been believed to be imminent for some time now. However, a recent UK government Cabinet reshuffle has seen ODPM being replaced by the Department for Communities and Local Government (DCLG), possibly delaying a statement on the EPBD.

Dwellings

Energy certificates for dwellings will come into use in Summer 2007 as part of new legislation requiring home sellers to provide a Home Information Pack. The methodology is based on the Standard Assessment Procedure SAP2005 calculation. For new homes, full details of the construction and materials are entered. For existing dwellings, a reduced data (RDSAP) methodology is available which requires only 64 data inputs and infers a lot of the detail for the SAP2005 calculation from the responses and the house type and date of construction.

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Financial mechanisms for building energy efficiency and the new financial perspectives for the European Cohesion Funds

This is the summary of a study which was done by Klinckenberg Consultants assigned by EuroACE.

Financial Mechanism for Building Energy Efficiency

Buildings account for more than 40% of the overall energy consumption in the European Union, and there is a vast potential for energy efficiency improvements. Investments in energy efficiency deliver a significant advantage to society, and contribute directly to the Cohesion policy's goals to strengthen synergies between environmental protection and growth, and to address the intensive use of traditional energy sources. Energy efficiency projects are typically characterised by a low financial risk and a good cash flow, but the common situation of the borrower provides a challenge for the financing of the projects.

The development of innovative, non-grant financial instruments offers many opportunities for improving growth and investment in Europe. The establishment of a fund, combining public-sector grants to build and maintain financial infrastructures, loan guarantees to cover the default risk, and private sector loans to leverage resources, has been demonstrated as a means to overcome to barriers to investment in energy efficiency.

Financial Perspectives 2007-2013 and Buildings

The new UK presidency proposal for a financial framework for the European Union includes a provision for the use of the European Regional Development Fund for housing projects in the EU10, Bulgaria and Romania. A further specification of the modalities of this funding is yet to be developed.

Given the vast stock of housing in the new Member States and Candidate Countries, the large share of low-quality housing and the social impact of this, a focus on refurbishment of this stock would be justified. Many households in the new Member States suffer from the inadequate conditions of their home, not the least via a high energy bill. It has been proven that many costeffective improvements of housing can be implemented, contributing to a better quality of the homes, lower energy bills and a reduced emission of greenhouse gasses.

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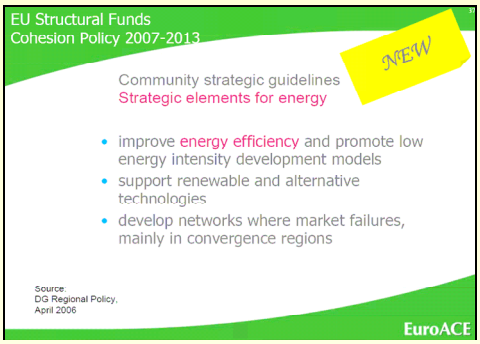
Please visit also the website of ENPER-EXIST:
www.enper-exist.com

Financial mechanisms for Building Energy Efficiency and the new Financial Perspectives for the European Cohesion Funds (cont.)

Financial support is needed, however, to facilitate the relevant governments in initiating building improvement programmes. Developing, as part of the Cohesion policy's programmes, a dedicated facility for financial mechanisms for building energy efficiency, will bring significant benefits to the European Union, to the regions involved and the to households and businesses affected by the policy.



The proposed instruments can build on various elements already existing within the Structural Funds, and the partnerships of the European Commission with the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD). In this way, a targeted initiative for the financing of energy efficiency improvements in buildings would contribute to many goals of the Cohesion policy:

- To provide the new Member States, Bulgaria and Romania with financial support for a large number of housing projects;
- To bring the quality of large shares of the housing stock in the involved countries closer to the European level;
- To create employment, in local construction and in the industries supplying this sector;
- To implement new, non-grant instruments for the delivery of Cohesion policy, building on the expertise of the European financial institutions.

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French Building Energy Foundation has selected first 3 projects on low energy concepts for existing houses

The French "Building Energy Research Foundation" has selected three research projects on single family houses retrofit. These 3 projects were selected among 31 proposals. They will enable three consortiums including researchers, architects, industrial companies and builders to define and test innovative techniques to get low energy existing houses.

The Foundation has also launched its new call for projects regarding office buildings. The Building Energy Foundation is a research foundation created by Arcelor, Gaz de France, EDF and Lafarge.

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First reports of FP6 eco-buildings project BRITA in PuBs available

The BRITA in PuBs partners are pleased to announce that the first public results after the first 18th months period of the project are now available. The documents are:

- Socio-economic Analysis on Barriers and Needs
- Communication Guide
- Financial Strategies for low energy public retrofits in Europe
- Reports on the concept development of the demonstration buildings in BRITA in PuBs

The project with the full name "Bringing Retrofit Innovation to Application in Public Buildings" deals with the energy-efficient retrofit of 8 public buildings which shall act as shining examples for other public but also private buildings. Additionally to the demonstration part socio-economic studies provide background knowledge and feed the dissemination strategy.

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