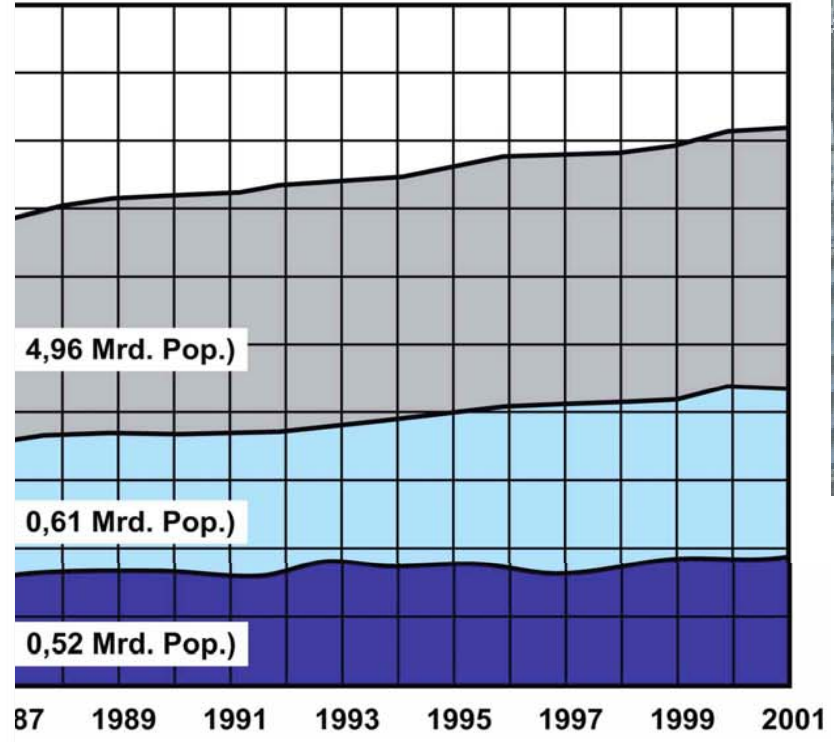
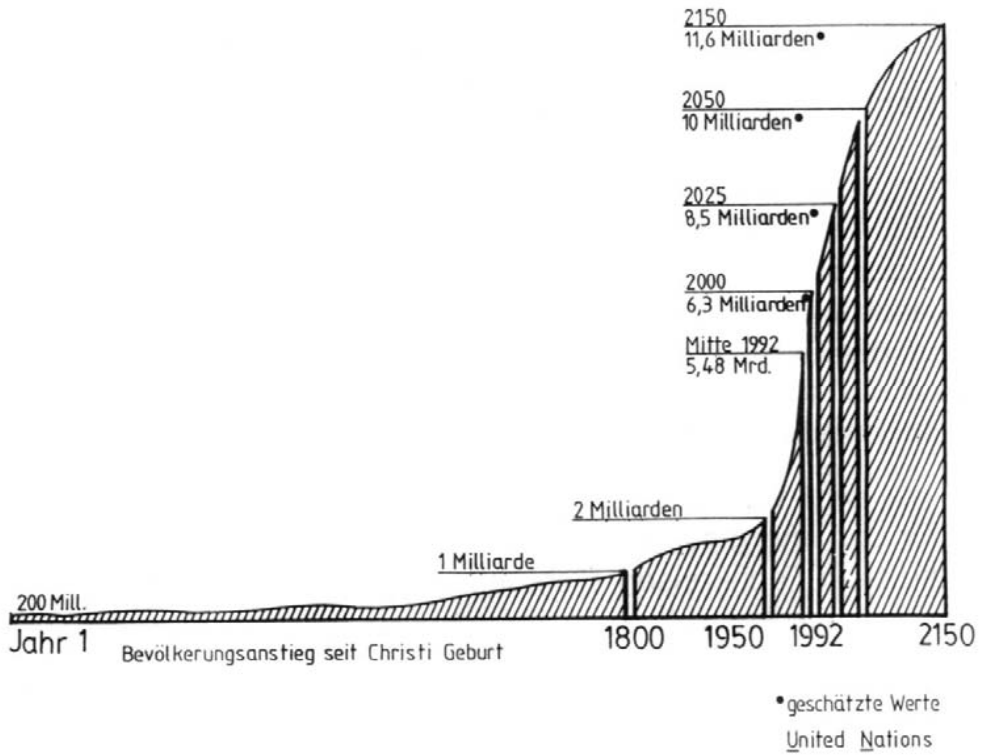




# The Energy Performance of Buildings Directive - EPBD

Overview on the implementation in the different Member States

Hans Erhorn  
Fraunhofer-Institut für Bauphysik  
Germany



Hans Erhorn  
Fraunhofer-Institut für Bauphysik  
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## **The Background**

### **1992: World Summit Rio**

**Worldwide Reduction of the Greenhouse Gas Emissions in 2000 to basis of 1990**

### **1995: World Summit Berlin**

**25% Reduction of CO<sub>2</sub> Emissions in Germany in 2005 on basis 1990**

### **1997: World Summit Kyoto**

**European Burden-Sharing (EU wide 30% Reduction, Germany 40%)**

### **2002: EU (Parliament and Council)**

**Adoption of the Energy Performance of Building Directive (EPBD)**

### **2006: EU – Member States**

**National implementation of the EPBD required**

# The Energy Performance of Building Directive

41.2003  Official Journal of the European Communities L 1/45

**DIRECTIVE 2002/91/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
of 16 December 2002  
on the energy performance of buildings

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION

Having regard to the Treaty establishing the European Community, and in particular Article 175(j), thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the Economic and Social Committee (2),

Having regard to the opinion of the Committee of the Regions (3),

Acting in accordance with the procedure laid down in Article 251 of the Treaty (4),

Whereas

(1) Article 6 of the Treaty requires environmental protection requirements to be integrated into the definition and implementation of Community policies and actions;

(2) The natural resources, to the prudent and rational utilisation of which Article 174 of the Treaty refers, include oil products, natural gas and solid fuels, which are essential sources of energy but also the leading sources of carbon dioxide emissions;

(3) Increased energy efficiency constitutes an important part of the package of policies and measures needed to comply with the Kyoto Protocol and should appear in any policy package to meet further commitments;

(4) Demand management of energy is an important tool enabling the Community to influence the global energy market and hence the security of energy supply in the medium and long term;

(5) In its conclusions of 30 May 2000 and of 5 December 2000 the Council endorsed the Commission's action plan on energy efficiency and requested specific measures in the building sector;

(6) The residential and tertiary sector, the major part of which is buildings, accounts for more than 40% of final energy consumption in the Community and is expanding, a trend which is bound to increase its energy consumption and hence also its carbon dioxide emissions;

(7) Council Directive 93/79/EEC of 13 September 1993 to limit carbon dioxide emissions by improving energy efficiency (SAVE) (5), which requires Member States to develop, implement and report on programmes in the field of energy efficiency in the building sector, is now starting to show some important benefits. However, a complementary legal instrument is needed to lay down more concrete actions with a view to achieving the great unrealised potential for energy savings and reducing the large differences between Member States' results in this sector;

(8) Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (6) requires construction works and their heating, cooling and ventilation installations to be designed and built in such a way that the amount of energy required in use will be low, having regard to the climatic conditions of the location and the occupants;

(9) The measures taken to improve the energy performance of buildings should take into account climatic and local conditions as well as indoor climate environment and cost-effectiveness. They should not compromise other essential requirements concerning buildings such as accessibility, resilience and the intended use of the building;

(10) The energy performance of buildings should be calculated on the basis of a methodology, which may be differentiated at regional level, that includes, in addition to thermal insulation, other factors that play an increasingly important role such as heating and air-conditioning installations, application of renewable energy sources and design of the building. A common approach to this process, carried out by qualified and/or accredited experts, whose independence is to be guaranteed on the basis of objective criteria, will contribute to a level playing field as regards efforts made in Member States to energy saving in the building sector and will introduce transparency for prospective owners or users with regard to the energy performance in the Community property market;

(11) The Commission intends further to develop standards such as EN 832 and prEN 13740, also including consideration of air-conditioning systems and lighting;

(1) OJ C 213 E, 31.7.2001, p. 266 and OJ C 203 E, 27.8.2002, p. 68.

(2) OJ C 16, 8.2.2002, p. 207.

(3) OJ C 107, 3.5.2002, p. 76.

(4) Opinion of the European Parliament of 6 February 2002 (not yet published in the Official Journal), Council Common Position of 7 June 2002 (OJ C 137, 28.6.2002, p. 6) and decision of the European Parliament of 10 October 2002 (not yet published in the Official Journal).

(5) OJ L 237, 22.9.1993, p. 28.

(6) OJ L 48, 11.2.1989, p. 12. Directive as amended by Directive 93/68/EEC (OJ L 220, 30.11.1993, p. 1).

## Article 1

### Objective

The objective of this Directive is to promote the improvement of the energy performance of buildings within the Community, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness.

This Directive lays down requirements as regards:

- the general framework for a methodology of calculation of the integrated energy performance of buildings;
- the application of minimum requirements on the energy performance of new buildings;
- the application of minimum requirements on the energy performance of large existing buildings that are subject to major renovation;
- energy certification of buildings; and
- regular inspection of boilers and of air-conditioning systems in buildings and in addition an assessment of the heating installation in which the boilers are more than 15 years old.



# The Energy Performance of Building Directive

## Main Articles

- 3 Adoption of methodology (asset/operational; CEN/national methods)
- 4 Settings of energy performance requirements (Final/Primary energy;CO<sub>2</sub>)
- 5 New buildings (alternative systems have taken into account; >1000 m<sup>2</sup>)
- 6 Existing buildings (major renovation; requirements component or whole)
- 7 Energy performance certificate (scheme design; public buildings)
- 8 Inspection of boilers (inspection schemes or advice options)
- 9 Inspection of air-conditioning systems (A/C or also ventilation systems)
- 10 Independent experts (how to ensure independency; certification procedure)
- 11 Review (evaluation of the directive with experience from application phase)
- 14 Committee (assisted Commission by Member States representatives)
- 15 Transposition (Implementation of several articles only, extensions)



## The Energy Performance of Building Directive

### Article 14 Committee – Working groups

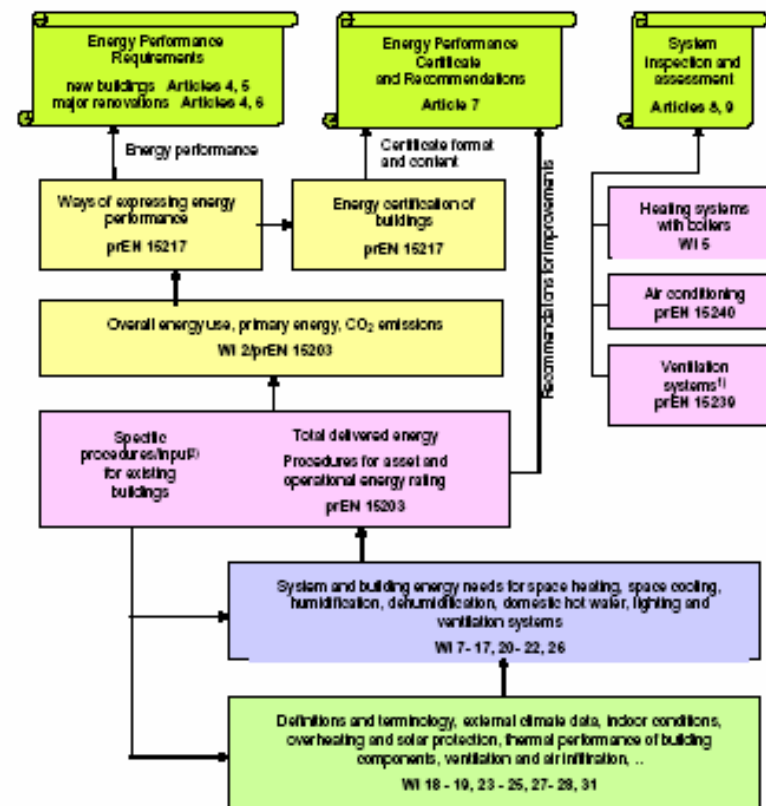
- CEN review and advice group
- Berlaymont Building certification

# The Energy Performance of Building Directive

CENBT WG 173 EPBD N 27

## CEN Mandat 343

- 31 Work items in 5 TC's
- More than 40 prEN's  
appr. 2500 pages

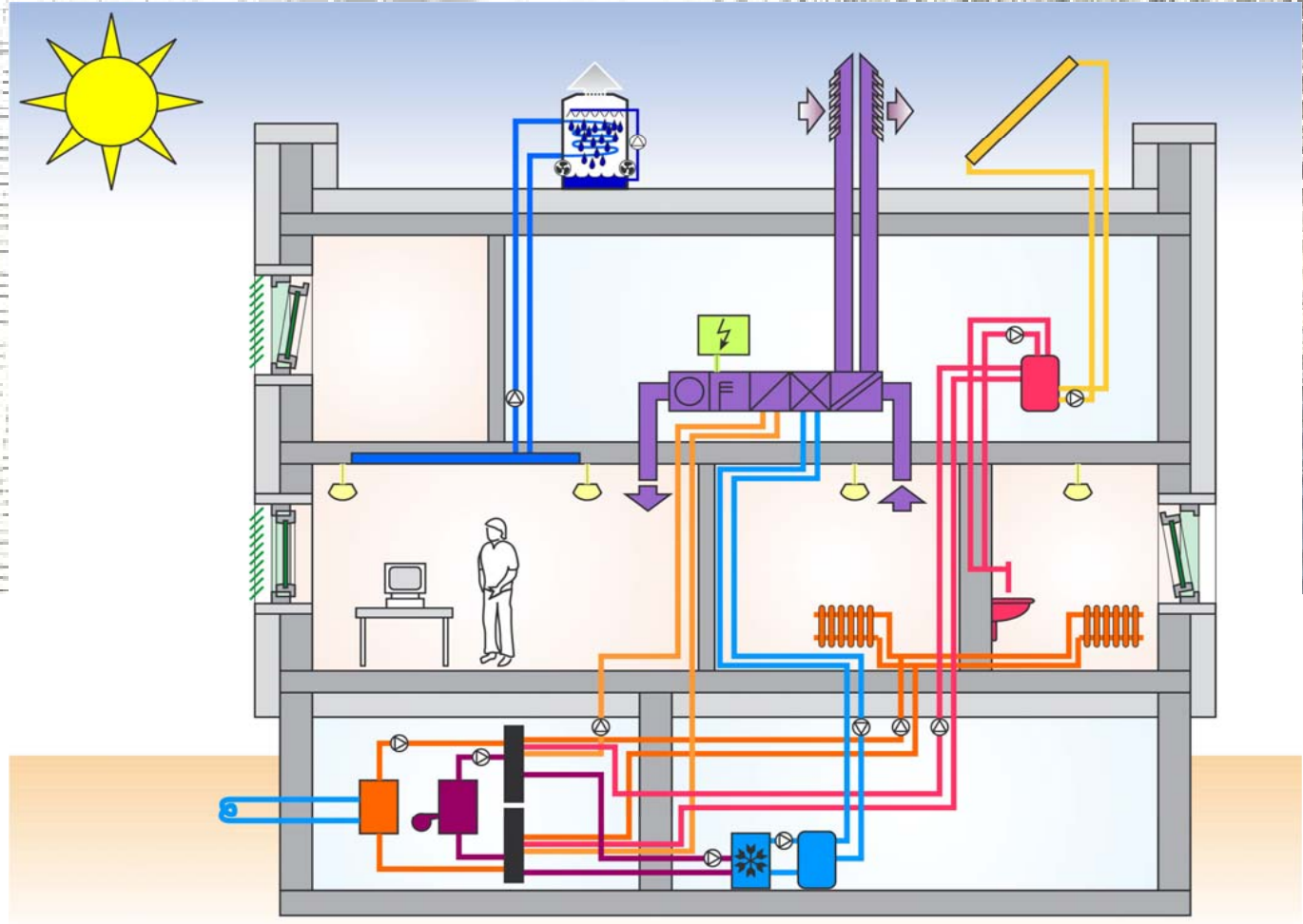


1): Not explicitly mentioned in the Directive

2): Unless already covered by WI 7-28

Figure 1 – Methodology for calculating energy performance (Article 3 and Annex)

# The Approach



Germany



# Certification of the EU-ECO-BUILDING „Berlaymont“





# Certification leaflets

E

Projektbezeichnung: EU-Kommissions-Gebäude Berlaymont

**Gesamtbewertung Primärenergiebedarf**

Dieses Gebäude

218 kWh/m²a

0 100 200 300 400 500

Energieeffizientes klimatisiertes Verwaltungsgebäude      Durchschnitt klimatisiertes Verwaltungsgebäude

Gebäudetyp / Nutzungsart	klimatisiertes Verwaltungsgebäude
Adresse	Rue de la Loi, B-1040 Brüssel
Nutzer	Europäische Union
Baujahr Gebäude	1967 / 2004
Baujahr Anlagentechnik	2004
Nettogrundfläche	170.721 m²
Energiepass erstellt mit	DIN V 18599

Nutzer

Europäische Union  
Rue de la Loi  
B-1049 Brüssel

Aussteller

Fraunhofer-Institut für Bauphysik  
Nobelstraße 12  
D-70569 Stuttgart

**Detail**

Nutz (nur G)

End (ni)

Primär (Umwelts)

Fraunhofer Institut Bauphysik

**Sistema Nacional de Certificação Qualidade do Ar Interior nos Edifícios**

**Tipologia do edifício: Escritórios**

**Classes de Eficiência**

mais eficiente ↑

↓ menos eficiente

Consumo Energético: 155,6 kWh/m²/ano

Emissões de CO<sub>2</sub>: 7 416 ton/ano

Edifício: Fração Berlaymont

Morada: Bruxelas

Área útil de pavimento: 136 891 m²

Área útil de estacionamento: 41 323 m²

Data de emissão de Certificado: 31.12.2004

Entidade Certificadora:

Válido até 31.12.2007

Aquecimento por caldeira a gás

Arrefecimento por chiller em água natural, a por chiller

Iluminação: trosc elect ligação em

Energieprestatie certificaat

**Energieprestatie utiliteitsbo**

Berekening conform NEN 2916:

$Q_{prestatie} / Q_{prestatie, toelastbaar}$

**aan de hand van gegevens uit de berekening**

verwarming	Opwekking	25,142 722 MJ
verwarming	Opwekking	80,731 224 MJ
verwarming	Opwekking	1,574 712 MJ
verwarming	Opwekking	2,461 222 MJ
verwarming	Opwekking	7,775 872 MJ
verwarming	Opwekking	1,548 211 MJ
verwarming	Opwekking	27,143 848 MJ
verwarming	Opwekking	0 MJ
verwarming	Opwekking	42,151 222 MJ
verwarming	Opwekking	71,228 628 MJ
verwarming	Opwekking	90,537 538 MJ

**Gegevens van het gebouw:**

Berlaymont gebouw te Brussel

Beschouwd gebouwoppervlakte:

- Kantoorvloer: 34.771,50 m²
- Bijzondere vloer: 6.120,90 m²
- Bijzondere vloer: 24.191,10 m²
- Gesamte vloeroppervlakte: 64.339,20 m²

De publiekzake, achtereinde en kolonade zijn in het bouwbesluit, buiten beschouwing gelaten.

**Gegevens van de referentie:**

DGNB: Binn 1214, Raag  
Postbus 153  
6900 AD Ar  
Nederland

is oprecht ministerie van  
Den Haag, 1  
datum afgeleid  
getijde 2

**Gegevens van de referentie:**

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**Diagnostic de performance énergétique**

Nr : 04-75-16580  
Date : 15 décembre 2004  
Valide jusqu'au 15 décembre 2014

Type de bâtiment : Immeuble de Bureaux  
Adresse : Berlaymont Paris  
Surface : environ 130 000 m²

Propriétaire: Commission Européenne  
Expert: Bureau d'Etudes TRBU ENERGIE  
19 rue Frédéric Lemaître  
75020 PARIS

Méthode de Calcul utilisée : Logiciel UZDain - Ferretoud  
Version 2.1 du moteur du CSTB  
Bâtiments neufs (RT2000) selon l'arrêté du 29/11/2000.

**Bâtiment de référence NEUF (RT2000)**: Cref = 125

**Bâtiment projet: Berlaymont**: Cref = 116 (Sans prise en compte de la cogénération), Cref = 101 (Avec prise en compte de la cogénération)

Exigence minimale pour la climatisation : Ratio d'ouverture Solaire Equivalente : ROSEprojet < 0.3 : conforme

En France, la certification énergétique des bâtiments tertiaires existants est en cours d'élaboration et devrait être prête fin 2005. Toutefois, tous les bâtiments neufs dont le permis de construire a été déposé après le 2 juin 2001 sont tenus de respecter la réglementation thermique (RT2000) d'après l'arrêté du 29/11/2000.

Limites de la méthode : La cogénération n'est pas prise en compte dans le moteur de calcul, une approche simplifiée a été retenue, selon le Titre V de l'arrêté du 29/11/2000.

Les consommations de climatisation ne sont pas prises en compte en France qu'à partir de 2006. En attendant le bâtiment doit respecter une limite du Ratio d'ouverture Solaire Equivalente, qui indique que les protections solaires du bâtiment sont suffisantes.







## The Buildings Concerted Action for the Transposition of the Buildings Directive

- **23 countries working together on a voluntary basis**
- **Getting inspiration and ideas from one another**
- **Towards limiting the range of solutions to the common challenge of transposing the EPBD**
- **Every country gains from the exchange**
- **Developing a European philosophy for Energy Efficiency in Buildings**





**Now sent to about 450 persons all over the EU: CA, EC, National colleagues, SAVE projects, individual requests, ...**

**WEBZINE # 5**  
August 2005

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[SAVE](#)

[EVENTS](#)

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### Newsletter

#### Concerning the European Building Performance Directive Concerted Action

If this message appears without its colors and pictures, copy this link on to your internet navigator:

<http://www.epbd-ca.org/Webzine5.htm>

### Work is going on:

**EPBD-AIVC conference in Brussels (September 21-23) aims to provide additional support**

The various deadlines for the implementation of the EPBD are quickly approaching, and many challenges still lie ahead of us. Work is going on at various levels : preparation of legislation by the Member States, development of support tools and actions (software, training, etc.), standardisation work, a whole range of SAVE projects aiming to provide support to the Member States and the stakeholder, a wide range of activities for the various stakeholders. You will find that this is a very fruitful and interesting field of work.

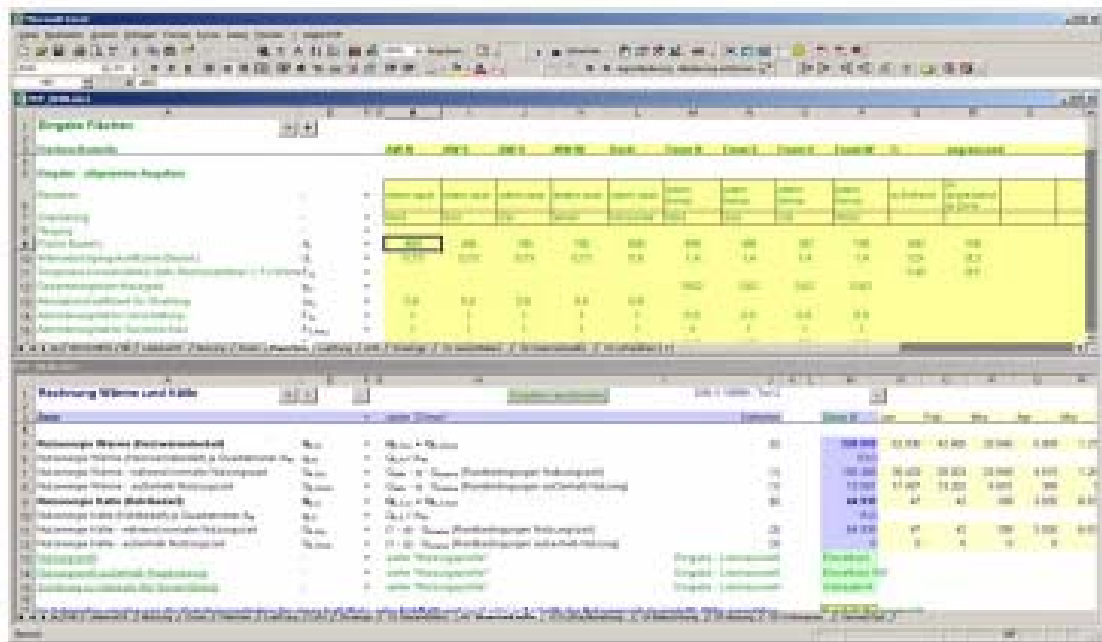
## CA-EPBD Achievements on Calculation Methodologies

- **Enhanced MS understanding of the scope and the diversification of EPBD CEN work**
- **Exchange of general ideas for the integration of renewables in national methodologies.**
- **Information and analysis exchange forum for implementation of the standards in collaboration with relevant EIE projects**
- **Mutual information about all the available national approaches, demonstrations of all the available software packages, adopted simplifications and default values**



# CA-EPBD Achievements on Calculation Methodologies

First calculation tools are available for practice



Download at [www.ibp.fraunhofer.de/wt/normen.html](http://www.ibp.fraunhofer.de/wt/normen.html)



## Status of the planned MS approaches (22 countries)

- **19 countries planned to have national procedures; 3 regional**
- **all countries have procedures for residential and 19 for all types of non residential buildings; 3 only for special types**
- **19 countries will use asset rating, 7 benchmark syst., 7 operational**
- **9 countries referred to nat. standards, 12 published in ordinances**
- **7 countries implements CEN standards fully, 5 partly, 10 in a pragmatic way**
- **2 countries are ready with all documents, 11 have draft versions, in 9 countries documents are still under development**





# The Energy Performance of Building Directive

More information **monthly** available

in the **Webzine** of the

**EPBD Concerted Action Project**

[www.epbd-ca.com](http://www.epbd-ca.com)