Energy Performance of Buildings

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Overview on the practical use of the CEN standards (EPBD)

Summary of the results of questionnaire

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Towards effective support of the EPBD implementation and acceleration
in the EU Member States

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Contents

1. Introduction

This report gives the summary of the results of the questionnaire on the practical use of the CEN standards (EPBD) in national standards and/or national (regional) law or building regulations. The questionnaire, prepared by ISSO in cooperation with TNO, was circulated in February and March 2008.

Information Paper P90

See also Information Paper P90 (Buildings Platform – CENSE) that gives a short overview with further explanation, a few typical examples of the (anticipated) practical use of the set of CEN standards and conclusions.

This Info Paper and other Information Papers related to the CEN standards to support the EPBD can be downloaded from the website: www.iee-cense.eu

Groups of the CEN-EPBD standards

The set of CEN-EPBD standards consists of 43 titles or parts and can be grouped as follows:

1. Two key standards on expressing energy performance and for energy certification of buildings, the overall energy use, primary energy and CO2 emissions, the assessment of energy use and definition of energy performance ratings.
2. The building physics standards, e.g. describing the calculation of heat transfer by transmission and ventilation, heat load and summer temperature, solar transmittance and the calculation of the energy needs for heating and cooling of the building.
3. Standards on the description and properties (classification) of ventilation systems plus cooling and air conditioning systems. Concerning ventilation systems, the standards describe the calculation of the air flow and the energy required for treatment.
4. The third group concerns the description of space heating and domestic hot water systems. This group of standards makes it possible to assess the energy needs of the systems (that is the input to generation systems), starting from the building energy needs. Systems are described as a series of subsystems including emission and control, distribution, optional storage and generation.
5. A series of supporting standards on:
   - Lighting systems for buildings (including the effect of daylight)
   - Controls and automation for building services
   - Classification of the indoor environment
   - Economic evaluation of sustainable energy applications.
6. A set of standards on inspection:
   - Boilers and heating systems
   - Cooling- and AC systems
   - Ventilation systems.

2. Questionnaire

The questionairre was sent to contact persons in 23 Member States in the spring of 2008.
20 Member States completed the overview.

The next table gives an overview of the Member States to which the questionnaire was sent and the Member States who completed the questionnaire. Of the Member States who we did not send a questionnaire we did not have expert contactpersons at the time the questionnaire circulated.

Member States	Send to	completed the questionnaire
Austria	x	x
Belgium	x	x
Bulgaria		
Cyprus	x	x
Czech Republic	x	x
Denmark	x	x
Greece	x	x
Germany	x	x
Estonia		
Finland	x	x
France	x	x
Hungary	x	x
Ireland	x	
Italy	x	x
Latvia		
Lithuania	x	x
Luxembourg		
Malta		
Netherlands	x	x
Norway	x	x
Poland	x	x
Portugal	x	
Romania	x	x
Slovakia		
Slovenia	x	
Spain	x	x
Sweden	x	x
Switzerland	x	x
UK	x	x

Main question

For each group of CEN-EPBD standards we wanted to know if and how the CEN-EPBD standards most likely will be used in the national procedures (not at all, partially or fully in the near future (e.g. in the next five years)) and if the CEN-EPBD standards most likely to be used in the national (regional) laws and building regulations.

Near future

We are mainly interested in the near future situation/application of the CEN-EPBD standards in the EU Member States, because we are primarily interested in the near future needs and in many countries the current situation is not representative of the near future. For instance because most of the CEN standards have only recently been published (2007, 2008). Evidently, this required from the respondents an "expert's best guess" on the expected situation in the near future.

Building regulations versus standards

We are mainly interested in the application of the standards in the context of the national or regional building regulations, because we are interested in the use of the CEN standards in the context of the implementation of the EPBD.

3. Major changes expected in the Member States within next five years

The following two questions were included to get an impression of the expected changes in the Member States in the coming few years

Explanation
We are interested in the near future situation/application of the CEN-EPBD standards in the EU Member States.
This question gives you opportunity to indicate that the current situation is not representative for the near future and that you provide a "expert's best guess" on the expected situation in the near future.

Number of MS where this is applicable	**1a Do you expect a significant change in the national standards of the energy performance of buildings within the coming five years?**
4	No
14	Yes, for new residential buildings
13	Yes, for new non-residential buildings
14	Yes ,for major renovation residential buildings
13	Yes, for major renovation non-residential buildings
11	Yes, for existing residential buildings
9	Yes, for existing non-residential buildings

Number of MS where this is applicable	**1b Do you expect a significant change in the national (regional) law and building regulation of the energy perfomnace of buildings within the coming five years?**
1	No
16	Yes, for new residential buildings
16	Yes, for new non-residential buildings
16	Yes ,for major renovation residential buildings
16	Yes, for major renovation non-residential buildings
12	Yes, for existing residential buildings
10	Yes, for existing non-residential buildings

Remarks of respondents from some MS on this question

Remarks Austria

Within the next two years validation standards according to the existing national standards for the calculation of the energy indicators should be finalised (August 2007 – Juli 2008). Parallel to this action the existing national standards should reissued minimalising editorial faults (August 2008 – Juli 2009). Starting in August 2009 a new version of the national standards will be prepared which will also take into account the actual CEN-EPBD standards.

Remarks Finland

Requirements and guidelines are given in national regulations (National Building Code of Finland), not in national standards. The national regulations give (typically general but in certain details also specific) references to existing standards – in practice this means references to European Standards (in some cases to ISO, if available).
Traditionally, national regulations apply for newbuildings – specific regulations for existing buildings are under discussion

Remarks France

Concerning national standardisation, CEN should push the national member organisations to publish the national standards, with or without national annexes. This will give an credible alternative to the use of national methods.
This is what we are doing in France.
I remember that according to the CEN rules CEN standards shall be replace national standards
My best guess is that the building regulation will take over the European standards in the national methods if :
- it is asked on national level (e.g. by the industry, by national standardisation body),
- building authorities are convinced on the quality of CEN standards,
- if there are national annexes available
- if the standards can be progressively integrated in "modular" way into the nation methods.

In France building authorities think that the CEN standards will made mandatory by the directive in the future. Therefore they are willing to take over more and more standards in the national methods. The European Commission shall give some signals in this direction.

Remarks Hungary

Hungary, could not complete the questionaire yet. Before the law will be in force, no definite replies can be given

Remarks Italy

These answers depend on the meaning of "significant"…
Standards
In Italy calculation of energy performance for heating is already done since 1993. The standard used was first UNI 10344 for Qh calculation (similar to EN 832). Now EN 832/13790 is used since 2006.
This year the energy performance calculation will be extended to dhw primary energy and cooling needs.
So the answer is YES in the sense that after a slight change now large parts of calculation are added
Regulations, national level.
EPBD was implemented in October 2005 (decree 192/2005 issued in October 2005) and this was a major change in the regulation. A big adjustment was done in December 2006 (decree 311/2006, which introduced compulsory energy declaration when selling a building). A further set of adjusting decrees (details about energy declaration, extension of requirements to cooling) are expected in the next months.
National regulation refers to EN standards with national annexes and/or national application documents
Regulations, regional level
There are 21 regions in Italy. In principle the national law applies only in the regions that do not have their own regulation.
According to present regulation, regional laws prevail over national law (we fear a big confusion therefore …). This principle was introduced by the national decree. Now the central government is trying to come back on this issue but it will be hard… to take the bone from the dog mouth.
A regional law is already in force in one region (Lombardia) since mid 2007. This law includes a specific

calculation method which is partly copied from EN and UNI standards…
A new regional law has been approved in another one (Liguria)
3 other regions are nearly ready to issue their regulation.
So we expect big changes at regional level.

Remarks Netherlands

Within the next five years the existing national standard for new residential buildings, the existing national standard for new non-residential buildings and the recently completed national methods (not being NEN standards) for existing residential and non-residential buildings will be combined into one national standard, taking also into account the CEN-EPBD standards, in a way described in the next sections of this completed questionnaire

Remarks Poland

Poland is delayed in implementation of the Directive, but the latest proposal of the method to be used for calculation is following 13790 and related standards. This is a different approach then the one used in existing regulation**.**

Remarks Switzerland

The standard SIA 380/1 heating energy for buildings has just been renewed on the basis of the new EN 13790; the target values have been left almost unchanged compared to the version before. However, due to the agreed enhancement of the requirements planned in the building energy regulations (which is a Cantonal affair in Switzerland and therefore there is not a national, but a coordinated “sample” solution referring to the standard SIA 380/1) for 2010, there is a need for an enhancement of the target values again, which will be done in the next few months.
For air conditioned buildings there is a new set of standards in development, based on the simplified hourly calculation of EN 13790 and EN 15241, 25242 and 15243. This will get in force in the second half of 2009.

Remarks UK

Building Regulations and other policy instruments deal with the issues rather than national standards
But many of the changes might have happened anyway as the result of national policy

Remarks Belgium

Standards: as foreseen by CEN rules, the ENs will normally obtain the status of Belgian standard (NBN EN). It is not clear yet if there will be any additions, ...
Regulations: as is the situation already today, it is expected that the regulations themselves will also in the future include the full technical specifications of the EP-determination method with only limited reference to standards (e.g. for product data). Since the regulation strives for a very strict compliance and control (with nearly automatic monetary fines in case of non-compliance with the requirements), it is important that the technical procedures are closely adjusted to the overall regulatory context and that all details are clarified as much as possible. The standards do not achieve this degree of completeness and streamlining, and can thus not be used as such.

Remarks Lithunia

Lithuanian Republic is the member of EU, therefore all national standards are harmonized with EU documents and essential changes in the local building regulations are in principle impossible.
Formal acception of EU standards is not the main problem. The problem is surveying of designers and decision makers with standards. It seems there are two main reasons:

- 4/5 of standards are not translated into Lithuanian (lack of qualified translators, very high formal requirements to those who are able to do this, lack of finances, officialdom), so sophisticated expressions are not clearly understood by Lithuanian users even they speak colloquial English;
- State office as Standartization Department is, makes business (in my opinion – illegal business) selling the standards. The standards are prepared or translated thanks taxpayers, not by commercial structures as a rule. Building Regulations, hygiene norms were sold earlier, now everybody can find them on www. because they are prepared thanks budget financing. User is able to find and implement every regulation. Standards are not accessible in this way, it stops their implementing**.**

Remarks Norway

The EPBD standards from CEN are already implemented nationally and we have published a nationalstandard with national parameters and choices as complementary to the EPBD standards:
NS 3031:2007, Calculation of energy performance of buildings - Method and data

Remarks Spain

- The minimum requirements for new buildings and major renovations (Building Technical Code) have been published in march 2006.
- The decree on the energy certification of new buildings in applicable since November 2007
- No regulation has been done yet for the certification of existing buildings. It must be prepared before 2009

Remarks Germany

- ♦ It is planned to have a harmonisation in the calculation procedure and in the energy performance requirement procedure for all types of buildings in Germany
- ♦ The standard DIN V 18599 shall be used as general method and the reference building approach as general requirement method.
- ♦ For a transition period, the existing 2 methods (simple and holistic) are applicable for residential buildings. For non residential buildings the holistic approach is mandatory.

4. Application of the CEN standards for EPBD in the Member States

The numbers in the in tables represent the number of Member States that selected the given option

Situation within the next five years (if regional differences: choose representative region or complete it for the different regions

Group of Standards		CEN-EPBD standards used in national standards										Laws and national/regional building regulations							
		Fully (without exception)	fill in X if applicable	Partial[1] fill in: Large part, some Part or Small part							No[1] (fill in X if appli-cable)	Via natio-nal stand-ard(s) link-ed to CEN-EPBD[2]	Content (partially) taken over in law or bld regul. (fill in Large part, some Part or Small part)				No[3] (1 if ap-plicable	If not national , but regional: valid for which region[4]	For all the building types?[5] (fill in 1 if applicable)
													fully	partial[3]					
		CEN-standard(s) are referenced	CEN standard(s) content fully	CEN-standard(s) are (partially) refer-enced			by a national annex to CEN standard(s)	content (partially)taken over											
1	Building physics standard			L	P	S	(X if ap-plicable)	L	P	S		X if ap-plicable.	X if applic.	L	P	S			
	♦ transmission (EN ISO 13789, EN ISO 6946)	6	3	1	0	0	0	3	2	0	3	7	2	3	1	1	3	7 nat 1 reg	12
	♦ ventilation (EN 15242)	7	3				0	0	3	3	2	6	1	1	2	2	3	8nat, 1reg	11
	♦ heating and cooling need (EN ISO 13790)	6	3	1	1	0	0	4	0	0	3	6	2	3	2	1	2	8 nat, 1 reg	10
	♦ other standards of these group (EN ISO 13786, 13370, 13947, 10077, 10211, 14683, 10456)	6	3	0	0	1	0	2	3	0	3	6	1	3	0	3	3	8 nat, 1 reg	12
2	Description and properties of ventilation systems (EN 15241)	6	3	0	0	0	0	1	2	3	3	5	2	1	0	3	4	7 nat, 1reg	10
3	standards on description : ♦ space heating sysems (EN 15316-4) ♦ domestic hot water systems (EN 15316-3) ♦ Air conditioning systems (EN 15243)	6	3	0	1	0	0	0	3	2	4	5	1	2	2	2	4	7 nat, 1reg	11

Group of Standards		CEN-EPBD standards used in national standards										Laws and national/regional building regulations							
		Fully (without exception)	fill in X if applicable	Partial[1] fill in: Large part, some Part or Small part							No[1] (fill in X if appli-cable)	Via natio-nal stand-ard(s) link-ed to CEN-EPBD[2]	Content (partially) taken over in law or bld regul. (fill in Large part, some Part or Small part)				No[3] (1 if ap-plicable	If not national , but regional: valid for which region[4]	For all the building types?[5] (fill in 1 if applicable)
													fully	partial[3]					
		CEN-standard(s) are referenced	CEN standard(s) content fully [a]	CEN-standard(s) are (partially) refer-enced			by a national annex to CEN standard(s)	content (partially)tak en over											
				L	P	S	(X if ap-plicable)	L	P	S		X if ap-plicable.	X if applic.	L	P	S			
4	Series of the energy performance for lighting systems(EN 15193)	6	3	1	0	0	0	1	1	1	5	4	1	2	2	2	5	7 nat 1 reg	8
5	set of standards for system inspections (EN 15378, 15239, 15240)	5	3	1	0	0	0	0	2	1	6	2	1	1	3	1	7	4 nat 1 reg	8
6	Standards on overall energy performance of buildings																		
	♦ standards on expressing energy performance (EN 15217)	6	3	0	0	0	0	3	2	1	2	4	1	2	4	2	3	7 nat 1 reg	11
	♦ Conversion to overall energy-use and/or CO_2 (EN 15603)	5	3	0	1	0	0	3	0	2	3	5	1	3	2	2	3	7 nat 1 reg	11
	♦ Calculating the energy performance rate (Asset rating) (EN 15603)	5	3	0	1	0	0	4	0	1	4	4	1	2	2	3	4	7 nat 1 reg	11
	♦ Measurement of the energy performance rate (Operational rating) (EN 15603)	4	3	1	0	0	0	1	0	1	8	0	1	0	2	1	11	3 nat 1 reg	8

[a] Completely referenced means that the national standard or building regulations simply refer to the CEN standard as a whole.
[b] Completely copied means that the national standard or building regulations simply copied (and translated) the content of the CEN standard as a whole, as part of a document with a wider scope.

[1] Give on the next page the reason(s) for not using or partially using the CEN-standards for the national standards

[2] Fill in if the laws or building regulations refer to a national standard that is based (fully or partial) on the CEN-EPBD standard, as mentioned in the columns before

[3] Give on the next page the reason(s) for not using or partial taking over the content of the CEN-standards for the laws and building regulations

[4] If the laws and building regulation is regional, please fill in the region

[5] If it is not the same for all building types (non-residential versus residential, new versus renovation versus existing buildings) please specify it for each building type

Reason(s) for not or partially using the CEN-standards in the national standards within the next five years (if applicable), reported by the respondents:

Remarks Austria

Generally we were trying to use CEN-standards methods. But for the application of those methods we need a lot of default- and fixvalues. Especially for the calculation of energy indicators for existing buildings a lot of formulas have been created to simplyfy the calculations.

Remarks Czech Republic

New CEN-EPBD standards are or will be adopted as national standards. I don't expect strengthening of requirements (U-values, boiler efficiency, appliance consumption).

Remarks Denmark

Still being discussed. First opinion was that the CEN standards are too complicated. The strategy is however to slowly take over all EN standards, but maybe first after a revision of the standards.

Remarks France

I remember that according to the CEN rules CEN standards shall be replace national standards. Therefore all CEN standards should be used in national standards.

Remarks Italy

GENERAL NOTE: A national technical report (it will be UNI-TS 11300) is currently being developed at CTI (Comitato Termotecnico Italiano, national body which develops standards in the HVAC field on behalf of UNI). This will be the guidance document for energy performance calculation, both to get authorisations and permits (performance requirements for new and existing buildings) and to calculate energy performance for the energy declaration.
UNI TS 11300 will have initially 3 parts and different approaches have been used:

1. Energy need for heating and cooling
   The approach is to reference most of EN 13790 because this standard was already known and in use.
2. Primary energy for heating and domestic hot water
   The approach was to copy most of prEN 15316 contents because the work was initiated when a fast publication of EN standards was not expected.
   In the near future more refernce and less copying is expected.
3. Primary energy for cooling
   Is the less developed document. Some reference is made to EN standards but a method for cooling system efficincies has to be developed since in the EN standard you only find the frame for system efficiencies and validation criteria for dynamic methods.
   Reference is currently being made to EN 14825 for cooling generation subsystem.

These documents should later be the base for national annexes and/or kept as instructions (example: criteria to choose the appropriate method) on how to use EN standards.
Basically, the law asks for the best available practice. Use of EN standards and national technical report is recognised by the law as good practice and will be assumed as the reference method. Most EN standards of EPBD package are listed under annex M to DLGS 311/06.
Calculation requirements stage:

- NOW: only heating primary energy calculation is required
- Within 1 year heating + dhw primary energy + energy need for cooling
- Within 5 years: heating + dhw + cooling + ventilation primary energy + lighting in non residential

SPECIFIC REMARKS:
1B :Existing national standard UNI 10339 used for non residential buildings.
Residential buildings: fixed rate (n=0,3 h-1 for energy calculation, 0,5h-1 for design load calculation) when no ventilation system is available (airing only). Flow rate and heat recovery taken into account in EN 13790 if a mechanical ventilation system is available.
NOTE: There is nearly no mechanical ventilation in the small/medium residential sector in Italy (0,… % of residential buildings). Interest is raising now. Mechanical ventilation is used only for large and/or non residential buildings, usually coupled with air conditioning.
1C: A national Technical report is currently being developed. It references most of EN 13790.

3: See GENERAL NOTE
4: Lighting will probably be taken into account only for non residential building and at a later stage (possibily within 5 years
5: Boiler inspection is common practice and there are already national standards (UNI 10389). Airco inspection is new. Probably EN standards will be referenced.
6A: How to express energy performance is decided by the law. National law is in line with EN 15217 (it is according to one of the many possibilities given by the standard).
6B: Primary energy factors are now set by the law. In the near future they will be in charge of Energy Agency (AEEG. Autorità per l'Energia Elettrica ed il Gas). The calculation required (via UNI-TS 11300) is in accordance with EN 15603
6C: The calculation required (via UNI-TS 11300) is in accordance with EN 15603
6D: No measured energy rating is forecasted.
Questionnaire author tech note: measured energy rating is a very very important validation criteria. On the other side, measured energy rating alone do not allow an energy diagnosys wich is required to find possible improvements (from a measured rating you know how much energy you need but you still do not know exactly why).

Remarks Poland

There is no own standarisation activity going on in Poland in building field. The committees are focusing on adaptation of CEN or ISO standards as Polish standards by different means: translating the whole standard or the first page of it. Therefore, I assume that within five years most of the standards that are necessary will be adopted in such a way, and afterwards referenced into regulation. The regulation will give the room for different kind of simplifications, but that are allowable by the standards.

Remarks Romania

According to the CEN rules, CEN standards will replace national standards. Therefore all CEN standards will be used like national standards. But **they are not mandatory** and therefore the national buildings regulations are (majority) based on national experimentally validated rules.

Remarks Switzerland

General:

SIA as the responsible body for implementation of the building related CEN standards has – after bad experiences with EN 12831 – decided for the energy and building area to generally implement the content of CEN standards in the frame of own national standards (no contradictions, but not 1:1 implementing the CEN standards).

Group 1:

- Transmission: basic parts of these EN ISO standards have been and will be copied into national standard; other parts are referenced.
- Ventilation: Some of the model in EN 15242 is taken over into national standard for air conditioned buildings. Not used for heated only buildings.
- Heating and cooling needs: from the different options given in EN ISO 13790 the monthly method has been and will be copied into national standard for heated only buildings. For air conditioned buildings, the simplified hourly calculation is applied in the national standard with some changes to address embedded systems.
- Other: Most parts of these EN ISO standards have been and will be copied into national standard; other parts (details) are referenced.

Group 2:

- Ventilation systems**:** Model in EN 15241 is essentially copied into national standard for air conditioned buildings (hourly calculation). In some parts, own models are used (e.g. heat recovery)

Group 3:

- Heating and hot water systems: General set up of EN standards will be copied into national standard, for details it is not clear yet. Work just starts.
- Air conditioning: The general approach and some of the annexes of EN 15243 are used for the air conditioned buildings. Some parts (especially chiller performance) is not useable for hourly calculation; own models are used.

Group 4:

- Lighting systems: This standard was rejected in formal vote by Switzerland and is ignored. SIA 380/4

is an established and successful own standard..

Group 5:

- System inspections: Contents are considered upon revision of the system requirement standards.

Group 6:

- Expression of energy performance: Some of the options in EN 15217 has been adopted in our national standard.
- Conversion to primary energy and/or CO_2: this part of EN 15603 is being used in national recommendation for building energy pass.
- Calculation of energy performance: this part of EN 15603 has been adopted into national standard.

Measurement of energy performance**:** this part of EN 15603 is being used in national recommendation for building energy pass.

Remarks UK

Note that Standards are not normally directly referenced in Building Regulations (or laws) but are implemented by incorportation in methodologies and guidance. “Taken over” has been interpreted to include this indirect use.

Reasons for not fully using standards vary between standards.

1. Unworkably detailed for the application – especially for heating systems
2. Some content not relevant to the application
3. Not expressed in a way that can easily be used – lighting especially
4. Timing of implementation required decisions before standards were ready

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Remarks Belgium

Important preliminary question:

As a general rule, national standardisation bodies should fully implement the (normative parts of the) ENs (see standard text in the beginning of each EN). The answer columns "partial" or "no" therefore seem an illegal situation at first sight.

It is my understanding that the EC has accepted (under the pressure of some MS? against its own will ?) that the EPBD-ENs only serve as inspiration for national EP-regulations, and thus that MS may in the facts deviate as much as they want.

But does all this (it's a tacid understanding/acceptance? no formal written rule?) overrule the formal, legal requirements between CEN and the national standardisation bodies? Is there a juridical basis for this exception? Can MS make their own national standards such that they do not fully respect the ENs, but partially deviate, contradict, ...? Should MS not implement their national deviations in the regulations themselves, rather than in the national standards?

It would be interesting if this basic question could be clarified, e.g. in an IP. Or is the situation too murky to write a black and white text about it? This issue is actually preliminary to the entire questionnaire: now it is implied that national standards can deviate, which seems contradictory to the basic principle spelled out time and again in the introduction of every EN.

(1) Although there are significant differences in the EP-regulations of the 3 regions in Belgium (e.g. with respect to legal responsibilities of different actors, administrative procedures, ...), the technical procedures are until now fairly similar (although not identical). The regions have expressed the intent to continue to strive for common EP-determination methods in the future, but they have also insisted explicitly on their right to diverge among them whenever it suits them.

On the level of this rough, overall evaluation we can approximately say that for the time being the answer to the questions is identical.

(2) The EN standards on transmission will probably coexist as national NBN EN standards, alongside a 1 national NBN standard that integrates (nearly) all of the information for the ENs + that gives additional national complements.

For the regulation a separate transmission reference document exists that is adjusted to the regulation.

?: where a question mark is put: I am not yet sufficiently informed about the content of these standards to be able to guess if it will fit well in the expected future revisions of the EP-determination method in BE, and to what extent it is thus relevant/possible/... to take over its contents in the framework of the regulation. This uncertainty holds true for all the questions, to a greater or lesser extent.

(3) I am not at all involved in this aspect of the EPBD implementation, so I am unable to comment.

Remarks Lithuania

Standards are completely copied without any changes except small editorial ones. As a rule the EU standarts came in force in Lithuania simply by translation the title page only. Extended excerpts of the standards are included in the Building Regulations also. There are no reasons to generate separate standards in every EU-newcomer State.

Remarks Norway

According to CEN statutes and member rules all CEN members are obliged to implement EN standards (and withdraw national conflicting standards) within six months. National standards will thus be in identical to the EN standard. We have interpreted the term 'national standard' as a notional developed standard to support and complement the already implemented EN standards.

Group 1:

- Transmission: A large parts of ISO 13789 is copied to the national method. All standards on thermal transmission are implemented as national standards but there will be developed some national annexes for e.g. EN ISO 14683.
- Ventilation: Energy calculation shall be based upon design ventilation rates which shall be based on comfort and health criteria for the occupants of the indoor environment.
- Heating and cooling needs: Both the monthly method and the simple hourly method has been chosen as national method depending on different building categories and the need for ventilation cooling. It is also applicable to use validated dynamic calculation software according to EN 15265 within 'Level C'.
- Other: Basic parts of EN ISO 13370 (ground floor) have been copied into national standard.

Group 2:

Ventilation systems: EN 15241 gives option for national practical method. We have adopted a simplified model taking into account energy for frost protection of ventilation heat exchangers.

Group 3:

- Heating and hot water systems: National method gives tabulated values for different building categories.
- Air conditioning: National method gives tabulated values for different building categories.

Group 4:

- Lighting systems: National method gives tabulated values for different building categories.

Group 5:

System inspections: Inspection schemes of boilers and air-conditioning systems are not yet implemented in Norway.

Group 6:

- Expression of energy performance: it is not decided how EN 15217 will be implemented in the national method for energy certification.
- Conversion to primary energy and/or CO_2: this part of EN 15603 will be copied into national standard and national CO_2 coefficients and primary energy factors are planned will be developed.
- Calculation of energy performance: this part of EN 15603 is adopted into national method.
- Measurement of energy performance: this part of EN 15603 is not applicable for laws and national building regulations.

Remarks Spain

CEN standards are used fully, or referred, or only partially used, but mainly the oldest: those of section 4A in appendix 1 of this document, as they were available during the preparation of the basis for the new regulation.

Remarks Germany

In Germany we implement fully all CEN and ISO standards as DIN/EN, DIN/ISO or DIN/EN/ISO standards. To figure out, how the standards fits to the national reqiurements we are developing national forwords and for the national application we are developing national annexes, in which we are either document the national boundary condition for the use of this standard or we refer to a national application standard of this international standard. This second approach is mostly done for the EP relevant standards.

In case the laws and/or building regulations do not refer to national standards that are linked to the CEN-EPBD standards:

Reason(s) for not or partially using (or referring to) the CEN-standards directly in the laws and/or building regulations within the next five years (if applicable), reported by the respondents:

Remarks Austria
According to the austrian tradition some national regulations have been enhanced continously.

Remarks Finland
HISTORY AND PRESENT SITUATION:
In general, the latest revisions of the relevant parts of the Finnish building regulations were ongoing at the time of availability of the CEN-EPBD drafts (2004).
Many principles of the standards were adopted in the revision, but because of the timing problems it was not possible to make an official reference to a document that was still in preparation. For example, for energy performance calculations only a general reference has been made, so it is possible to use CEN-EPBD standard instead of a national "simplified" method descrined in the regulations.
Another reason is the (experienced?) complexity of the CEN-EPBD standards. The national method is described much more briefly than the same issues have been written in the CEN-EPBD standards – not in contradiction, but in a simplified way.
FUTURE (next five years) – building regulations are subject to revision within the next years due to need for reduced energy consumption, and more systematic extension of the regulations to existing buildings will be considered. Extended referring to CEN-EPBD standards is expected, but it is still too early to estimate the extent of referring.

Remarks France
When the building regulation was revised, the standards were not available as EN standards (not the final version available). In France the calculation method is orientated towards hourly methods. Many standards do not have hourly methods.

Remarks Italy Lombardia
The region wants to keep strict control on the calculation procedure. Their must is repeatability only

Remarks Poland
The standards (according to my opinion) will be referenced in regulation (if they become PN) but the regulation will allow some simplifications of procedures described in standards until necessary data or equipement to follow the CEN standard will be available

Remarks Romania
The CEN standards concerning heating and cooling need, free running summer temperature, ground heat transfer, warm water energy need, will be not used than after their experimental validation. Romanian regulations in the field above mentioned use the national rules experimentally and numerically validated. The monthly model is based on national regulation NP048 – 2000, the energy performance certification is based on national regulation NP 049 -2000 and NP047 -2000. The hourly methods are also based on a simplified model, result of detailed model based on Unitary Thermal Respons of real structures of buildings. The experimental validation research program coordinated by INCERC Bucharest will produce results at the begining of 2010.

Remarks Switzerland
Since Switzerland is not an EU member country, the EPBD does not have to be implemented. Recent developments show that the energy certificate will be introduced as a mean to encourage building renovations on a voluntary basis
The only standards which are referenced indirectly by Cantonal building regulations through reference of the national SIA 380/1 standard are the EN 13790 and the related building physics standards.
The new set of national standards for air conditioned buildings is not going to be referenced by the regulations for the next 5 years, but a test phase in the frame of the voluntary “Minergie” label is envisaged.

Remarks UK

As stated before, regulations and laws rarely refer directly to standards.

Remarks: Belgium

The standards do not fulfill all the needs of a strict EP-regulation:

- completeness, exhaustiveness: all possible configurations, systems, ... should be covered, albeit in a simplified manner (now, way too many questions remain unanswered when applying the texts on all buildings systematically). Now there are too many lacunas.
- clear, univoque, unambiguous, ... formulation: not everybody has the same reading/interpretation/... of the same EN text: this is not acceptable in a regulatory context (problems of programming, interpretation questions during application, authorities can not give fines because of (legal) disputes on interpretation, ...)
- some aspects of the standards are not practical for daily use (too cumbersome, complex, ...): sometimes it is rather theoretical
- other texts are too general, only state some overall principles, but do not propose a real determination method: because of European failure, it's left to the MS to solve the difficult issues
- texts are too often of a rather experimental nature, not well-thought, basid on solid knowledge, corraborated by experimental evidence, ...
- texts are written by completely different working groups, and different persons within groups, all with their own philophy, approach, background, ...
- the standards are a collection of different individual documents. What is needed for practical operation is an integrated method. To this end a common working group should be set up that integrates all texts in 1 single standard (which may contain different parts for different subtopics) so that the entire set becomes fully adjusted, streamlined, ...
- ... (if I would have more time to think, I would probably be able to list several more, important shortcomings of the prENs that prevent them from being by themselves a solid, complete base for an effective EP-regulation. If useful for your external reporting, I can make a further attempt later, upon your request.)

An important problem is also that good standards for product data are often missing (e.g. on the power of lighting systems, i.e. lamps-cum-control-gear) + that CE-marking (for those products where it is applicable) does not at all guarantee good product quality, and that CE-marking may be a set-back compared to more advanced existing certification schemes. The requirements of CE-marking for the energy characteristics of products should be tightened (eg. to level 1 or 2 instead of 3 or 4).

Remarks: Norway

The energy performance certificate for buildings and the inspection schemes of boilers and air-conditioning systems are not yet implemented in Norway so we have no references to EN 15217, EN 15378, EN 15239 and EN 15240 in the laws and national/regional building regulations. However, they are implemented as national standards according to the CEN statutes.

Remarks: Spain

The standard for new buildings was prepared before the new set of CEN-EPBD Standards where ready, approx in 2001. So, their content has been revised and some parts used when it has been possible

Remarks: Germany

The German building regulation concerning the EPBD Implementation “Energieeinsparverordnung – EnEV” refer to the calculation standard sets “DIN V 4108-6 (Building) and DIN V 4701-10 (Heating-, DHW- and Ventilationsystems)” as simple approach for residential buildings and “DIN V 18599 (Building, Envelope, HVAC, Hot Water, Cooling and Lighting)” as holistic approach for non-residential buildings. Both standard stes are national application documents of the relevant CEN standards. The German standardiusation members ensured, that the national method is integrated, at least as one of the possible alternatives, in the relevant CEN standards. So the coherence of the DIN and CEN standards is guaranteed. The DIN (applicatio) standards covers therefor not only the general method but also the natonal boundary and default values and ensure a universal calculation procedure.