

IMPLEMENTATION OF THE EUROPEAN PERFORMANCE OF BUILDINGS DIRECTIVE

Frequently Asked Questions & Issues

[January 2007]



FAQ and ISSUES

available at the EPBD Buildings Platform website



[January 2007]

The EPBD Buildings Platform has a **dedicated Helpdesk** that address questions about implementing the Directive.

There are three main parts:

- A series of FAQs, regularly updated and aimed to address most of the concerns that people have;
- A series of compiled issues from the Directive that are left open to interpretation;
- A third section, temporarily open to Newsletter subscribers, allowing them to ask questions.

The FAQ and Issues sections are organised into 6 themes:

- General information
- Theme “Certification procedures”
- Theme “Inspection of boilers and air conditioning”
- Theme “Requirements for experts and inspectors “
- Theme “Calculation procedures”
- Theme “Minimum EP requirements”

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1. EPBD Frequently Asked Questions

1.1. General Information

Why was the Directive introduced?

The 160 million buildings in the EU use over 40% of Europe's energy and create over 40% of its carbon dioxide emissions, and this proportion is increasing. Under the Kyoto protocol, Europe is committed to reducing emissions and the Directive is intended to contribute to this. The cost effective savings potential is around 22% of present consumption in buildings that can be realised by 2010.

Author: Roger HITCHIN (BRE)

Date: 07/04/06

How much can this Directive reduce the threat of climate change?

According to the European Climate Change Programme, the Directive could deliver a reduction of up to 45 million tonnes of carbon dioxide by 2010. In order to meet the agreed Kyoto targets, the European Union must implement reductions of 330 million tonnes between 1990 and 2010.

Author: Roger HITCHIN (BRE)

Date: 07/04/06

What are the main requirements of the EPBD in simple terms?

This Directive lays down requirements as regards (see article 1 of EPBD):

- (a) the general framework for calculation methodology the integrated energy performance of buildings, i.e. there must be in each Member State one or more calculation methods for determining the integrated energy performance of buildings;
- (b) the application of minimum requirements for the energy performance of new buildings;
- (c) the application of minimum requirements for the energy performance of large existing buildings that are subject to major renovation;
- (d) the energy certification of buildings; and
- (e) the regular inspection of boilers and of air-conditioning systems in buildings and in addition an assessment of the heating installations in which the boilers are more than 15 years old.

Author: Roger HITCHIN (BRE)

Date: 07/04/06

Can you tell me more about the Energy Performance Certificates?

Key aspects of the Certificates include (see also article 7 of the EPBD):

- They shall be available when buildings are constructed, sold or rented out – so they are applicable to existing buildings as well as new ones.

- They should be accompanied by recommendations for cost-effective improvement of the energy performance including reference values such as benchmarks
- For public buildings the Certificate has to be publicly displayed (note: the definition of 'public buildings' is unclear and implementation may differ between Member States)
- Certificates cannot have a validity of more than 10 years, Member States may apply shorter periods.

Author: Roger HITCHIN (BRE)
Date: 07/04/06

What is the purpose of Energy Performance Certificates?

They serve two purposes:

- Purchasers and renters of buildings will be able to compare the energy performance of different buildings before signing. While Energy Performance Regulations require minimum standards, performance ratings will identify buildings that go beyond this to achieve higher specification
- Building and energy managers will be able to compare their building's energy performance with other buildings and identify possible improvements (these could include e.g. better operational practices or modifications to the fabric or services)

Author: Roger HITCHIN (BRE)
Date: 07/04/06

Can you explain the difference between an Asset Rating and an Operational Rating

An "Asset" Rating is:

- *calculated* rating based on standard weather and building use
- similar in principle to "typical use" consumption figures for cars
- useful when comparing two buildings with different users, i.e. provides like-for-like figures

An "Operational" Rating is:

- based on *measured* energy use
- takes into account how the building is used and managed
- useful for energy managers and potential users of the building because it includes factors they control.

NB the relevant CEN standards have adopted the terms "Calculated Rating" and "Measured Rating". These are equivalent to "Asset Ratings" and "Operational Ratings" respectively.

Author: Roger HITCHIN (BRE)
Date: 07/04/06

Will the Directive be applied in the same way everywhere?

Member States have discretion in how they implement the Directive as long as they satisfy its requirements. Depending on their legal and building control systems

together with their existing infrastructure and practices, different countries will implement it in different ways. Over time, some procedures may become more widespread than others.

Author: Roger HITCHIN (BRE)
Date: 07/04/06

How do European Standards fit in with the fact that the Directive allows a certain national discretion in the approach?

A number of European Standards are being developed in parallel with the implementation of the Directive (see also Information Paper P02). Unless national legislation demands it, they are not mandatory. However, when agreed, they should represent good practice. Many countries are taking note of the draft standards in their implementation. Some standards are likely to be further developed as experience in implementing the Directive is gained. Over time it is probable that the range of national implementation mechanisms will tend to become less diverse and will instead reflect the developed European Standards.

The draft standards are due to be issued for formal voting during 2006. If accepted, they will become full CEN standards in 2007.

Author: Roger HITCHIN (BRE)
Date: 07/04/06

1.2. Certification Procedures

What type of buildings is subject to energy performance certification? Does the requirement depend on purpose of building, useful floor area, amount of energy consumption, etc....?

Article 7 of the Directive states that: “*when buildings are constructed, sold or rented out, an energy performance certificate is made available to the owner or by the owner to the prospective buyer or tenant*”. So the production of a certificate does not generally depend on the type or size of the building.

Nevertheless Member States may exclude the following types of buildings (Article 4):

- *buildings and monuments officially protected as part of a designated environment or because of their special architectural or historic merit, where compliance with the requirements*
- *would unacceptably alter their character or appearance,*
- *buildings used as places of worship and for religious activities,*
- *temporary buildings with a planned time of use of two years or less, industrial sites, workshops and non-residential agricultural buildings with low energy demand and non residential agricultural buildings which are in use by a sector covered by a national sectoral agreement on energy performance,*
- *residential buildings which are intended to be used less than four months of the year,*
- *stand-alone buildings with a total useful floor area of less than 50 m²*”

Author: JC VISIER (CSTB)
Date: 04/04/2006

Which buildings are exempted from energy performance certification?

Member States may exclude the following types of buildings from certification (Article 4):

- *buildings and monuments officially protected as part of a designated environment or because of their special architectural or historic merit, where compliance with the requirements*
- *would unacceptably alter their character or appearance,*
- *buildings used as places of worship and for religious activities,*
- *temporary buildings with a planned time of use of two years or less, industrial sites, workshops and non-residential agricultural buildings with low energy demand and non residential agricultural buildings which are in use by a sector covered by a national sectoral agreement on energy*
- *performance,*
- *residential buildings which are intended to be used less than four months of the year,*
- *stand-alone buildings with a total useful floor area of less than 50 m².*

Author: JC VISIER (CSTB)

Date: 04/04/2006

Are there any special requirements for public buildings?

Yes. Public buildings require an energy performance certificate not older than 10 years old and the certificate shall be visible to the public in these buildings.

Specifically, Article 7§3 of the Directive states that:

“Member States shall take measures to ensure that for buildings with a total useful floor area over 1 000 m² occupied by public authorities and by institutions providing public services to a large number of persons and therefore frequently visited by these persons an energy certificate, not older than 10 years, is placed in a prominent place clearly visible to the public”

Author: JC VISIER (CSTB)

Date: 04/04/2006

Is there a need to include the CO₂ emissions produced by building on the certificate?

This can be done but it is not mandatory. The choice is left to Member States. Specifically, the Directive states in Article 3 that The energy performance of a building shall be expressed in a transparent manner and may include a CO₂ emission indicator.

Author: JC VISIER (CSTB)

Date: 04/04/2006

Is there a need to include recommendations for energy savings or improvements on the certificate?

Yes. The Directive states that:

The certificate shall be accompanied by recommendations for the cost-effective improvement of the energy performance.

Author: JC VISIER (CSTB)
Date: 04/04/2006

1.3. Inspection of boilers and air conditioning systems

What is the required frequency for the inspection of air conditioning systems?

The frequency of inspection of air conditioning systems is not specified in the Directive. It is up to the Member States to specify and implement.

Author: Michèle MONDOT (CETIAT)
Date: 24/03/06

Is regular inspection of boilers required in all cases by the EPB Directive?

Article 8 of the EPBD offers two options:

1. either inspection of boilers (8.a) or
2. provision of advice to the users that must achieve an overall equivalent impact to that of inspection (8.b).

The first option (inspection of boilers) requires regular inspection of boilers fired with non-renewable liquid or solid fuel of an effective rated output of 20 to 100 kW and inspection of boilers of an effective rated output of more than 100 kW without restriction about the fuel used.

The Directive also states that regular inspection of boilers from 20 to 100 kW may apply to fuels other than non-renewable liquid or solid fuels.

Regular inspection of boilers is therefore not compulsory for all types of fuels or all rated outputs, especially as an alternative (but equivalent) approach is allowed.

Author: François DURIER (CETIAT)
Date: 04/04/06

What about inspection of wood fired boilers?

If a Member State chooses to implement inspection of boilers (by referring to article 8a), the following requirements should apply to wood-fired boilers:

- regular inspection of wood-fired boilers with a rated output of more than 100 kW at least every two years,
- one-off inspection of the whole heating installation with wood-fired boilers of more than 20 kW rated output which are older than 15 years.

The Member State may also require regular inspection for wood-fired boilers between 20 and 100 kW.

Author: François DURIER (CETIAT)
Date: 04/04/06

1.4. Requirements for experts and inspectors

What is an EPBD Independent Expert?

Article 10 of the EPBD states that *“Member States shall ensure that the certification of buildings, the drafting of the accompanying recommendations and the inspection of boilers and air conditioning systems are carried out in an independent manner by qualified and/or accredited experts, whether operating as sole traders or employed by public or private enterprise bodies”*.

The minimum requirement for Independent Experts is to be “accredited” by a Member State as competent and to operate in a manner which guarantees independence, based upon objective criteria.

Author: David STRONG (BRE)
Date: 22/03/06

What does “in an independent manner” mean?

Different Member States are interpreting the definition of “in an independent manner” in various ways.

Some Member States are defining this requirement as requiring building certification and/or plant inspection to be undertaken by a person who is entirely independent of the building owner or occupier.

An alternative approach being adopted in some Member States allows “self-certification” by an accredited expert directly employed by the building owner or occupant.

In most cases self-certification is being linked to a government endorsed quality assurance accreditation framework so as to ensure that self-certification is only undertaken by suitably qualified “competent persons”.

Author: David STRONG (BRE)
Date: 22/03/06

Why is it important that building certification and plant inspection is undertaken in an independent manner?

If the EPBD is to achieve its objectives, it is of considerable important that prospective building purchasers or tenants are able to have confidence in energy performance certificates, plant inspection and the accompanying reports and recommendations.

Major investment decisions and property transactions will be based upon recommendations made by the EPBD Independent Experts. There are important issues of consumer protection and a major risk of fraud if the requirements of Articles 7, 8 and 9 are not undertaken in an independent manner.

Furthermore, Section 10 of the Recitals to the EPBD states that calculating the energy performance of buildings must be *“carried out by qualified and/or accredited experts, whose independence is to be guaranteed on the basis of objective criteria”*.

Recital 10 also states that *“This will contribute to a level playing field as regards efforts made in Member States to energy saving in the buildings sector and will introduce transparency for prospective owners or users with regard to energy performance in the community property market”*.

Author: David STRONG (BRE)
Date: 22/03/06

What are the risks and liabilities associated with becoming an Independent/Accredited Expert?

Provided Member States establish regulated competent person schemes which “accredit” experts on the basis of objective criteria with formal quality assurance checks and procedures (ISO 17024 and ISO 9001) the risks and liabilities associated with undertaking building certification and plant inspection should be low, (since obtaining Professional Indemnity (PI) Insurance should be cost-effective).

However, if Member States do not introduce formal qualification and/or accreditation requirements it is likely that building certification and plant inspection will be undertaken by unqualified practitioners operating outside any formal quality assurance framework. In this instance, PI insurance may be difficult (or impossible) to obtain at a realistic cost. This will result in major (potentially uninsurable) liabilities for building certifier and/or plant inspectors.

Author: David STRONG (BRE)
Date: 22/03/06

What qualifications will be required to become an Independent Expert?

Each Member State is applying different qualification criteria.

Article 10 of the EPBD suggests that practitioners must be *“qualified and/or accredited experts”*. This implies that no specific formal qualification is required if the Independent Expert is “accredited”.

Since the accreditation requirements are not defined in the EPBD, each Member State is likely to establish different criteria for the accreditation of Independent Experts. This may, or may not, include proof of competence by examination and/or the development of new nationally recognised qualifications.

If proof of competence to become an “accredited expert” is to be based on a qualification/examination, up to seven separate qualifications may be required, including:-

1. Certification of new domestic buildings.
2. Certification and drafting accompanying report for existing domestic buildings.
3. Certification of new non-domestic buildings.
4. Certification and drafting accompanying report for existing non-domestic buildings.
5. Certification and drafting of report for public buildings for display purposes.
6. Boiler plant inspection and reporting.
7. Air conditioning plant inspection and reporting.

Author: David STRONG (BRE)
Date: 22/03/06

1.5. Calculation procedures

How is the CEN work organised?

CEN is the European Association of national standardisation institutes, the so called National Standards Bodies (NSBs). These NSBs are responsible for contact with the interested market parties and experts preparing the CEN standards in the same way they are when preparing national standards. It is up to the NSBs to nominate experts for the preparation of the CEN standards. Member States officials, responsible for the national legislation, may (and in several cases do) facilitate participation of experts from their country, as an efficient way to contribute to the quality and practicability of the standards.

More information on how the CEN work is organised is given in the Information Paper on CEN standards to support the EPBD (P02), see the section Platform Services/Information papers.

Author: Dick van DIJK (TNO)
Date: 14/04/06

How and where do I obtain EN standards?

CEN standards (ENs) or draft CEN standards (prENs) and combined EN-ISO standards are officially published by CEN in Brussels but can only be obtained from the so called National Standards Bodies (NSBs). The CEN website (<http://www.cenorm.be>) provides the contacts and also has a search engine to see which standard activities are in progress and which existing and draft standards are available.

Author: Dick van DIJK (TNO)
Date: 14/04/06

Are CEN standards only available in English?

It is a fact that in general most of the preparatory work in the Technical Committees and working groups in CEN is in English. The underlying documentation and the preliminary drafts are in English. When publishing a draft standard (prEN), it is up to DIN (German NSB) and AFNOR (French NSB) to decide if they want to translate and provide CEN with a German or French version. The time schedules allow for 2 months to make this translation available. It is up to the so called National Standards Bodies (NSBs) to decide if other national language versions will be produced. This decision will only be taken if this is required by the users. If the user group is a small expert group of, for example, software developers this seems unlikely. When the standard is referred to in a more general way by a bigger target group, translation should be considered by the NSB.

Author: Dick van DIJK (TNO)
Date: 14/04/06

What is the relation between the CEN standards for the EPBD and national standards?

There is an agreement between CEN and the national standards bodies (NSBs) that CEN standardisation work shall be considered before starting national standardisation work. If CEN work is already started, this line shall be followed and national work should not be done. It is called a "Stand still". After the ENs are published, existing and possibly conflicting national standards shall be withdrawn within a certain time frame. If national legislation is referring to these national standards, the NSB can get some years to repair this. A three to five years period is considered as the maximum deviation period in which national standards shall be withdrawn.

Note, however, that in some Member States the building regulations do not always refer to national standards, but e.g. have (part of) the assessment procedures included in the regulations. In the case of the Construction Products Directive, the European Commission issues mandates to CEN to make use of CEN standards mandatory for all Member States. The EPBD allows a national/regional differentiation. See also the question on the status of the EPBD related CEN standards.

Author: Dick van DIJK (TNO)
Date: 14/04/06

What is the relation with the international (ISO) standards?

There is an agreement between CEN and ISO saying that they shall not work on the same Work Items. New work can only be started in CEN if it is not already on the ISO program and vice versa.

CEN-Technical Committees are encouraged to seek contact with related ISO-Technical Committees to agree on possible parallel voting. This means that the European standard (EN) may become a combined CEN-ISO standard (ISO-EN) if accepted by ISO.

Existing ENs will by preference be maintained by related ISO-Technical Committees. Only when related ISO-Technical Committees are not interested or not giving it enough priority, will the CEN-TC continue the normal 5 years maintenance schedule or faster if needed.

Author: Dick van DIJK (TNO)
Date: 14/04/06

What is the status of the EPBD related CEN standards?

The EPBD has stimulated the more rapid development of CEN standards (ENs) for energy calculation procedures for buildings and their systems, and related standards needed to specify buildings and systems performance in relation to the Directive. The European Commission issued a mandate to CEN in order to speed up the development of standards needed for the EPBD implementation.

Within the given short timescale it was impossible to produce a set of approved and published standards to be implemented in the Member States before the national implementation of the EPBD.

Consequently, Member States, in the preparation of national legislation, have to refer to either existing or new national procedures. Most Member States are planning to adopt the CEN standards in one way or another within a few years from publication. See also the question concerning whether the CEN standards will lead to the same EP rating in all M.S.

More information on the status of the CEN standards is given in the Information Paper on CEN standards to support the EPBD (P02), see the section Platform Services/Information papers.

Author: Dick van DIJK (TNO)
Date: 14/04/06

What is the current status of the EPBD CEN standards and where can I obtain these?

Most of the EPBD CEN standards are currently available as drafts (prEN). Some are already finalised as EN or EN-ISO standards. The standards and draft standards can be ordered from the National Standards Body (see www.cenorm.be).

More information on this subject is given in:

1. The Information Paper on CEN standards to support the EPBD (P02), see the section Platform Services/Information papers.
2. The section Themes/Calculation Methods.

Author: Dick van DIJK (TNO)
Date: 14/04/06

If the CEN standards are used, will this mean that a given building and system has the same energy performance rating in all Member States?

No, it will not lead to the same energy performance rating in each Member State. Regional differences in climate, building tradition and user behaviour in Europe will have an impact on the input data and consequently on the energy performance. The standards developed to support the practical implementation of the EPBD have to be flexible enough to accommodate these differences, both in the (national) choice between different options provided in the CEN standards, and in the (national) choice of input data and boundary conditions. See also the question on the status of the EPBD related CEN standards.

Author: Dick van DIJK (TNO)
Date: 14/04/06

Why not one CEN standard covering all EPBD aspects?

There are several reasons why there is not just one CEN standard covering all EPBD aspects. The two main reasons are:

1. The CEN standards cover different types, with different application areas and different target groups, ranging from building designers and inspectors to

- specific specialists on building physics or systems (lighting, ventilation, cooling, heating, hot water, ..).
2. CEN didn't start this work from scratch. The short timescale and pre-existing drafts (from 5 CEN Technical Committees, each covering a specific field of expertise) have resulted in more fragmentation than if started from scratch. On the other hand, starting from scratch would undeniably have taken much more time and discussion. A guidance document ("Umbrella Document") is being produced on the application of the standards. Moreover, it is expected that, over time the standards will converge into a more unified set.

More information on this subject is given in the Information Paper on CEN standards to support the EPBD (P02), see the section Platform Services/Information papers.

Author: Dick van DIJK (TNO)
Date: 14/04/06

1.6. Minimum energy performance requirements

Does the EPBD set minimum energy performance requirements for buildings?

No. The EPBD requires Member States to take the necessary measures to ensure that energy performance requirements for buildings are set (see Article 4). The requirements may differentiate between new and existing buildings and different categories of buildings. The EPBD also includes a list of buildings for which requirements are not obligatory. Article 5 of the EPBD states that Member States have to take necessary measures to ensure that, for new buildings with a useful floor area of more than 1000 m², certain alternative systems (e.g. renewable technologies) have to be considered and taken into account. Article 6 requires that existing buildings undergoing a major retrofit have to meet minimum requirements in so far as this is technically, functionally and economically feasible. In either case individual Member States provide the quantitative definition of the minimum requirement.

Authors: Hans ERHORN and Heike ERHORN-KLUTTIG (FHG)
Date: 24/03/06

What types of minimum energy performance requirements are possible for new buildings?

Article 4 requires that minimum requirements are based on the methodology referred to in Article 3 (calculation of the energy performance of buildings). For more information on the general framework for the calculation of energy performance of buildings see the Annex of the EPBD. The energy performance of a building shall be expressed in a transparent manner and may include a CO₂ emission indicator. If the building has a useful floor area of more than 1000 m², alternative systems have to be considered and taken into account (see Article 5).

Authors: Hans ERHORN and Heike ERHORN-KLUTTIG (FHG)
Date: 24/03/06

What types of minimum energy performance requirements are possible for existing buildings?

Buildings with a useful floor area over 1000 m² which undergo a major renovation have to meet minimum energy performance requirements (in so far as this is technically, functionally and economically feasible). The minimum energy performance requirements may be set in two different ways:

1. for the renovated building as a whole
2. for the renovated systems or components

The objective is the improvement of the overall energy performance of the building. Note that Germany, for example, also sets minimum requirements for buildings that have a useful floor area less than 1000 m².

Authors: Hans ERHORN and Heike ERHORN-KLUTTIG (FHG)
date: 24/03/06

Does the EPBD require that existing minimum energy performance requirements in Member States have to be made more demanding?

No. If the existing requirements already meet the definitions of Articles 4-6, a Member State does not necessarily have to make them more demanding. Article 4 states that the requirements shall be reviewed at regular intervals (not longer than 5 years) and if necessary be updated in order to reflect technical progress in the building sector.

Authors: Hans ERHORN and Heike ERHORN-KLUTTIG (FHG)
Date: 24/03/06

Can minimum energy performance requirements be set at a regional level?

The EPBD states in Article 4 that a Member State has to take the necessary measures to ensure that minimum energy performance requirements for buildings are set. It does not state that the requirements have to be set nationally. Even the methodology that is the basis for the requirements (see Article 3) may be set at national or at regional level.

Authors: Hans ERHORN and Heike ERHORN-KLUTTIG (FHG)
Date: 24/03/06

2. EPBD Issues

The helpdesk provides a list of discussion topics: a number of points for further consideration have been collected, mainly from the same advisors who contributed to the list of Frequently Asked Questions.

At this moment, the topics are titles only. Additional content discussing the points will be gradually added in the near future.

1.1. Certification procedures

- *What is a “building occupied by institutions providing public services to a large number of person”?*
- *What is meant by “cost effective”?*

1.2. Inspection of boilers and air conditioning

- *How shall the limit of 12kW for the inspection of air-conditioning systems be interpreted? The question is, for example, whether the effective rated output of 12 kW (above which inspection is required) relates to one air-conditioning unit or to the sum of all units in one building that is owned by the same owner.*
- *Shall the inspection also cover the distribution and control system of the air conditioning system?*
- *Is inspection of the ventilation system required with the inspection of air conditioning systems?*
- *For air conditioning systems that can operate in the heating mode, is the inspection also applicable to the operation of the system in that mode?*
- *How to check that the provision of advice to users (article 8b) has an equivalent impact to that of a regular inspection of boilers (article 8a)?*

1.3. Requirements for experts and inspectors

- *Member States need to interpret what is mean by “an independent manner”.*
- *Member States need to decide how experts should demonstrate competence; through qualifications or accreditation?*
- *Member States need to decide what qualifications/accreditation is required for the different aspects of certification.*
- *What is the process by which Member States apply for a 3 year extension to apply articles 7, 8 and 9.*

1.4. Calculation procedures

- *Further harmonisation of the EPBD related CEN standards is anticipated in the near future. What does this mean?*
- *CEN standards adopted at national level often include a choice of different options. The choice between the options may depend on the application. Examples of application: checking minimum EP requirements, preparing the EP certificate, or giving tailored energy saving advice. If one option is selected by a given country, what is the status of the other options given in the CEN standards in that country? Will choices of options be binding for all users within the given country?*
- *How can the calculation methods be simple and transparent with respect to the required input data and at the same time give enough distinction in the output between “good” and “better” products or techniques, or to stimulate innovations and to reward significant energy saving measures?*
- *Is the accuracy of the results better with hourly methods compared to monthly methods? And what about reproducibility, transparency and robustness?*
- *How are the standards covering existing systems/components? What input data is required and is this available at reasonable cost? Should there be a distinction between input data for new buildings (input data on the save side, for checking compliance with minimum EP requirement) and input data for the EP certificate (representative input data)?*
- *How to deal with innovative technologies that are not yet covered in the standards? Can the "principle of equivalence" be used in all Member States?*

1.5. Minimum energy performance requirements

- *What is meant by “major renovation”? The German energy regulations, for example, define this term, but is it being defined by all Member States and, if so, how?*
- *What is meant by “technically, functionally and economically feasible”? The German energy regulations, for example, define this term, but is it being defined by all Member States and, if so, how?*
- *Is the 1000 m² threshold for some requirements of the EPBD arising from article 5 (new buildings, renewable energies) and article 6 (existing buildings, general retrofit) being adopted uniformly? For example, the German energy regulations do not use any useful floor area threshold at all. Do other Member States have different types of limits or no thresholds?*
- *How are energy regulations being enforced? Are fines or similar penalties foreseen when the requirements are not met? Are there authorities checking the realisation on site?*
- *When do energy performance requirements have to be set for renovated systems or components and when do they have to be set for the renovated building as a whole?“*
- *How are the general indoor climate conditions taken into account when setting up energy performance requirements?*