Implementing The Amended EPBD

EuroACE Webinar 4

Assessing the Energy Performance of a Building: Putting energy efficiency first

8th April 2019, 12.00-13.15

In partnership with the Build Up Platform
Introduction and Overview (Chapter 1)

A Guide to the Implementation of the Amended EPBD

Hélène SIBILEAU
Senior EU Affairs Manager, EuroACE
EuroACE
The European Alliance of Companies for Energy Efficiency in Buildings

More than 286,000

More than 1,200
Why Do We Exist?

To Advocate for Ambitious EU Policies for Energy Efficiency in Buildings

To Bring Benefits to All Through Improved Performance of Buildings

To Increase the Market for the Products, Equipment and Services Offered by Our Member Companies
What do we work on?

**EPBD** (Energy Performance of Buildings Directive)  
Including **SRI** (Smart Readiness Indicator)

**EED** (Energy Efficiency Directive)  
**GOV** (Governance Regulation)

**EU 2050 Strategy**

**Financing** for Energy Efficiency  
(Multiannual Financial Framework, Sustainable Finance)
Why a EuroACE Guide?

Set Out Our Views
Followed the EPBD since its first steps
Share our knowledge and experience
Provide high-level recommendations (12 in all)

Inform and Motivate
Member State officials
Other public stakeholders
Private actors and influencers
What Approach Did We Take?

- **Late 2017**: identified the key aspects to cover
- **January-May 2018**: prepared a draft text in consultation with members
- **May-June 2018**: invited expert reviewers to comment
- **June 2018**: launched public consultation at C4E Forum (Poland)
- **October 2018**: finalised text with inputs

- **8th November**: first webinar & official launch of the Guide
- **11th December**: second webinar
- **13th February**: third webinar
- **April**: fourth webinar
A strong EPBD transposed and implemented at national level

• 12 High-Level Recommendations

• 6 Chapters Covering Key Issues

• Chapter 1 gives an overview of the main changes
Chapter 2
EuroACE Guide to EPBD Implementation

• Long-term renovation strategies (LTRS), the central tool for Member States to achieve impact
• Building Renovation Passport, a powerful new option for Member States
Chapter 4
EuroACE Guide to EPBD Implementation

• Financing energy renovations, the link to improved energy performance
Chapter 5
EuroACE Guide to EPBD Implementation

• Smart and technology equipped buildings
Chapter 6
EuroACE Guide to EPBD Implementation

• How to describe the energy performance of a building, putting energy efficiency first in methodologies based on Annex I requirements
Thank You for Your Attention!

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Assessing the Energy Performance of a Building
(Chapter 6)

A Guide to the Implementation of the Amended EPBD

Adrian Joyce
Secretary General
EuroACE
• How to describe the energy performance of a building, putting energy efficiency first in methodologies based on Annex I requirements
EPBD Annex I – What is it?

A General Framework for Calculating the Energy Performance of Buildings:

Must be used by Member States in devising their national methodologies for:

- Energy performance certification
- Compliance with minimum energy performance requirements (set nationally)

Result must be primary energy in kWh/m²/year
EPBD Annex I – Why is it important?

Provides transparency on calculation methods used by Member States (MS)

Forms basis for evaluation and reporting on EPBD implementation

MS must use overarching ISO standards in describing their methodologies

Allows for comparisons between MS (to a certain extent)
EPBD Annex I – What has changed?

MS must calculate performance to optimise health, indoor air quality and comfort

MS must ensure optimal performance of building envelope

Obligated to take account of certain aspects:
- Local solar exposure
- Active solar and other RES systems
- Co-generation
- District and block heating and cooling
- Natural lighting
EPBD Annex I – How is RES treated?

Renewable Energy Sources (RES) must be treated in a non-discriminatory way

Counts towards energy performance of the building, reducing demand on grids

Related to reporting on nZEB penetration in the building stock
First calculate the energy (regardless of source) needed for the building to perform as intended:

- Heating and cooling
- Hot water
- Ventilation
- Built-in lighting
- Other TBS

Translate result to primary energy in kWh/m²/year using relevant primary energy factors.

Then determine proportion of RES used.
EPBD Annex I – Potential Impact

Opportunities:
- Put energy efficiency first (nZEB link)
- Increase comparability across the EU
- Use standards more
- Increase comfort and health

Risks:
- Comparisons may not be possible
- Dis-continuity from current methodologies
- Credibility, if methodology changed
Thank You!

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Assessing the Energy Performance of a Building

The perspective from policymakers

Dimitrios Athanasiou
Policy Officer, Unit ‘Energy Efficiency’,
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EuroACE webinar on Assessing the energy performance of a building, putting energy efficiency first


Brussels, 8 April 2019
EPBD review: the process
From EC proposal to publication

30 November 2016

EC proposal

26 June 2017

Council General Approach

11 October 2017

Parliament’s ITRE Committee vote

7 Nov. 2017
5 Dec. 2017
19 Dec. 2017

Trialogues – agreement on 19 December

17 April 2018

EP plenary vote

14 May 2018

Council adoption

19 June 2018

Publication

19 July 2018

Entry into force

10 Jan. 2017

Council discussions

24 April 2017

EP discussions

Transposition deadline 10 March 2020 – 20 months after entry into force
Main outcomes of the revision

A strengthened Directive

- Stronger **long term renovation strategies** for Member States, aiming at decarbonisation by 2050 and with a solid financial component
- An optional **Smart Readiness Indicator** for buildings
- Targeted support to **electromobility** infrastructure deployment in buildings' car parks
- Enhanced transparency of national building **energy performance calculation methodologies**
- Reinforcement of **building automation**: additional requirements on room temperature level controls, building automation and controls and enhanced consideration of typical operating conditions
Annex I - Common general framework for the calculation of energy performance of buildings


- Improving **transparency and consistency** of the existing 33 different regional/national calculation methodologies
- Keeping **freedom and flexibility of Member States** to adapt their national or regional calculation methodologies to local and climatic conditions
- Putting more emphasis on **health, indoor air quality** and comfort levels and on the **optimal performance of the building envelope**
- Considering **Primary Energy Factors** (PEFs) and the treatment of on-site/off-site renewables
New obligation for Member States to describe their national calculation methodology following the national annexes of the overarching standards (ISO 52000-1, 52003-1, 52010-1, 52016-1, and 52018-1 developed under mandate M/480)

- Improve transparency and comparability but no harmonization of calculation methodologies

- Not an obligation on MS to comply with the EPB standards [recital 40]

- MS have flexibility to adapt the calculation methodologies to local and climatic conditions
Determining & expressing the energy performance

- The energy performance of a building must be determined on the basis of the **calculated or the actual energy use**

- The **typical energy uses of a building** include energy used for space heating, space cooling, domestic hot water, ventilation, built-in lighting and other technical building systems

- The energy performance of a building must be expressed by a common numeric indicator of **primary energy use in kWh/(m².y)**

- The numeric indicators refer to **both Energy Performance Certification** schemes and compliance with **minimum energy performance requirements**

- **Additional indicators** may be added to the common numeric indicator expressed in primary energy use in kWh/(m².y):
  - total, non-renewable and renewable primary energy use, and
  - greenhouse gas emissions produced
Additional aspects must be considered

*Deletion of "where relevant in the calculation"

The calculation methodology of the energy performance of a building must take into account the **positive influence** of local solar conditions, electricity produced by cogeneration, district heating and cooling systems and natural lighting

- Even if a factor may not be common, its positive influence must be considered
Considerations for the calculations of Primary Energy Factors (PEFs)

➢ Calculating Primary Energy Factors:
  • Is Member States responsibility
  • Values differ significantly among Member States
  • The procedures used are not always transparent

➢ The objective of revised EPBD
  • is not to interfere with Member States competence to define PEFs
  • to improve transparency

➢ Flexibility on how to define Primary Energy Factors per energy carrier based on weighted averages:
  • national, regional or local
  • annual, and possibly also seasonal or monthly,
  • or on more specific information for individual district systems: it makes sense for some sectors (p/v, district heating, etc.)
Energy needs to be considered

➢ The energy needs of a building is an important step for the calculation of its energy performance
  • The energy needs should cover, inter alia, energy for space heating, space cooling, domestic hot water, ventilation, lighting and other technical building systems

➢ National calculation methodologies must reflect the energy needs of a building in order to provide the **optimal comfort, indoor air quality and health conditions inside the building**
Pursuing the optimal energy performance of the building envelope

- Reducing the overall energy demand is crucial component when optimising the energy performance of a building
- The consideration of the envelope is not underestimated
- Technical Building Systems and Building Automation and Control Systems are also most easily optimised if a highly-energy performing envelope is also installed
- Member States should always try to find the best combination of energy efficiency and renewable measures
- The use of renewables should be encouraged in conjunction with seeking energy savings from the building envelope and its technical building systems
Treatment of on-site and off-site RES

- RES, on-site or off-site, may be considered in the calculation of Primary Energy Factors but on a non-discriminatory basis
  - RES consumed by the building, whether on-site or off-site, improves the energy performance of the building
  - Flexibility to Member States to choose the regime which corresponds best to its particular situation, taking into account the specific national circumstances
  - The energy produced on-building reduces the primary energy associated with the delivered energy
  - The calculation of primary energy factors includes both non-renewable energy and renewable energy supplied to the building (total PEF)
  - A distinction between renewable and non-renewable primary energy factors can help understand the energy consumption of a building
  - Comparable situations must not be treated differently and different situations must not be treated in the same way unless such treatment is objectively justified
Thank you!

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Assessing the Energy Performance of a Building

Using the set of EPB standards at national level for calculation methodologies

Jaap Hogeling
Director
EPB Centre, The Netherlands
Your service center for information and technical support on the new set of EPB standards

Supporting the use of the EPB standards at national level: Roll out of the set of EPB standards

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This project is facilitated by the EU-Commission Service Contract ENER/C3/2017-437/SI2.785185
Start 21 September 2018 for 3 years

EuroACE webinar on Assessing the energy performance of a building, putting energy efficiency first
Brussels, 8 April 2019
December 2010: Mandate M480 European Commission to CEN
To develop a consistent set of standards to assess overall Energy Performance of Buildings
To support the EPB Directive (EPBD)

• For energy performance certification and to check compliance against minimum EP requirements
• Harmonized procedures, but:
• with flexibility for national situations
Set of EPB standards: the holistic approach

From *product* standards to *overall* energy use

- Energy ratings
  - Overall energy use
- Technical building systems standards (H, C, V, W, L) (system loss calculations), renewable energy
- Energy needs heating & cooling, ventilation, DHW
- Climatic conditions, conditions of use (indoor temp. set points, vent., ...)
- Input data on components & products

EN ISO 52000-1
Overarching EPB standard

**Product no longer evaluated as a product but as a part of a system**

Example:
Requirement in building regulation:
“Overall EP < 50 kWh_{\text{Enren}}/m^2”
Current status

• The whole set of EPB standards was published in 2017\(^1\):
  o 17 EPB standards at European (CEN) and global (ISO) level
    o The ISO 52000 family
  o 36 EPB standards (for the moment..) at European (CEN) level only
  o 39 accompanying technical reports

• Now: to be implemented in national building regulations
  – Referring to art. 3 of the EPBD
  – EPBD:2018, Annex I: new obligation for MS’s to describe the national calculation methodology following the national annexes of the 5 “overarching” EPB standards

\(^1\): 1 standard the EN 16798-1 on Indoor Environmental input parameters for EPB calculations in 2018
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A harmonized & modular set of EPB standards:
- Consistent and transparent package of harmonized procedures
- Fit for use in the context of EPB regulations

Flexible as clearly identified options and national data are necessary due to differences in:
- Climate (national, regional)
- Culture, building tradition and the way buildings are used
- Building typologies
- Policy
- Legal frameworks related to the national building regulation (including the type and level of quality control and enforcement)
How to implement EPB standards?

Each EPB standard contains an Annex A to be completed at national level:

**National Annex (datasheet)**

*with national choices of options in methods, policy factors and default input data*

Examples of the many choices that can be made in the national datasheets:
Flexible: “National Annexes”

- Each EPB standard has a template for a national annex that enables Member States to tailor the methodology to the national situation.
- Examples of types of choices:
  - Climatic data
  - Policy factors (e.g., primary energy conversion)
  - Building categories, space categories to be considered
  - Set of user conditions, indoor env. parameters per space category or at whole building level;
  - Choice between specific detailed or simplified procedures
  - Default values for specific components or products
  - Replacement of specific EPB standards by national procedures (to enable a “step by step” implementation of the whole set)
The role of the EPB Center

Type: Service Contract
Contract: ENER/C3/2017-437/SI2-785.185

Title: SUPPORT THE DISSEMINATION AND ROLL-OUT OF THE SET OF ENERGY PERFORMANCE OF BUILDING STANDARDS DEVELOPED UNDER EC MANDATE M/480

Start: September 21, 2018
Duration: Three years
Services

• Support Member States and National Standardization Bodies (NSB) to complete the **national annexes** of the overarching EPB standards

• Disseminate **information** and **promote** the use of the overarching and other EPB standards

• **Information services** for all involved stakeholders, such as industry, researchers, engineers and building professionals, financial institutions on the EPB standards
Knowledge tools

• FAQ on key issues (How to fill in the annexes? How to use the standards?, How to find my way..., How to understand...., Where to find.....)
• Calculation tools for key individual standards
• Case studies: pool of practical examples tailored to the needs of different stakeholders

• Hands-on workshops and offline training sessions
• EPB Standards webinar series
National Annexes to the ‘overarching’ standards

Priority is given to the ‘overarching’ standards: mentioned in Annex 1 of the revised EPBD.

Each standard describes an important step in the assessment of the energy performance of buildings

- EN ISO 52000-1: Weighted overall (primary) EP, share of renewables
- EN ISO 52003-1: Overall EP indicators
- EN ISO 52010-1: Climatic data for energy calculations
- EN ISO 52016-1: Energy needs (heating/cooling) and indoor temperatures
- EN ISO 52018-1: EP indicators at building fabric level
Case Studies

• To demonstrate the usability of the EPB standards
• Two types are considered: Partial and full EP calculations

  – Preparation of case studies of the application of the standards in real buildings, both residential and non-residential, across the 28 Member States and the various climatic zones of Europe
  – Mostly as partial case studies, together with a few case studies covering simplified full EP calculations.
Database of Frequently Asked Questions

- The frequently asked questions will be formulated on the questions posed to the EPB Center.
- When placed on the website and communicated (e.g. e-newsletters), it will trigger new questions and answers.
  - A well-structured Q&A section on the website, with links to more information, will also help to find your way through the information.
- See [www.EPB.Center](http://www.EPB.Center) (the current website will be upgraded in the coming weeks, more functionalities will be added).
EPB Center is also ‘available’ for specific services requested by individual or clusters of stakeholders.

More information on the set of EPB standards:
www.epb.center
Contact: info@epb.center

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Assessing the Energy Performance of a Building

Questions & Answers Session
Assessing the Energy Performance of a Building

Thank You!

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