Web workshop

Building Energy Performance Certificates (EPCs): Convergent evolution?!

01 July 2021, 10h00 – 11h30 CEST


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Programme (approximate timings)

10h00-10h05 – Welcome and general introduction
   by Andrei Vladimir Lițiu, Building Performance Adviser, REHVA

10h05-10h25 – Keynote “The set of EPB standards supports convergence and coherence”
   by Dick van Dijk, EPB Expert, EPB Center & Chairperson ISO JAG on ISO 52000 EPB standards

10h25-11h28 – Moderated panel discussion and Q&A from the audience
   moderated by Jaap Hogeling, Chairperson CEN/TC 371, Energy Performance of Building, CEN
   Spotlight on the Next Generation EP Certificates cluster of H2020 projects

Panagiota Chatzipanagiotidou
Michal Zbigniew Pomianowski
María Fernández Boneta
Olivier Greslou
Stephanie Veselá
Dick van Dijk
Lukas Kranzl

11h28-11h30 – Closing remarks
   by Andrei Vladimir Lițiu
General introduction

• **Building EPC Certificates** have now been **around** in the EU’s Member States for at least **10 years**. Underpinned by the **Energy Performance of Buildings Directive (EPBD)**, building performance assessment methodologies (and related certification processes) have been prepared at national level leading to **more than 30 different methodologies** (in some cases several within the same country).

• The **overall context is somewhat different now in 2021** from when EPCs were first introduced. Buildings are acknowledged as one of the **key focus areas for delivering the European Green Deal and more specifically the Renovation Wave Strategy**. Furthermore, **finance is becoming more and more available and will reach in the coming decades the needed scale to digitally transform buildings** not as a goal in its own right, but as means to an end for reaching by 2050 a healthy, safe, efficient, flexible and sustainable EU building stock.

• Policy and finance for buildings are rolling in the needed direction, however on the **technical side the EU’s market is still fragmented** due to the different approaches of the Member States. Although, there’s no right or wrong nor better or worse building performance assessment methodology and ultimately **building physics/science is the same round the globe**, the current situation is **hindering the needed leapfrogging** for immediately reaping the multiple benefits of continuously improving and optimizing the performance of the buildings we live, work, study, heal, relax etc. in.
General introduction

- Policy and finance for buildings are rolling in the needed direction, however on the technical side the EU’s market is still fragmented due to the different approaches of the Member States. Although, there’s no right or wrong nor better or worse building performance assessment methodology and ultimately building physics/science is the same round the globe, the current situation is hindering the needed leapfrogging for immediately reaping the multiple benefits of continuously improving and optimizing the performance of the buildings we live, work, study, heal, relax etc. in.

- Fortunately, all the “technical layer” ingredients are available, such as the set of CEN/ISO Energy Performance of Buildings (EPB) standards and Horizon 2020 coordination, support and innovation actions and moreover the EPBD is currently being revised (the public consultation closed on 22 June 2021).

- Can we walk the talk and go farther together (as opposed to fast alone) in the spirit of the EU’s principles, including subsidiarity, and facilitate a convergent evolution to a common building performance coherence framework?
General introduction

Transition
Build forward together
“Go far, go together”

Business as usual
Build back better
“Go fast, go alone”
Keynote presentation
“The set of EPB standards supports convergence and coherence”

Moderated panel discussion
Spotlight on Next Gen EPCerts H2020

Dick van Dijk
Jaap Hogeling

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Building Energy Performance Certificates: Convergent evolution?!

Web workshop
Your service center for information and technical support on the set of EPB standards

The set of EPB standards supports convergence and coherence

Dick van Dijk
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Start: 21 September 2018 for 3 years

Web workshop: Building Energy Performance Certificates: Convergent evolution?
July 1, 2021
in cooperation with
My background

• EPB Center expert (> 2017)
• Involved in initiation, preparation and coordination of set of EPB standards (2012-2017)
• Convenor of ISO Joint Advisory Group on the (EN) ISO 52000 family of EPB standards, in collaboration with CEN
  ISO/TC 163 & ISO/TC 205, CEN/TC 371
• Convenor of ISO Working Group responsible for few key EPB standards:
  Energy needs heating/cooling, Climatic data, Partial EP indicators (ISO/TC 163/SC 2/WG 15)
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
Current status

Set of international standards on EPB using holistic approach

- Most EPB standards were published in 2017
  - 17 EPB standards at European (CEN) and global (ISO) level
  - 36 EPB standards at European (CEN) level only
- Since 2017:
  - Few EPB standards added
  - Some EPB standards (being) upgraded from EN xxx to EN ISO xxx

The key EPB standards are all part of the (new) brand: (EN) ISO 52000 family
Set of EPB standards: Common quality features

Fit for use in context of building regulations implementing the EPBD: EP Certificates & EP requirements

• Overarching framework (EN ISO 52000-1)
• Common quality requirements for all
• Overall consistency (incl. output -> input links)
• Common format
• Managed by multi-disciplinary international team of experts (ISO/TC 163, ISO/TC 205, CEN/TC 371)
• Explanation, justification and examples in accompanying set of Technical Reports (e.g. CEN ISO/TR 52000-2)
• Validation and worked examples in accompanying spreadsheets
Modular approach (1)

Technical topics:

- Over-arching (10)
- Building (16)
- Heating (15)
- Cooling (4)
- Ventil. (4)
- DHW (1)
- Lighting (1)
- BAC (10)
Modular approach (2)

Themes:

- (EP) Calculation procedures (36)
- Pre-processing: indoor and outdoor conditions (3)
- Post-processing: EP indicators, requirements or ratings (2)
- (EP) Measurement procedures (1)
- Building, system or component design procedures (11)
- Inspection procedures (4)
- Other (4)

*): Core set for the calculation of the overall energy performance: about 10 to 15 EPB standards
Complete overview

**HEAT GAINS**
- EN 16798-1 internal gains
- EN ISO 52022-1 & -3 solar gains

**BUILDING FABRIC**
- EN ISO 13789 thermal transmission
- EN ISO 13370 transm. ground floor
- EN ISO 10077 transm. windows

**CLIMATIC CONDITIONS**
- EN ISO 15927 clim. data calculation
- EN ISO 52010-1 conversion solar rad.
  National standards climatic data

**INDOOR ENVIRONMENT REQUIREMENTS**
- EN 16798-1 indoor environment
- EN 16798-3 ventilation systems
- EN 12464-1 visual environment

**ENERGY needs**

**CALCULATION OF BUILDING ENERGY NEEDS FOR HEATING, COOLING AND (DE)HUMIDIFICATION**
- EN ISO 52016-1

**CALCULATION OF BUILDING POWER DEMAND**
- EN 12831-1 (HEATING), EN ISO 52016-1 (HEATING & COOLING)

**BUILDING AUTOMATION SYSTEM & CONTROL**
- EN 15232-1
- General
- Emission
- Distribution
- Storage
- Generation

**COOLING**
- EN 16798-9
- EN 15316-2
- EN 15316-3
- EN 16798-15
- EN 16798-13

**VENTILATION**
- EN 16798-3
- EN 16798-7
- EN 16798-5

**HEATING**
- EN 15316-1
- EN 15316-2
- EN 15316-3
- EN 15316-5
- EN 15316-4

**DHW**
- EN 15316-1
- EN 15316-3
- EN 15316-5
- EN 15316-4

**LIGHTING**
- EN 15193-1

**CONVERSION TO PRIMARY ENERGY**
- EN ISO 52000-1

Public regulations: POSTPROCESSING (indicators, requirements, ratings and certificates)
Background information: EN ISO 52003 (overall performance) & EN ISO 52018 (partial performances)
Five key EPB calculation standards

EN ISO 52000-1, Overall EPB Framework (common terms, modular structure, ...)

- Boundary conditions (indoor, outside) & component and product characteristics
- EN ISO 52000-1 Aggregation & conversion to primary energy
- << Several system standards >>
- EN ISO 52016-1 Energy needs heating and cooling
- EN ISO 52010-1 Climatic conditions
- EN ISO 52003-1 Overall indicators, requirements, ratings
- EN ISO 52018-1 Partial indicators (building fabric, needs)
Harmonized but flexible

- Clearly identified options and national data remain necessary

Each EPB standard:
- Annex A (normative template for the choices)
- Annex B (informative default choices)
  ➔ National Annexes for national or regional choices
Specifically suited for EPCs and EPB requirements. Example:


- Contains both **monthly** and **hourly** calculation procedures

- NEW! Hourly method = tailored to goal:
  - Fully described, transparent method
  - Input data asked from the user for the hourly method is not more than for the monthly method

- ➔ Easy for EP regulators to switch (”upgrade”) from monthly to hourly calculations

- **Hourly calculation is needed to deal with hourly interactions, innovative solutions, impact on thermal comfort**
Need for convergence

Plan to revise EPBD: “... update of the framework for Energy Performance Certificates with a view to increasing their quality and availability, for example through greater harmonisation, the inclusion of additional information and more stringent provisions on availability and accessibility of databases.”

Why harmonization?

• Removes barriers
• Enables efficient and reliable exchange of information
• Ensures level playing field
• Stimulates innovation

Cooperation in U-CERT: Better, user-centred and converging EP Certificates See panel discussion
Conclusion

• The set of EPB standards to assess the energy performance of buildings
  – Harmonized, transparent and consistent
  – Specifically suited for EPB Certificates and EPB requirements
  – Flexible: to tailor to national/regional climate, building tradition, legal framework, ..
  – Modular
    • Step-by-step implementation
    • Regular maintenance and updating (knowledge, technologies)
  – Fit for nearly zero energy buildings, new or renovated
  – Small core of standards, with others for specific applications
  – (EN) ISO 52000 family, with common quality requirements
Even if you are more familiar with the subject (EPB standards, regulations)...

you probably (still) have many questions

Check www.epb.center

• for short videos and webinar recordings
• for overviews and demo tools
• for FAQs on a variety of subjects

Or contact us (www.epb.center/contact) for more specific technical support and information
EPB Center: a continued build up of services

- The knowledge base available at the EPB Center will continue to expand
- Increasing role as platform to support sister projects
- To further facilitate and enable convergence and access to high quality EPB assessment procedures and EP certificates
Thank you!

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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Panel discussion Next Gen EPCertificates H2020 cluster of projects

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01 July 2021 – Building EPCertificates: Convergent evolution?! – web workshop
Q1: In your project’s perspective what issues/challenges does the multitude of methodologies create for building performance processes (assessment, management, certification, design, construction/installation, inspections, renovation etc.) in practice and vis-a-vis EU’s climate and energy targets?
Panellists representing the Next Gen EPCerts H2020 cluster’s projects

- Q2: What kind of activities is your project conducting that facilitate and support the overcoming/mitigation of the before mentioned issues/challenges?
Q&A audience

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Closing remarks

Andrei Vladimir Lițiu
Building Performance Adviser, REHVA

Blagodarjá!
Hvala!
Děkuji!
Tak!
Dank je!
Thank you!

Aitäh!
Kiitos!
Merci!
Danke!
Efcharisto!
Köszönöm!

Go raibh maith agat!
Grazie!
Paldies!
Ačiū!
Grazzi!
Dziękuję!

Obrigado!
Mulţumesc!
Đakujem!
Hvala!
Gracias!
Tack!