QUALICHeCK
Towards better quality and compliance

What is the view of the market regarding compliance and quality of the works?

François Rémi Carrié, ICEE

4th QUALICHeCK conference
EPBD perspectives for compliant and smart buildings
Brussels, 21 February 2017

IEE/13/610/SI2.675574
01/03/2014-28/02/2017

Co-funded by the Intelligent Energy Europe Programme of the European Union

Contents

- Background
- Why are compliance and quality important in EPB context?
- What is the status on the ground?
- Can we change the market?
- Feedback from QUALICHeCK consultations

IEE/13/610/SI2.675574
01/03/2014-28/02/2017

Background

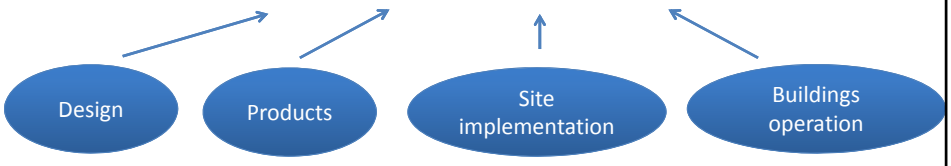
- Definitions
  - **Compliant EPC input data (in EPC context).** EPC input data established in line with the procedures in force in the context of the applicable legislation.
  - **Quality of the works.** Measure of potential gap between the building works realised and the works executed in accordance with applicable regulations and specifications. The quality of the works can be considered as "good" or "compliant" if this gap does not degrade the expected performance. Note that quality of the works has no absolute meaning: it always relates to the needs (including expected performance) stated in regulations or specifications. The specifications may be set on contractual basis or defined at the level of a specific framework.
  - Cf. http://qualicheck-platform.eu/results/terms/

QUALICHECK

IEE/13/610/SI2.675574
01/03/2014-28/02/2017

Why are compliance and quality important in EPB context?

Cost for non-quality in the building sector
~ 10% * of sector turn-over in France
Probably very significant energy savings potential



* Figure taken from the French Quality Construction Agency, http://www.qualiteconstruction.com/uploads/tx_commerceaddons/tbs10_01.pdf

QUALICHECK

IEE/13/610/SI2.675574
01/03/2014-28/02/2017

Why are compliance and quality important in EPB context?

Clients don't get what they pay for

Example

- They may expect an EPC rating of **A** based on the claimed EPC rating
- They actually get a building with an EPC rating of **C** if the EPC is compliant

Competition distortion
Market distrust
… Increased energy use

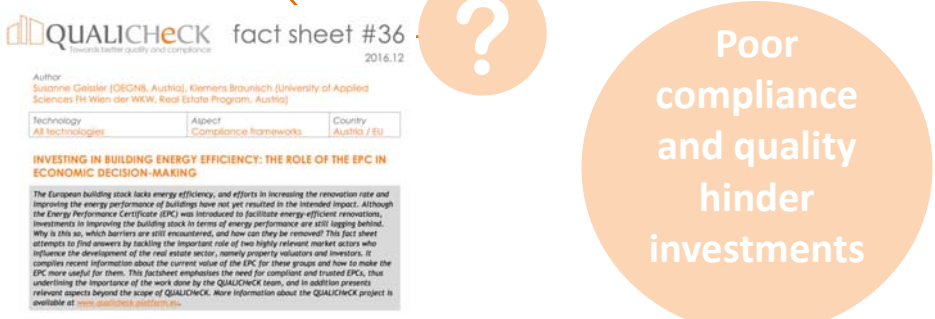
Why are compliance and quality important in EPB context?

Energy-related policy goals

Reduce energy poverty, GHG emissions, environmental impacts, security of supply concerns …

Expected market response

Invest in energy efficiency


QUALICHeCK fact sheet #36
2016.12

Author
Susanne Geissler (OEGNB, Austria), Klemens Braunisch (University of Applied Sciences FH Wien der WKW, Real Estate Program, Austria)

Technology	Aspect	Country
All technologies	Compliance frameworks	Austria / EU

INVESTING IN BUILDING ENERGY EFFICIENCY: THE ROLE OF THE EPC IN ECONOMIC DECISION-MAKING

The European building stock lacks energy efficiency, and efforts in increasing the renovation rate and improving the energy performance of buildings have not yet resulted in the intended impact. Although the Energy Performance Certificate (EPC) was introduced to facilitate energy-efficient renovations, investments in improving the building stock in terms of energy performance are still lagging behind. Why is this so, which barriers are still encountered, and how can they be removed? This fact sheet attempts to find answers by tackling the important role of two highly relevant market actors who influence the development of the real estate sector, namely property valuators and investors. It compiles recent information about the current value of the EPC for these groups and how to make the EPC more useful for them. This factsheet emphasises the need for compliant and trusted EPCs, thus underlining the importance of the work done by the QUALICHeCK team, and in addition presents relevant aspects beyond the scope of QUALICHeCK. More information about the QUALICHeCK project is available at www.qualicheck-platform.eu.

Poor compliance and quality hinder investments

QUALICHeCK

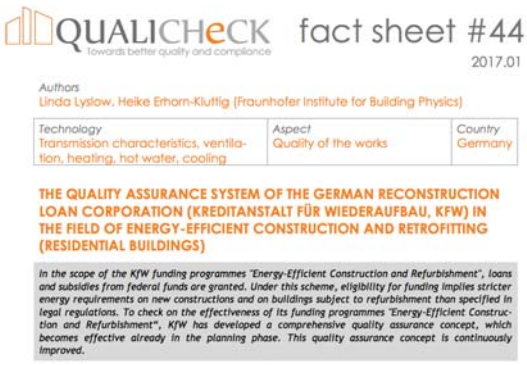
IEE/13/610/SI2.675574
01/03/2014-28/02/2017

What is the status on the ground?

- Not so good !
  - Examples of results regarding EP assessment compliance:
    - AT : 20% of the EPC input data not updated between design and completion => errors on SHD assessment in the range of 5-28%
    - EE : 68% of the buildings did not comply with summer comfort criteria
    - RO : recalculation of EPCs lead to a change in energy class in ≈ 40% of the buildings
  - Examples of results regarding quality of building works:
    - Over 50% of non-compliant ventilation provisions in France or The Netherlands, and serious indoor climate problems in nearly two thirds of Estonian buildings.
    - Numerous common problems in renewables in multi-energy systems in Austria, France, Germany and Sweden (e.g., 50% to 83% of unused pipe connections not insulated that degrade heat storage tank performance)

Can we improve the situation?

- Competent persons as pre-requisite to subsidies


QUALICHECK fact sheet #44
towards better quality and compliance
2017.01

Authors
Linda Lysiow, Heike Erhorn-Kluttig (Fraunhofer Institute for Building Physics)

Technology	Aspect	Country
Transmission characteristics, ventilation, heating, hot water, cooling	Quality of the works	Germany

THE QUALITY ASSURANCE SYSTEM OF THE GERMAN RECONSTRUCTION LOAN CORPORATION (KREDITANSTALT FÜR WIEDERAUFBAU, KFW) IN THE FIELD OF ENERGY-EFFICIENT CONSTRUCTION AND RETROFITTING (RESIDENTIAL BUILDINGS)

In the scope of the KfW funding programmes "Energy-Efficient Construction and Refurbishment", loans and subsidies from federal funds are granted. Under this scheme, eligibility for funding implies stricter energy requirements on new constructions and on buildings subject to refurbishment than specified in legal regulations. To check on the effectiveness of its funding programmes "Energy-Efficient Construction and Refurbishment", KfW has developed a comprehensive quality assurance concept, which becomes effective already in the planning phase. This quality assurance concept is continuously improved.

105,000 funding commitment for 237,000 refurbished flats (2015)

18,000 companies pushed to obtain the 'RGE' qualification

Can we improve the situation?

- Quality control frameworks

QUALICHECK fact sheet #47
Towards better quality and compliance
2017.02

Author
Arnold Janssens (Ghent University)

Technology	Aspect	Country
Transmission characteristics	Quality of the works	Belgium, UK

QUALITY CONTROL FRAMEWORKS FOR CAVITY WALL INSULATION

Several countries have installed a quality control system to provide confidence in the quality of the works of cavity wall insulation in existing walls. Based on the experiences in Belgium and the UK, this fact sheet gives an overview of approaches, market acceptance and compliance concerns of the quality schemes.

Residential buildings ☑	Non-residential buildings ☑	Specific buildings: .....
New buildings ☐	Existing buildings ☑	

Every year, approx. 15-20.000 declarations of conformity issued on a market of 600.000 houses with non-insulated cavity walls in the Flemish region of Belgium

QUALICHECK

Can we improve the situation?

- Competent tester schemes in several countries are operational for building airtightness testing
- They help:
  - Reduce the variability of test results between testers
  - Improve the consistency between test results and input data used in EP assessments

QUALICHECK fact sheet #07
Towards better quality and compliance
2015.12

Author
Sandrine Charrier (Cerema), Adeline Bailly (Cerema), François Rémi Carrié (ICEE)

Technology	Aspect	Country

QUALICHECK fact sheet #21
Towards better quality and compliance
2016.6

Authors
Clarisse Mees, Xavier Loncour (BBRI)

Technology	Aspect	Country
Airtightness and ventilation	Status on the ground	Belgium

QUALITY FRAMEWORK FOR RELIABLE FAN PRESSURISATION TESTS

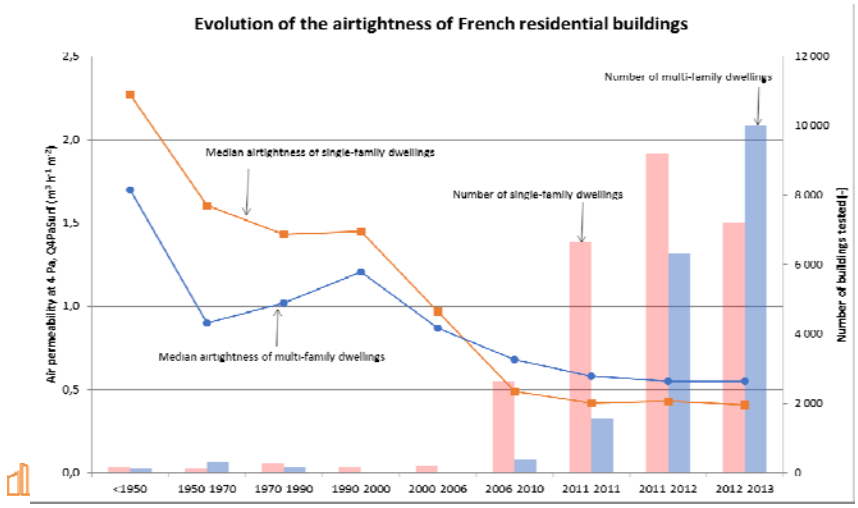
Airtightness performance of the building has a significant weight in the Belgian EPB-calculation and the number of pressurisation tests in new buildings is strongly increasing. To face the potential lack of tester's skills and to ensure a reliable value, a quality framework has been achieved according to which testers have to pass an exam and could be controlled. This factsheet describes the relevant quality framework and its context.

QUALICHECK

Source: TightVent Airtightness Associations Committee, 2015.

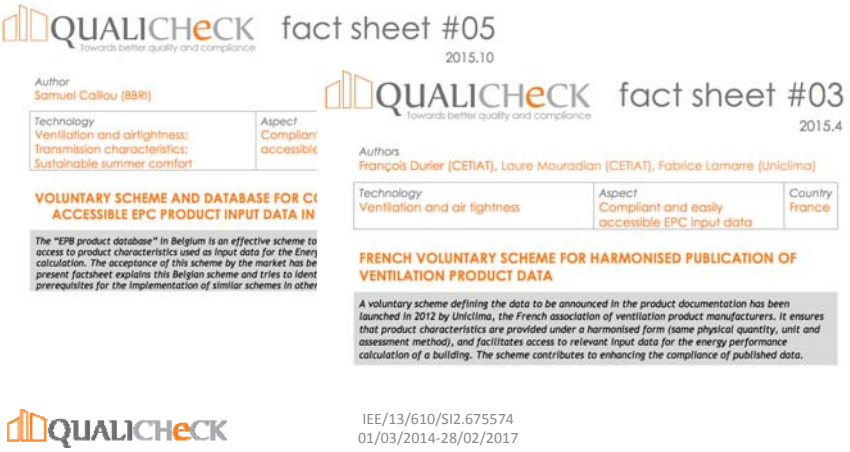
Can we improve the situation?

- Significant market change in many countries over the past 10 years due to the energy impact in energy performance assessments (QUALICHeCK fact sheets # 07 and 33)



Can we improve the situation?

- Product characteristics databases
- They help finding information regarding compliant product characteristics



IEE/13/610/SI2.675574
01/03/2014-28/02/2017

Can we improve the situation?

- Effective penalty schemes


QUALICHeCK Towards better quality and compliance

fact sheet #48

2017.02

Authors
Clarisse Mees (BBRI)

Technology	Aspect	Country
ALL	Compliance frameworks	Belgium

BELGIUM/FLEMISH REGION CONTROL AND PENALTY SCHEME OF THE ENERGY PERFORMANCE LEGISLATION: CHECKING PROCEDURE AND FINES

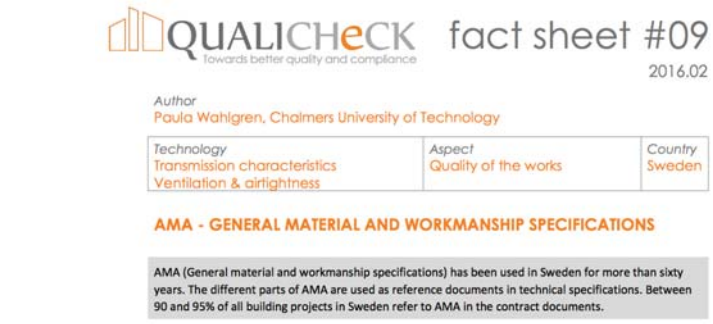
Former studies showed that that the legislation is not respected if it is not combined with an operational control scheme. That is why in Belgium, a checking procedure, including on-site control, was implemented with the introduction of the Energy Performance legislation for new buildings. This fact sheet describes the checking procedure, including the penalty scheme and the role of the actors involved. It also gives some examples of the amount of the fines applicable in specific cases.

Can we improve the situation?

- Contractual obligations
  - AMA approach, see QUALICHeCK factsheet #09
  - Specifications developed since the 1950s, widely used by designers and installers to specify and follow quality requirements on products and systems as well as on design, installation, commissioning and maintenance
  - The AMA requirements are specified in measurable units and in such a way that the tenderers and contractors understand them and are able to calculate a price for their commitments
  - The AMA scheme has governed all major building projects in Sweden since a long time, likely because following the guidelines reduces risks for contractors

Can we improve the situation?

- Contractual obligations


QUALICHeCK Towards better quality and compliance fact sheet #09
2016.02

Author
Paula Wahlgren, Chalmers University of Technology

Technology	Aspect	Country
Transmission characteristics Ventilation & airtightness	Quality of the works	Sweden

AMA - GENERAL MATERIAL AND WORKMANSHIP SPECIFICATIONS

AMA (General material and workmanship specifications) has been used in Sweden for more than sixty years. The different parts of AMA are used as reference documents in technical specifications. Between 90 and 95% of all building projects in Sweden refer to AMA in the contract documents.

  - Other reference more specific to ventilation:
    - Andersson J. (2015), AMA and certification of ventilation installers- two ways of improving the quality of HVAC-systems. REHVA journal, 04/2015

Can we improve the situation?


QUALICHeCK Towards better quality and compliance fact sheet #45
2017.01

Author
François Rémi Carrié (ICEE), Yann Dervyn (Effinergie)

Technology	Aspect	Country
Ventilation and airtightness	Compliance frameworks	France

THE EFFINERGIE APPROACH TO EASE TRANSITIONS TO NEW REGULATORY REQUIREMENTS

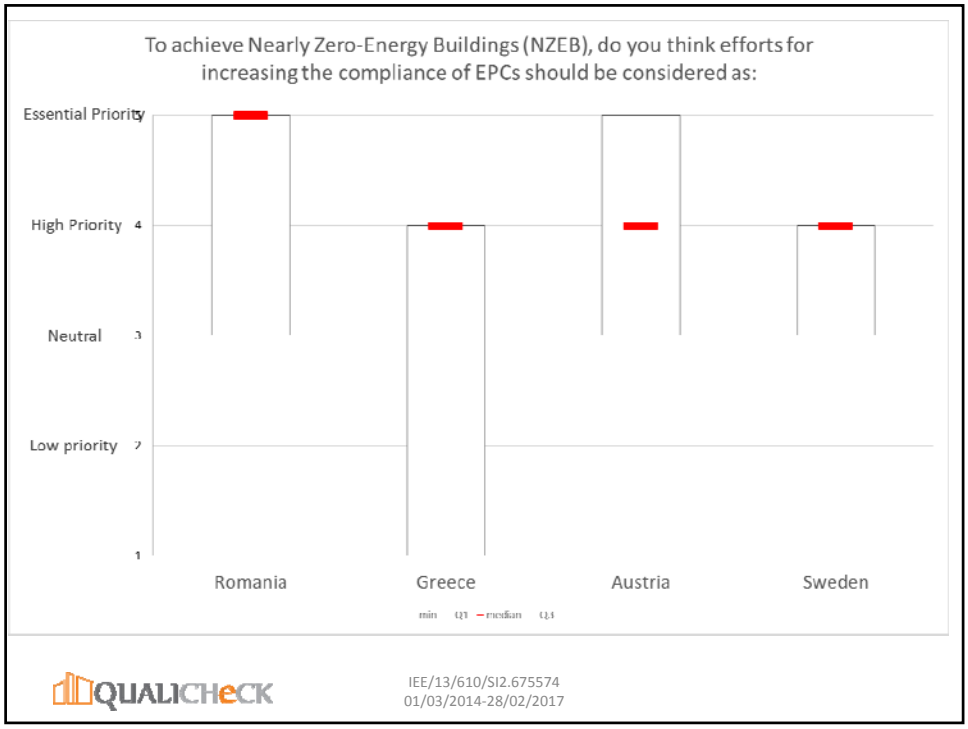
Since 2006, the Effinergie certification has been a major market driver in France for energy efficiency initiatives in all building types, new and renovated. It has been a laboratory for the 2012 energy regulation in France, for instance, for the overall primary energy minimum requirements or for the mandatory justification of an envelope airtightness level. In the same vein, the Effinergie+ and Bepos labels operational since 2012 and 2013 experiment new requirements and methods, which will serve for the 2020 revision of the energy regulation. Effinergie also developed regulatory-based low-energy buildings certifications for renovated buildings which are operational since 2009.

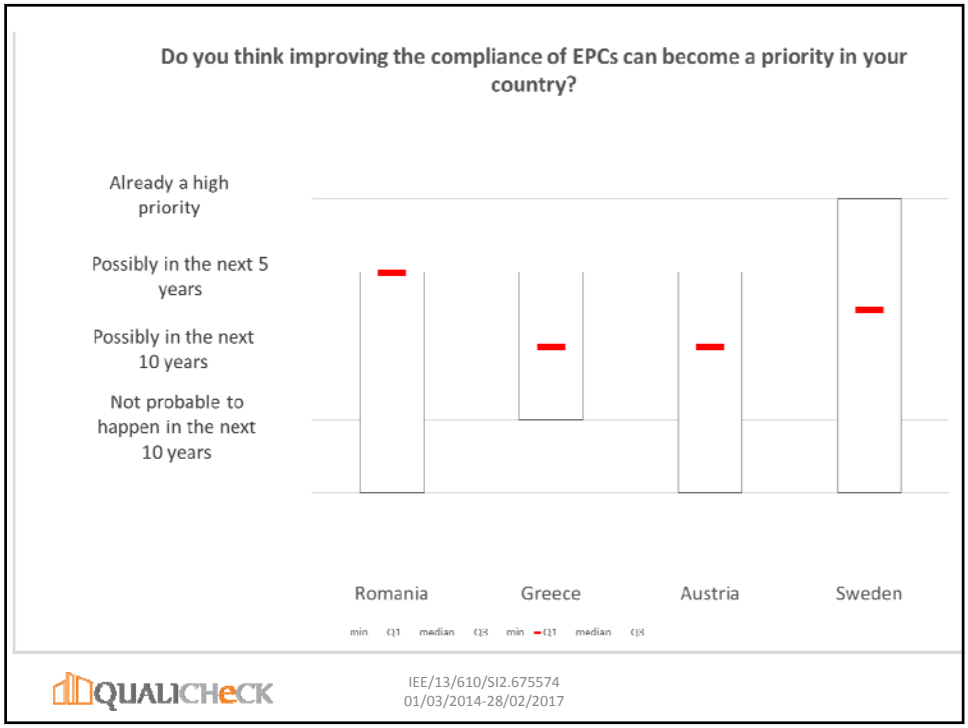
Can we improve the situation?

- All of these successful approaches bring value to compliance or quality:
  - Cost or time savings
  - Mandatory quality scheme requirement
  - Differentiation compared to competitors or fear to be outdated

Preliminary questionnaire results

QUALICHECK
IEE/13/610/SI2.675574
01/03/2014-28/02/2017


To achieve Nearly Zero-Energy Buildings (NZEB), do you think efforts for increasing the compliance of EPCs should be considered as:
Essential Priority
High Priority
Neutral
Low priority
Romania
Greece
Austria
Sweden
QUALICHECK
IEE/13/610/SI2.675574
01/03/2014-28/02/2017


Do you think improving the compliance of EPCs can become a priority in your country?
Already a high priority
Possibly in the next 5 years
Possibly in the next 10 years
Not probable to happen in the next 10 years
Romania
Greece
Austria
Sweden
QUALICHECK
IEE/13/610/SI2.675574
01/03/2014-28/02/2017

Barriers to develop and implement frameworks

- Cost and lack of political support appear as critical barriers

Summary

- Quality and compliance issues are important aspects to consider to achieve energy policy goals
- Measures to improve the compliance of EPCs and quality of the works can trigger market response
- QUALICHeCK deliverables give practical information, including hints and pitfalls, to help improve the compliance of EPCs and quality of the works
- Cost and political support are 2 major hurdles, … amongst others

QUALICHeCK

Co-funded by the Intelligent Energy Europe Programme of the European Union