We want to know your opinion...

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Important that we receive it back!

- Please keep it with you during breaks
- Please give it back when leaving the conference!
- We have registered the number of each unit on the registration list
How does it work? (questions with a single answer)

✓ Read question and corresponding answers.
✓ Each answer is identified by a number.
✓ Choose the most suitable answer.
✓ Simply press the corresponding number in your voting unit.

How does it work? (questions with multiple possible answers)

✓ Read question and corresponding answers.
✓ Each answer is identified by a number.
✓ Choose the most suitable answers.
✓ Press the corresponding numbers in your voting unit, followed by ‘send’.
Which day of the week was it yesterday?

1. Monday 93.9%
2. Tuesday 2.0%
3. Wednesday 0.0%
4. Thursday 0.0%
5. Friday 0.0%
6. Saturday 2.0%
7. Sunday 2.0%

Which days of the week correspond to today, tomorrow and the day after tomorrow?

1. Monday 4.1%
2. Tuesday 75.5%
3. Wednesday 85.7%
4. Thursday 85.7%
5. Friday 14.3%
6. Saturday 4.1%
7. Sunday 4.1%
What is your main profession?

1. I work as an energy auditor (EPB reporter,...) 0%
2. I work as another building professional (architect, consulting engineer, contractor,...) 14%
3. I work for a government or city administration 12%
4. I represent a stakeholder association (industry, consumers,...) 20%
5. I work at a university or research institute 38%
6. Other 16%

Where are you from?

- Northern Europe
- Western Europe
- Eastern Europe
- Southern Europe

Eurovoc
### Where are you from?

1. Belgium: 61.2%
2. Western Europe, except Belgium: 16.3%
3. Southern Europe: 8.2%
4. Eastern Europe: 2.0%
5. Northern Europe: 10.2%
6. Outside of Europe: 2.0%
Actual versus theoretical gas consumption in houses with different energy labels shows evidence of performance gap

~200 000 cases EPC label database Netherlands 2010

Majcen et al. 2013

In your opinion, what are the reasons for the performance gap in case of high performance buildings?

Up to 4 answers in priority order.

1. Poor quality of the building works  90
2. Non-compliant input data for building components and systems in calculations  50
3. The simplified model behind EPC is not representing physical reality  79
4. Real occupancy differs from modeling assumptions about standard use  120
5. No opinion  0
Results of quality frameworks: examples

- Improved operation of thermal solar systems under voluntary quality label QualiSol (France)

Has the awareness about the importance of compliance and quality of the works increased in your country in the last 3 years?

1. I don’t see any improvement
   
2. There is more awareness but without impact in practice

3. There are some initiatives to improve the situation

4. There is a clear increase in compliance and quality assurance frameworks with results in practice

5. No opinion
Compliance checks may be organized at different stages of the design and construction process.

Overview of time frames for energy assessment requirements for new buildings in 10 countries.


When should compliance be checked in your opinion to make sure a building meets energy performance requirements?

1. When issuing the building permit only (design data)  
   - 2%
2. After construction only (as-built data)  
   - 9%
3. When the building is in use only (real consumption data)  
   - 7%
4. When issuing the building permit AND after construction  
   - 36%
5. When issuing the building permit AND when the building is in use  
   - 39%
6. Other  
   - 7%
Do you believe that the EPBD should...

Up to 3 answers in priority order

1. Be more ambitious in terms of requirements beyond NZEB? 20
2. Be more ambitious in terms of requirements for existing buildings? 95
3. Be more ambitious in terms of compliance and enforcement? 81
4. Be more ambitious in terms of attention for quality of the works? 65
5. Remain as it is? 1
6. No idea 3

2016 Proposal for amendment of EPBD
Voting results Qualicheck conference 2015

Do you believe that the present EPBD should...

1. Be more ambitious in terms of requirements beyond NZEB?
   - 0%
2. Be more ambitious in terms of requirements for existing buildings?
   - 33%
3. Be more ambitious in terms of compliance and enforcement?
   - 24%
4. Be more ambitious in terms of attention for quality of the works?
   - 32%
5. Remain as it is?
   - 3%
6. No idea
   - 8%

THANK YOU
We want to know your opinion...

Voting session 2
The calculation of the energy performance of a building requires input data that describe the building, its environment, its systems and its operation. What is meant by compliant input data?

1. Very accurate data
   - 3.5%
2. Data that show the actual characteristics of the finished building
   - 24.6%
3. Data that are easy to find in a database
   - 1.8%
4. Data established in accordance with the procedures of the applicable legislation
   - 59.6%
5. Data that comply with standards
   - 10.5%
The calculation of the energy performance of a building requires input data that describe the building, its environment, its systems and its operation.

What is meant by compliant input data?

1. Very accurate data
2. Data that show the actual characteristics of the finished building
3. Data that are easy to find into a database
4. Data established in accordance with the procedures of the applicable legislation
5. Data that comply with standards

Example:
A national calculation method requires, as an input data for a gas boiler: the energy efficiency at full-load, measured in laboratory according to EN 15502-1.

The test will provide a compliant data, i.e. determined in accordance with the procedure of the legislation.
In addition, this data:
- will comply with a standard
- will probably be accurate
- will hopefully be easy to find
- will not show the actual energy efficiency of the boiler operating in a given building
Compliant input data

Example:
A national calculation method requires, as an input data for a gas boiler:
- a default value for the energy efficiency at full load equal to 100 %
  (on net calorific value).

The test is not useful.
An input data equal to 100 % is compliant, i.e. chosen in accordance with the procedure of the legislation.

QUALICheck recommends a very clear procedure on how to show evidence of compliance of an input data. What cannot be used to prove the compliance of an input data?

1. A control by an independent third-party that the data was determined in accordance with the procedure
   - 7.3%

2. A signed declaration by a responsible person or company that the data was determined in accordance with the procedure
   - 1.8%

3. The qualification of persons or companies to determine the data
   - 7.3%

4. The fact that one of the building occupants says: “I’ve been told that everything is OK”
   - 83.6%
QUALICheck recommends a very clear procedure on how to show evidence of compliance of an input data.

What cannot be used to prove the compliance of an input data?

1. A control by an independent third-party that the data was determined in accordance with the procedure
2. A signed declaration by a responsible person or company that the data was determined in accordance with the procedure
3. The qualification of persons or companies to determine the data
4. The fact that one of the building occupants says: “I’ve been told that everything is OK”

QUALICheck identifies 3 ways that can be used by a national legislation to show evidence of compliance of an input data:

- Control of the data by a third-party
- Declaration by the person or company involved in determining the data that the procedure was followed
- Proven competence of person or company involved in determining the data, previously recognised by a third party
What are effective ways for improving the quality of work?

Up to 3 answers are possible

1. Improved education/training of the workforce - 79.3%
2. Less requirements regarding quality - 3.4%
3. Quality checks by public administrations - 69.0%
4. Planning details in English - 1.7%
5. Video surveillance of the construction site - 10.3%
6. Higher penalties in case of low quality - 75.9%

In your point of view:

What are effective ways for improving the quality of work?

-> Up to 3 answers are possible

1. Improved education/training of the workforce
2. Less requirements regarding quality
3. Quality checks by public administrations
4. Planning details in English
5. Video surveillance of the construction site
6. Higher penalties in case of low quality
Improving quality of works

In your point of view:

What are effective ways for improving the quality of work?

In addition to these answers, QUALICHeCK has identified several additional ways including:

- Improved education/training of the workforce
- Requirement to update training
- Quality checks by public administrations
- Quality checks by third parties (paid by the building owner)
- Quality checks by third parties (paid by the construction companies)
- Higher penalties in case of low quality
- Better planning details and guidelines
- Less time/financial pressure on the construction site
- Development and use of products that are less error prone

Which of the following approaches do you consider effective to stimulate the use of schemes for the quality control of the works?

Up to 3 answers are possible

1. Gifts to workers - 9.1%
2. Insurances given for the durability of the realised work - 72.7%
3. Green building certificates that require quality control - 69.1%
4. Allowance to use black labour - 0.0%
5. The possibility to use better characteristic values in the calculation of the EPC - 83.6%

(% = Percentage van de Deelnemers)
Quality control schemes

Best practices:

Which of the following approaches do you consider effective to stimulate the use of schemes for the quality control of the works?
- Up to 3 answers are possible

1. Gifts to workers
2. Insurances given for the durability of the realised work
3. Green building certificates that require quality control
4. Allowance to use black labour
5. The possibility to use better characteristic values in the calculation of the EPC

Example: Cavity insulation quality assurance scheme CIGA in UK
Example: Voluntary green building certification TBQ (Total Quality Building) in Austria
Example: German energy ordinance: lower infiltration rates can be inserted if measured air change rate is below a certain value
What is the most effective approach towards checking whether buildings are compliant with energy performance requirements? (1 option)

1. Assessment of calculation method on a regular basis
   - 2%

2. Compliance checks at building permit stage and at completion stage (as-built)
   - 92%

3. Compliance checks at building permit stage only
   - 0%

4. Checking whether products with energy labelling were used for constructing the building
   - 6%

“Effective” in achieving the objectives: improving energy efficiency

The most effective approach towards compliance checking comprises several elements:

- Clear procedures how to determine input data for energy performance calculation
  - Product databases can be an appropriate means of providing easily accessible and compliant product data

- Clear procedures for checking compliance
  - Compliance checks at building permit stage (could be optional)
  - Compliance checks at completion stage (as-built)

- EPC database (electronic system) must be available which is set up in a way that it allows for effective compliance checking
  - Automatic checks help to identify samples to be checked in detail
Effective compliance frameworks include the element of enforcement:

- **Clear responsibilities** whom to address in case of non-compliance
- **Proportionate penalties** to enforce compliance

→ Next question

### Compliance checking

#### What is the most suitable approach for penalties to enforce compliance with energy performance requirements (as-built situation)?

1. **The owner is obliged to improve the building until requirements are met**
   
   ![Percentage](19.3%)

2. **The owner pays a fine (and obligation to improve the building)**
   
   ![Percentage](45.6%)

3. **The owner pays a fine (and NO obligation to improve the building)**
   
   ![Percentage](3.5%)

4. **The EPC gets a clear mark in order to make potential renters and buyers aware that the building is non-compliant**
   
   ![Percentage](31.6%)
What is the most suitable approach for penalties to enforce compliance with energy requirements (as-built situation)?

- The owner is obliged to improve the building until requirements are met
- The owner pays a fine (and obligation to improve the building)
- The owner pays a fine (and NO obligation to improve the building)
- The EPC gets a clear mark to make potential renters and buyers aware that the building is non-compliant

There is no “no correct” answer, because the most suitable approach depends on societal support and might differ from country to country or even region.

However, **not meeting the minimum requirements** is in most cases not the most frequent type of non-compliance (penalties probably address the owner).

More frequent type of non-compliance is probably: **wrong reporting**
- Penalties might address the qualified experts doing the energy performance calculation and/or the companies in charge of the execution
- Usual penalties:
  - Recalculation of EPC for free (and fee for another check which might be required)
  - Tracking the performance of qualified experts: mandatory course in case of repeated errors
  - Fine and loss of license is often only the last option

The most suitable approach also depends on societal support.
THANK YOU