Improved quality of the works to support the EU's targets – the QUALICHeCK project

Peter Wouters – INIVE EEIG
Coordinator QUALICHeCK
Structure of the presentation

Context of QUALICHeCK activities

The QUALICHeCK project

QUALICHeCK outcomes

Quality of the works - control might be necessary

Conclusions
You expect a reliable label

... and you expect a good quality
You expect a reliable label

...and you expect a good quality
... and you expect a good quality
Energy certificates with respect to ventilation...

**EPC calculation**
- Fan characteristics
- Efficiency of heat exchanger
- Ductwork airtightness
- Demand controlled ventilation
- ...
- ...

**Observation:**
In many countries no or nearly no control regarding compliance of EPC

**Execution of the works**
- Air flow rates
- Acoustics
- ...
- ...

**Observation:**
In many countries no or nearly no control regarding real performances
Poor design and execution • Energy performances critical • IAQ problems • Acoustics • Maintenance • ...
Which problems are often observed?

- Air flow rates (\(\rightarrow\) IAQ)
- Acoustics: from system or from outside
- Draught problems
- Maintenance
- ...
- Problems are found for all kind of systems
- Good execution exists and also not extremely difficult
2 objectives of QUALICHeCK project

To set up a series of actions which should result in more attention and practical initiatives for **actual compliance with the claimed energy performance for new and renovated buildings**

i.e. ‘Boundary conditions which force people to do what they declare’;

To set up a series of actions, which should result in more attention and practical initiatives for **achieving a better quality of the works**, i.e. ‘Boundary conditions which stimulate and allow the building sector to deliver good quality of the works’.
4 focus areas in QUALICHeCK

- Transmission characteristics
- Ventilation and airtightness
- Sustainable summer comfort techniques
- Renewables in multi-energy systems
= National consortium
QUALICHeCK products and outcomes

1. About the status on the ground...

2. About interesting approaches...

3. About guidance for improvements
Example from FRANCE:
Quality of ventilation systems in 1.287 new dwellings

Total non-compliance or dysfunctions observed: 1246

- Exhaust airflow: 338
- Air inlet: 300
- Air outlet: 271
- System configuration: 124
- Ventilation unit: 108
- Ductwork and Air transfer: 105

44% of multi-family dwellings don’t comply
68% of single-family dwellings don’t comply
Example from SWEDEN: Airtightness of air distribution systems.
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Conclusions
www.qualicheck-platform.eu
Compliance and quality of works
for improved energy performance of buildings
Final publishable report

February 2017

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www.qualicheck-platform.eu
The QUALICheck project outcomes in brief

- 59 factsheets
- 3 special issues of the REHVA journal
- 4 European conferences
- 2 sourcebooks
- 9 roadshows
- 4 workshops
- 16 webinars
- 4 platform meetings
- 10 field studies
- final booklet
- overview of documented examples
- summary of situation on the ground
- terms and definitions
- material for university courses
Source book on quality of the works

Aim:
To give guidance towards better frameworks for quality of the works
Factsheets

What is a factsheet?

Short document on a specific topic
### Fact Sheets by topic

<table>
<thead>
<tr>
<th>TECHNOLOGIES</th>
<th>Transmission Characteristics</th>
<th>Ventilation and Airtightness</th>
<th>Sustainable Summer Comfort Technologies</th>
<th>Renewables in Multi-Energy Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on the Ground</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Compliant and Easily Accessible EPC Input</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Quality of the Works</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Compliance Frameworks</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

#### FACT SHEET #47 | Quality control frameworks for cavity wall insulation

Posted on 2017/02/17 by Alexander Delivannis

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... Continue reading →

#### FACT SHEET #09 | AMA – General material and workmanship specifications

Posted on 2016/03/23 by Maria Dimitropoulou

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 ... Continue reading →
Focused technology workshops

Focus area **ventilation and airtightness:**
- March 16-17 2015 in Lund
- With support from TightVent, venticool, AIVC and REHVA

Focus area **sustainable summer comfort:**
- March 9 – 10 2016 in Athens
- With support from the European Cool Roof Council, ES-SO, venticool and AIVC

Focus area **transmission losses:**
- December 15 2016 in Brussels
- With support from EURIMA

Focus area **renewables in multi-energy systems:**
- January 17-18 2017 in Lyon

⇒ All presentations are available on the website
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Quality frameworks

**Without third party control**
- By owner, architect, ...
- Very direct, but not always the required competence, sometimes conflict of interest, ...

**With control by third parties**
- Control of competence of designers, of executers, ...
- Control of execution of the works
- Control of achieved performances
Combining capacity building with enforcement schemes
EPBD related administrations

Cost-optimal and nZEB requirements

TRAINING: Need for more and/or improved training?
Cost-optimal and nZEB requirements

TRAINING:
Need for more and/or improved training?

Yes

TRAINING:
New offers of training
Upgrading existing training...

EPBD related administrations
TRAINING: Need for more and/or improved training?

COMPETENCE: Need for checking competence of workers?

Cost-optimal and nZEB requirements
BUILD UP SKILLS
CONSTRUCTION SKILLS

EPBD related administrations

Cost-optimal and nZEB requirements

TRAINING: Need for more and/or improved training?

No

Yes

COMPETENCE: Examinations Certified Workers

TRAINING: New offers of training Upgrading existing training ...

Yes

COMPETENCE: Need for checking competence of workers?

RES: Member states must organise a framework for certification of installers
BUILD UP SKILLS

CONSTRUCTION SKILLS

TRAINING:
Need for more and/or improved training?

COMPETENCE:
Need for checking competence of workers?

BUILDINGS:
Need for checking quality of the works?

High probability of good workmanship

Yes

No

No

No

Yes

Cost-optimal and nZEB requirements

New offers of training
Upgrading existing training

Examinations
Certified Workers

EPBD related administrations

Yes

Yes

No
Interesting EPBD related approaches...
1. Awareness
2. Training
3. Good design
4. Purchase & installation
5. Testing
EPBD related administrations

- Cost-optimal and nZEB requirements

TRAINING:
Need for more and/or improved training?
- Yes
  - TRAINING: New offers of training
  - Upgrading existing training...
- No

COMPETENCE:
Need for checking competence of workers?
- Yes
  - COMPETENCE: Examinations...
  - Certified Workers...
- No

BUILDINGS:
Need for checking quality of the works?
- Yes
  - BUILDINGS: Inspection of works ...
  - Reports for each building...
- No

High probability of good workmanship
Structure of the presentation

- Context of QUALICHeCK activities
- The QUALICHeCK project
- QUALICHeCK outcomes
- Quality of the works - control might be necessary

Conclusions
Conclusions

Good quality of the works is crucial and not always evident to assume!

Competence improvement is sometimes necessary AND sufficient to achieve good quality of the works

In other cases, it is important/crucial to have third party control in order to achieve good quality of the works

There is a lot of interesting information in the QUALICHeCK outcomes
Thank you for your attention!

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