Ventilation and building airtightness inspection schemes in Belgium

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Motivation and context

Concept

Results
Why a mandatory quality framework?

- Examples of bad installations
- EPB – Flanders – Flemish Energy Agency
  - 90% of fines in EPB are related to the ventilation
- Ventilation system is an important investment
- Voluntary certification is not effective
  - The Netherlands
  - ...

... further actions needed to achieve better quality in ventilation
How to set up a mandatory quality framework?

Consecutive actions:
• Technical reference: STS-P 73-1
  • Help for prescribers: list of criteria
  • Requirements for reports
  • Requirements for measuring: error on flow measurement ≤ 15%

• Supporting actions:
  • “Practical guide for residential ventilation systems”

• Flanders authorities – consultation of stakeholders if public support for **mandatory quality framework**

• Ministerial Decision 28 October 2015:
  • Ventilation predesign and ventilation performance report
  • Quality framework
EPB-process in Flanders Region

• Building design (architect)
• Building permit
• EPB start declaration (before first brick is laid) by EPB reporter: estimation of energy performance
• Building process...
  • Foundations
  • Walls
  • ...
  • Windows (with ventilation grille)
  • ...
  • Ducting
  • Fan / ventilation unit
  • ...
  • Occupation
• At last 6 months after occupation: EPB registration by EPB reporter: as-built Energy Performance of the building
What is mandatory in the regulation?

- Ministerial Decision 28 October 2015:
  - Ventilation predesign at declaration of start and ventilation performance report at EPB-registration
  - Quality framework
    - Applies to building permits after 1/1/2016 in Flanders
    - Only for residential buildings
    - New building or major renovation
- Government Decision 15 December 2017
  - Supervision by independent quality organisation
  - ISO17065 accredited certification body
  - 10% on site and desktop of measurements/reports inspection
  - Control of reliability of reporting
What it’s all about?

• Aiming at **transparent and reliable** data of ventilation system by integral approach

• **Ventilation reporters recognised by the quality framework**
  • Theoretical and practical test

• **Reporting only by recognised ventilation reporters**
  • Ventilation predesign
  • Ventilation design
  • Ventilation performance report

• **Surveillance on the content of the documents in the database of the quality framework**
  • Desktop inspections
  • On site inspections
Who can become ventilation reporter?

• Everybody involved in the building process:
  • Architect
  • Engineer
  • EPB-reporter
  • Ventilation installer
  • Window installer
  • Carpenter
  • Airtightness measurer
  • Producer
  • ....

• **Open system**: convince the market by engaging different people, motivate all parties to deliver quality

• Different people can work together on same project: at first sight complex, but in the end more efficient
Inspections by BCCA npo

- **Recognition** — access to web application and database
- **Desktop inspections**
  - Dossiers in database – correctness and completeness of data
- **On site inspections** – correctness of measurements and **reliability reporting**
  - During measuring of the flows
  - **Planning in web application**
    - **SMS-start** Realtime monitoring all measurements
    - **SMS-end**
    - **Inspector on site within 15 minutes**
  - After installation (eg. on site airtightness inspection)
- **Non-conformities and sanctions**
  - Modify report, extra inspections, re-measuring, temporary or definite exclusion from as reporter, ...
What is the role of BCCA npo?

• Training

• **Qualify** persons: online tests, practical test

• **Elaborate** rules of the **framework**: developing team, description of the rules

• **IT-development**: web application, database, access to documents

• **Surveillance** of the reporting: on site and desktop inspections

• **Communication**: website, newsletters, information sessions, who is recognised?

• Follow standardisation, international networking

• Provide **documentation**

• **Consultation**: working groups, advisory boards, commission for recognition, feedback to authorities
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Results: time distribution

Day of the week - inspections
- Monday: 26%
- Tuesday: 14%
- Wednesday: 14%
- Thursday: 18%
- Friday: 2%

Day of the week - measurements
- Monday: 20%
- Tuesday: 19%
- Wednesday: 22%
- Thursday: 20%
- Friday: 17%
- Saturday: 17%
- Sunday: 4%

Results ventilation 2018
Results: geographical distribution

Airtightness 2018

inspections

measurements
Results: time loss for the measurer?

Some figures
- Reaction time BCCA on SMS:
  - Maximum allowed: 5 minutes
  - Mean in practical situation: ± 3 minutes
- Time to arrive on site:
  - Maximum allowed: 15 minutes
  - Mean in practical situation: ± 5 minutes
- Duration of inspection:
  - Mean in practical situation: ± 20 minutes (questions of measurer included)
- Total:
  - Average ± 28 minutes
  - 1 inspection on 10 measurements, so in average 3 minutes per measurement
Results: drive for correct reporting?

Lowest measured extract flow

- % < 25m³/h: 9%
- % 25m³/h: 7%
- % > 25m³/h, <= 50m³/h: 20%
- % > 50m³/h: 64%

Lowest flow < 25m³/h

- % < 5m³/h: 9%
- % >= 5m³/h, < 10m³/h: 7%
- % >= 10m³/h, < 15m³/h: 8%
- % >= 15m³/h, < 20m³/h: 12%
- % = 20m³/h: 23%
- % = 21m³/h: 12%
- % = 22m³/h: 7%
- % = 23m³/h: 5%
- % = 24m³/h: 3%

ventilation 2018
Results: drive for correct reporting?
Contact

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