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
  - Research project Optivent – IWT/Flanders – 2010 – 2014
- 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
- **Governement 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

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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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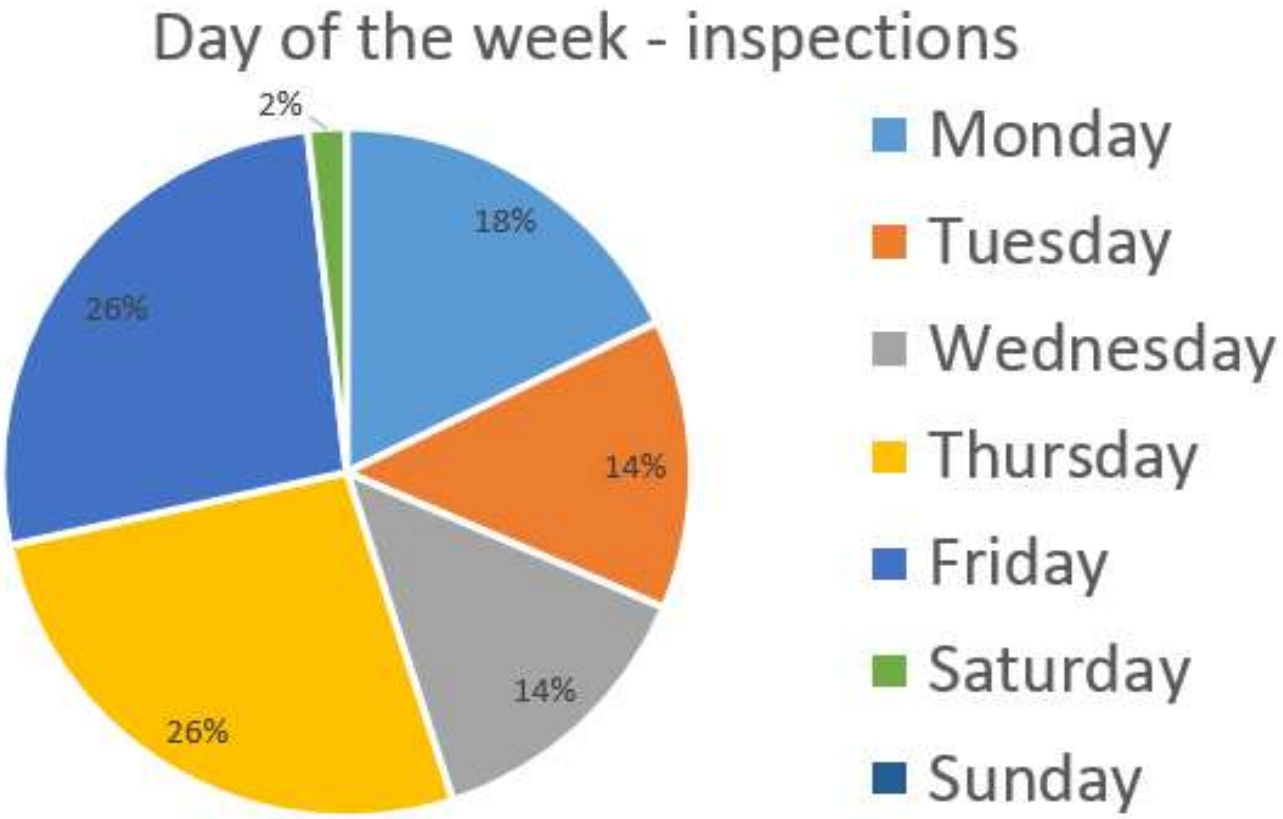
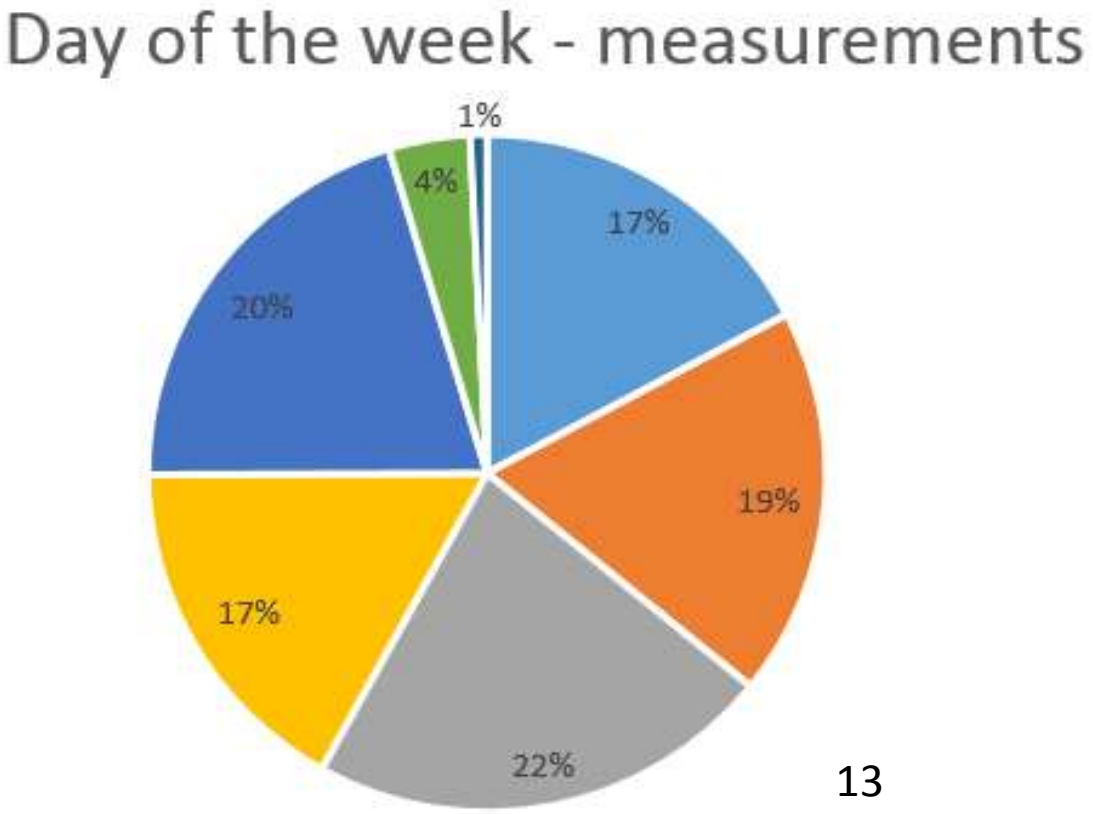
Results: time distribution





Results ventilation 2018

Results: geographical distribution

Airtightness 2018

inspections

measurements

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Results: time loss for the measurer?

Airtightness

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

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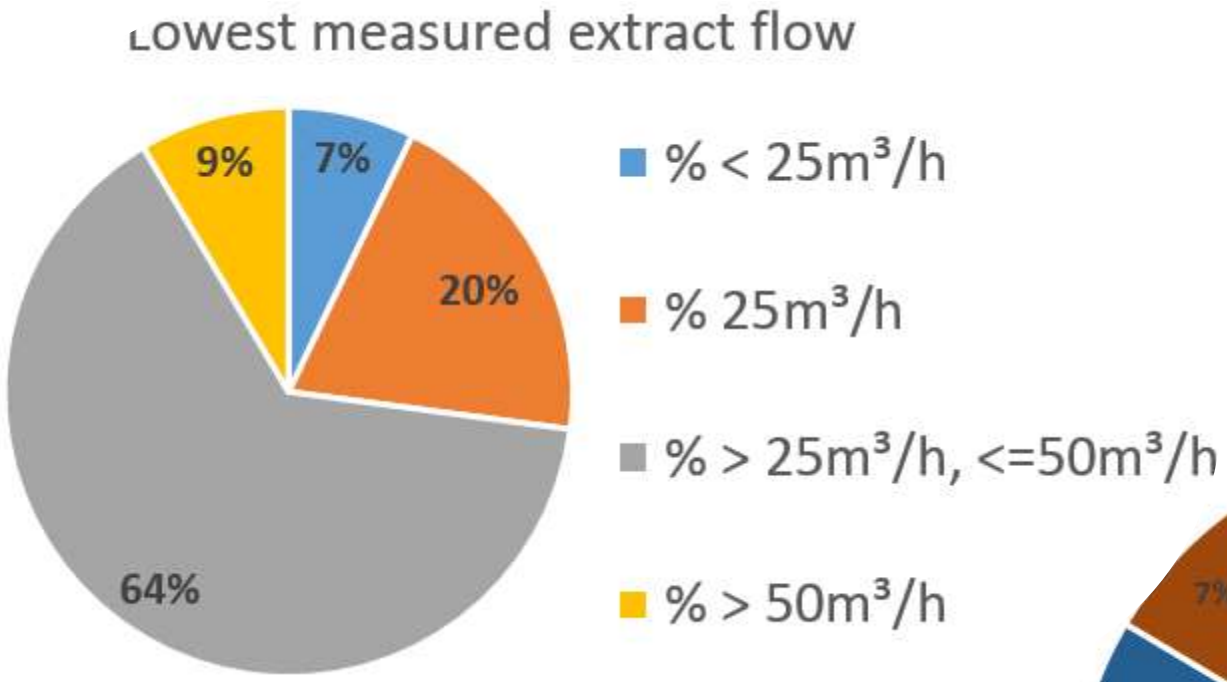
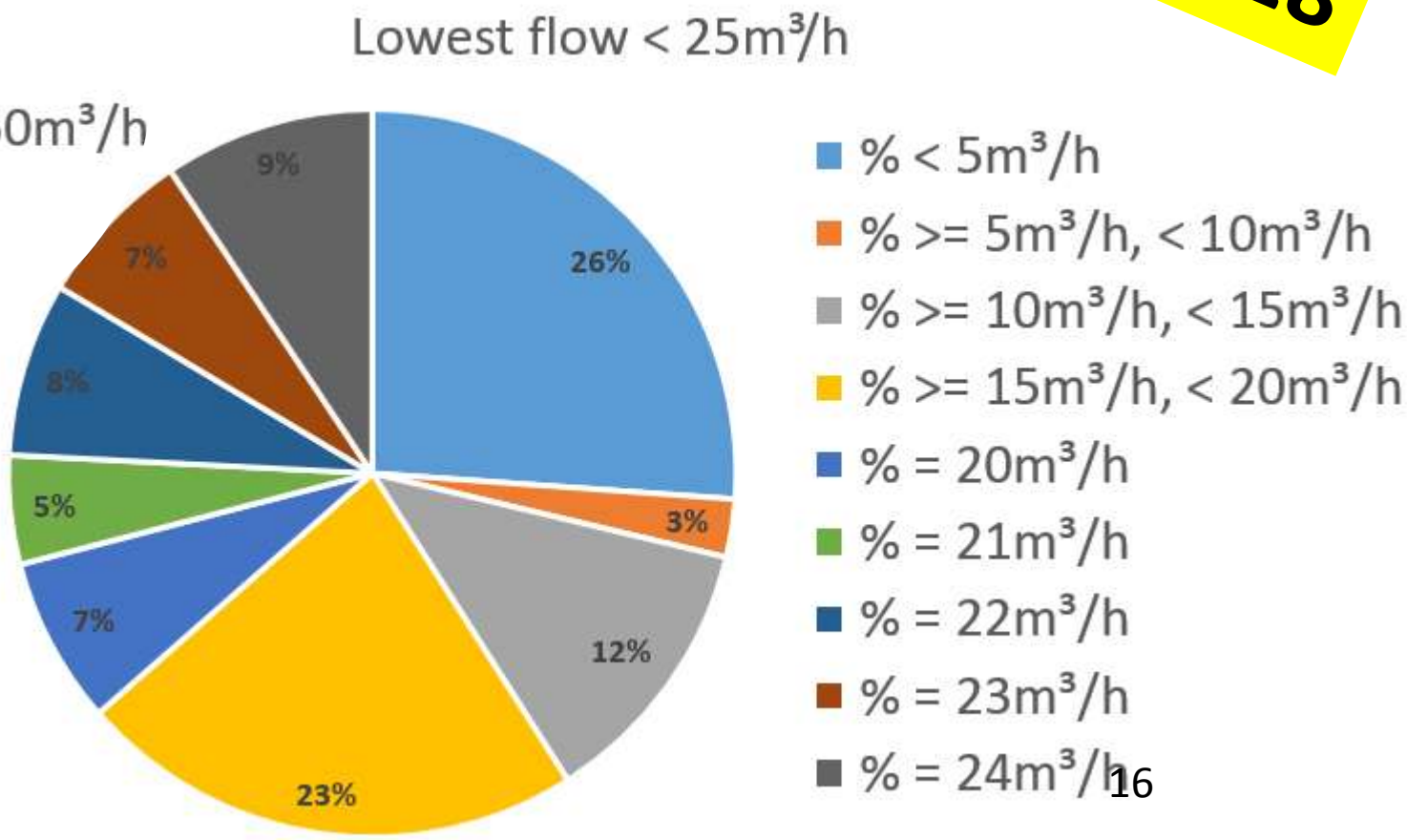
Results: drive for correct reporting?

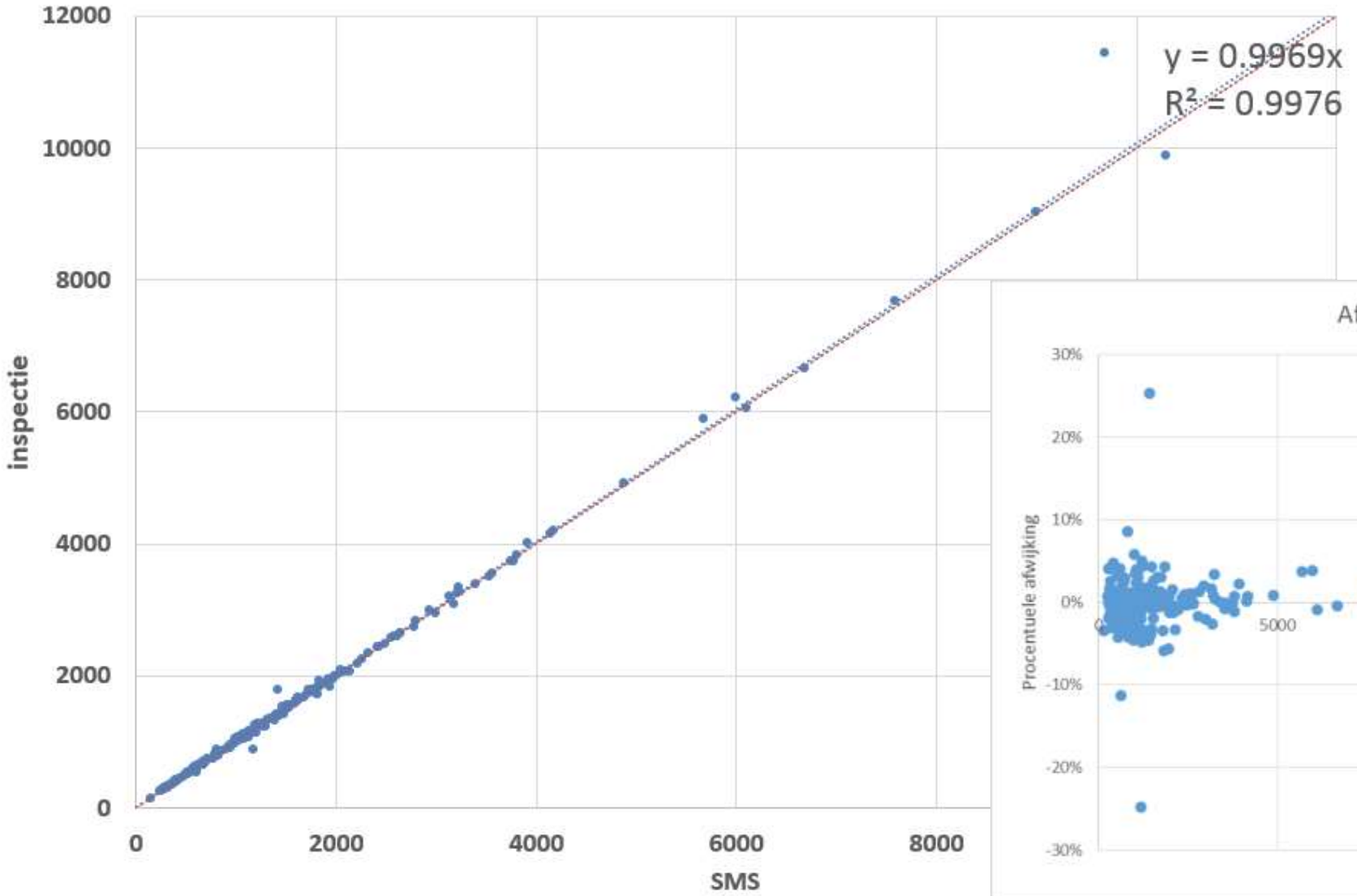
ventilation 2018

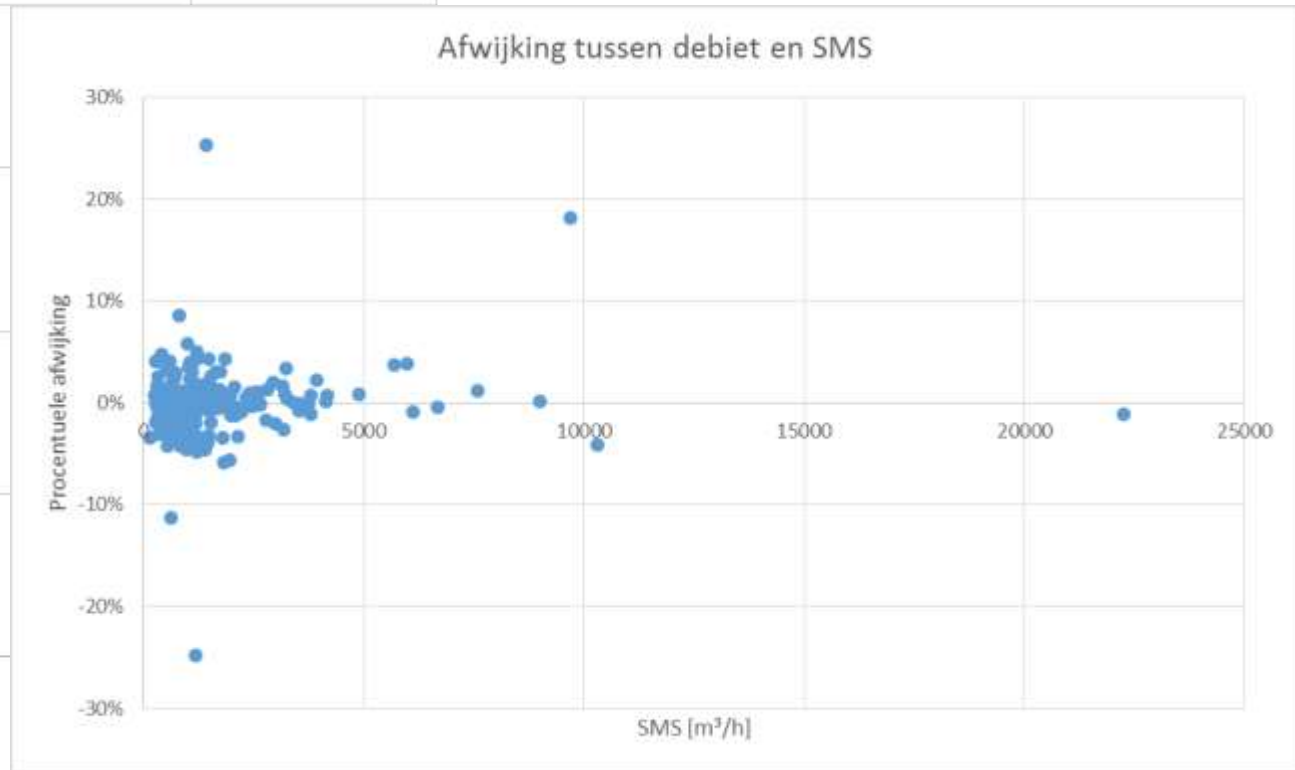




Results: drive for correct reporting?

airtightness 2018





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