

Challenges for Ventilation systems in Nearly Zero- Energy Buildings (NZEB)

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European Ventilation Industry Associations

41 Members (36 companies, 5 national associations)



Agenda



- Increasing pressure on ventilation
- Innovative ventilation systems
- Some positive developments
- Quality of the work
- Work to do!

Increasing pressure on ventilation

Increased airtightness

- higher demand on the ventilation system
- no back-up from natural ventilation.

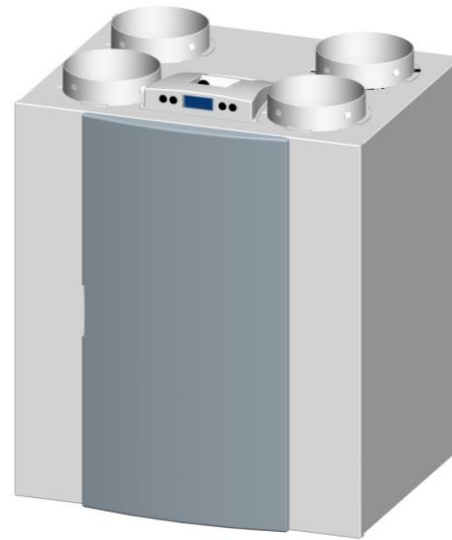
Insufficient ventilation

- increased attention for public health.

Increased isolation and airtightness

- quieter building
- need for a better acoustic performance of the ventilation system.

We have the right products



Some positive developments



- **Our knowledge of the performance of our systems has been increased.**
- **A lot of data acquisition has been done. We know exactly how our units are performing in practice.**
- **We developed an “infiltration tool” where we can calculate internal airflows generated by infiltration.**

Some positive developments



Unit Specifications and energy performance:

Covered in national databases with approved data (mostly tested according EN 13141/..)

- Germany Infoportal www.tzwl.de/uebersicht
- Passivhaus www.passiv.de/komponentendatenbank → higher
- Switzerland Energiecluster www.energie-cluster.ch
- Belgium www.epbd.be
- France <http://www.certita.org/marque-certita/nf-ventilation-mecanique-controlee>

Quality of the works

Reliability of EPBD input data

- Facts:

- Approved product specifications for heat recovery systems exists in several national databases.
- DCV ventilation not covered in today's national standards and regulations in most countries, resulting in a barrier for innovation.



- Solutions:

- Product labelling. From 2016 Ecodesign product labelling helps to understand the energy saving potential of DCV and Heat Recovery Ventilation.
- Implementing European EPBD product standards
- Collaboration between countries on databases and assessment of innovative systems?

Quality of the work

Facts:

- Insufficient attention for a good installation.
- Insufficient attention for maintenance and cleaning.
- The end user is not always well informed how to use the system.
- Installers not familiar with all kinds of systems; especially in case of more innovative ventilation systems.



Quality of the work



No mandatory ventilation regulations for maintenance and completion of houses in most countries

Interesting approaches:

- **Sweden:** there is a mandatory maintenance scheme for housing associations.
- **NL :** Voluntary recommendations and a maintenance scheme in ISSO publications (knowledge institute for installers)
- **DE:** Voluntary scheme limited to inspection on parts of the installation. (DIN 1946/6)
- **BE:** Mandatory document in progress (STS Ventilation) for quality assurance of ventilation in new buildings.

Quality of the work

Dutch study 2011 by BBA Atze Boerstra

- (Too) high sound levels of ventilation systems in practice. Control of the airflow in about 50% of the houses based on sound level instead of actual need on fresh air.
- 90% of the residents ventilate in the lowest air flow rate during day and night!
- In 20% of the houses the air supply rate does not meet the requirements.
- In 50% of the houses the air exhaust rate does not meet the requirements.
- The maintenance of ventilation system is insufficient.



Quality of the work

Actions in Dutch context

Government:

Minimum acoustical requirements (30dB) in occupied rooms for ventilation and heat generation installations.

Building sector:

Completion checklist (BRL 8010) for requirements for installed ventilation systems in new built.

Practice:

Less than 5% of principals and installers use this checklist due to economic constraints and disinterest.

Conclusion:

Sector itself cannot solve the problem.

Third party involvement is crucial, e.g. governmental requirements

Work to do!

Solutions

- Reliable product labelling crucial!
- Reliable framework for assessing innovative ventilation systems crucial for stimulation innovation.
- From component to system performance.
- Certification and training programs for designers and workers.
- Mandatory completion checklist showing that there is compliance with the requirements.
- Maintenance: awareness raising crucial, sometimes obligations necessary
- Cover a maximum sound level for installations in Standards and regulations for occupied rooms .



Conclusion and summary



- **More attention for “high quality” ventilation thanks to more air tight buildings.**
- **The right products are available even as all the knowledge to install these in a proper way.**
- **The quality of the installations can be improved.**
- **The government and the industry took their responsibility.**
- **There is a need for European harmonisation.**