

Foreword

Looking 5 years behind, it is clear that significant progress has been made in several European countries with regard to building airtightness. On the other hand, this concern is still lagging behind in many regions and/or building sectors, although relevant in terms of energy savings and indoor environmental quality. In addition, very few European countries have taken steps to foster airtight ductworks.

Therefore, there remains a long route towards the generalisation of durable building and ductwork airtightness for healthy energy efficient buildings, but the good news is that public or private initiatives can build upon successful experience and recent research results. Sharing experience is crucial for this and, as you will see in this newsletter, TightVent plays a major role to fulfil this need.

We wish you a pleasant reading and look forward to seeing you in our future events (see our Events Calendar on page 4).

The TightVent team

Outcomes of the 36th AIVC & 5th TightVent conference: Summary of the airtightness track

Around 160 participants attended the joint 36th AIVC – 5th TightVent – 3rd venticool conference held in Madrid, Spain September 23-24, 2015. The programme consisted of 3 parallel sessions with contributions from 27 countries and international organisations.

Over 120 presentations were given covering topics ranging from air infiltration through leaks in the building envelope and ductwork, ventilation in relation to IAQ and health, ventilative cooling and thermal comfort.

It has also been a major discussion place for on-going projects and initiatives such as the TightVent Europe and venticool (<http://venticool.eu/>) platforms, the Indoor Environmental Quality – Global Alliance (<http://ieq-ga.net/>), the QUALICheck project and platform (www.qualicheck-platform.eu), the IEA EBC annex 62 (<http://venticool.eu/annex-62-home/>), the IEA EBC annex 68 (<http://www.iea-ebc-annex68.org/>), the Renew School project (<http://www.renew-school.eu>), based on presentations of results and perspectives as well as fruitful interactions with the audience.

The airtightness track of the conference consisted of 5 sessions with 23 presentations. Specific topical sessions dealing with airtightness included the following topics:

- Building airtightness testing: ground status from various countries
- Airtightness – Airflow measurements
- Solutions and future developments for airtight envelopes and ductwork in new and renovated buildings
- Air infiltration modelling
- Airflow and airtightness measurements

The article available [here](#) summarises the main trends and conclusions addressed during the presentations and discussions in the airtightness track of the conference.



Figure 1: 36th AIVC & 5th TightVent conference. Opening Session



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Save the date for the QUALICheck-TightVent webinar: "Building airtightness and initiatives to improve the quality of the works"- January 12, 2016

The QUALICheck-TightVent webinar: "Building airtightness and initiatives to improve the quality of the works" will be held on Tuesday 12 January, 10:00-11:30 (Brussels time). The objective of this webinar is to give background information on selected initiatives to improve the quality of the works with respect to building airtightness.

The programme includes 4 presentations of 15 minutes as follows:

- Guidelines for designers and workers: the Etanch'air project, Clarisse Mees, BBRI
- Laboratory investigation on the durability of taped joints in exterior air barrier applications, Jelle Langmans, KU Lueven
- System approach and on-site quality control for good building airtightness, Katherine Sauvet, Saint Gobain – ISOVER
- Market drivers for the development and use of new building airtightness products, Filip Van Mieghem, Soudal

This webinar is organised by the QUALICheck consortium (www.qualicheck-platform.eu), in cooperation with TightVent Europe and (<http://www.tightvent.eu>) the Air Infiltration and Ventilation Centre (www.aivc.org).

Participation to the webinar is FREE. Click [here](#) to register.

New ISO 9972 published

The International Standard EN ISO 9972 "Determination of air permeability of buildings - Fan pressurization method", approved at CEN and ISO levels, was published in September 2015. The previous ISO 9972 version of this standard published in 2006 and amended in 2009 was similar to EN 13829:2000, but there were differences. The intent was to develop a unique ISO and EN standard. The new standard is progressively made available for purchase through the national standard bodies.

The major changes compared to EN 13829:2000 are:

- The measurement extent: a new paragraph has been added to adapt to the purpose and context of the test as follows: "if the aim of the measurement is compliance with air-tightness specification of a building code or standard and measured extent is defined in this code or standard, the measured extent is defined as in this code or standard" (§ 5.1.2);
- The building preparation methods: Method A and B have been replaced by Method 1 and 2. A new method (method 3) is introduced for specific purposes and left open to be adapted according to standard or policy in each country. This way, a specific code may require to seal specific voluntary natural ventilation openings to remain consistent with the applicable energy performance calculation. Whole building and intermittent mechanical ventilation are differentiated. Preparation methods are detailed with a new summary table (§ 5.2.3);
- The justification for requiring the opening of interconnecting doors (to maintain a uniform pressure within 10% in the building) has been deleted;
- A definition for "to close" and "to seal" an opening has been added. Note that it explicitly states that "if there is no way to close an opening, the opening shall remain open" (§ 3.1.10, 3.1.11);
- Requirements on measurement devices have changed: a pressure-measuring device is an instrument capable of measuring pressure differences with an accuracy of ± 1 Pa in the range of 0 Pa to 100 Pa (instead of ± 2 Pa in the range of 0 to 60 Pa in 13829:2000) and a temperature measuring device shall have an accuracy of 0,5 K (instead of 1 K) (§4.2);
- The informative note regarding the product of the indoor/outdoor air temperature difference has decreased from 500 m K to 250 m K (§5.1.1) (change compared to EN 13829:2000 only);
- The reference zero-flow pressure difference for the calculation of the lowest test pressure has been modified from the positive or negative average to the general average (§ 5.3.4);
- An allowance of 3 Pa has been introduced for the lowest pressure difference allowing the lowest test pressure to be as low as 7 Pa (if the zero-flow pressure is lower than 2 Pa) and as high as 28 Pa (if the zero-flow pressure is 5 Pa) (§ 5.3.4);
- The definition of large building (> 4000 m³) to justify for a highest test pressure smaller than 50 Pa has been deleted;
- The definition of the internal volume: it has changed and now includes internal walls or floors (§ 6.1.1). Nevertheless, new reference values can be defined, if needed for a specific purpose;
- The coefficient of determination for the linear regression, r^2 , shall be calculated and shall not be less than 0.98 (§ 6.2);
- Requirements for the test report have changed: the net floor area, the n_{50} , the wall and roof area and confidence limits do not need to be reported; however, the building volume is still required and the

position of the sealing of the mechanical ventilation must be reported (§ 7);

- 50 Pa is no longer the default pressure reference, any reference pressure can be chosen;
- The informative note regarding the uncertainty in calm and windy conditions mentions overall uncertainties of 10% and 20%, respectively, whereas the previous version mentioned 15% and 40% (§ 8.3);
- In annex, the Beaufort scale of wind has been corrected and is significantly more detailed;
- A new annex gives information about detection of leakage.

September 12-14, 2016: 37th AIVC –ASHRAE- IAQ joint conference Alexandria, VA, USA

This joint conference will provide a unique opportunity for dialog among attendees to facilitate understanding of current indoor air quality policies, standards and best practices with themes such as regulatory vs. voluntary compliance for achieving Indoor Air Quality (IAQ), the role of IAQ in sustainable building programs and the relationship between IAQ and Indoor Environmental Quality (IEQ), etc.

The conference programme will include internationally acclaimed keynote speakers, original peer reviewed papers, the latest in indoor environmental quality control, plus workshops and panel discussion.

This conference will guide the researchers, experts, policy makers, building owners and operators, engineers, designers, IAQ professionals, commissioning agents, architects and other interested participants about what works and what really doesn't work when tackling major improvements in indoor air quality. Target facilities include

residential and non-residential buildings.

The event will cover the following themes and topics among others:

- Definitions and metrics
- Regulatory vs. voluntary compliance for achieving IAQ
- IAQ certification programs
- Low energy/high performance buildings and IAQ
- IAQ in sustainable building programs
- Interactions—IEQ, climate change, energy efficiency
- Monitoring
- Best practices
- Ventilation and infiltration
- Residential IAQ standards and policies
- IAQ in Developing Economies
- IAQ in mobile environments—aircraft, trains, ships, motor vehicles

Useful dates:

- Conference paper abstracts are due **December 14, 2015**
- Final papers due March 14, 2016

For more information please visit:

<https://www.ashrae.org/membership--conferences/conferences/ashrae-conferences/iaq-2016>

In-situ control of airtightness testers operational in Flanders (Belgium)

All three regions of Belgium (Brussels, Flanders and Walloon Region) have from the start of the energy performance legislation the airtightness of buildings in their regional Energy Performance (EP) regulations. Airtightness testing is not mandatory and there are no minimum requirements; However, when using the result of an airtightness test instead of the default air permeability value (for heating calculation) $v_{50} = 12$

$m^3 / (h.m^2)$, a substantial improvement in energy performance can be achieved.

Since January 1 2015, it is mandatory in Flanders to be qualified to perform such tests in the context of the EPBD regulation. The qualification procedure involves the successful completion of a theoretical exam as well as a practical test. There are currently more than 200 testers qualified to realise pressurization tests.

In order to guarantee the quality of the test results and the reliability of the declared airtightness levels, 2 types of control are foreseen:

- 10% of the submitted declarations are subject to a desktop control, in order to check if the reporting is complete and correct
- 10% of the tests have an on-site inspection. In order to allow this procedure, qualified testers have to communicate when the tests are carried out. Part of these tests involve an a posteriori control. The tester must at the end of the test report by SMS the declared airtightness result. The control organisation will then be within 15 minutes after the confirmation on site whereby the tester must redo the test.

May 22-25, 2016: CLIMA 2016 – Aalborg, Denmark

The 12th REHVA World Congress CLIMA 2016 will focus on building and Heating, Ventilating and Air-Conditioning (HVAC) system performance in practice in relation to fulfillment of the intended design, ability to fulfill the needs of the occupants, interaction with the users in daily practice and role in the smart energy system. The congress will consist of a mixture of keynote, scientific and technical sessions as well as workshops, industry forums, student activities, technical tours and training courses. Visit the congress website at: <http://www.clima2016.org/> for more information.

Product news from our partners

Calibrating means comparing – but not apples to oranges...

In addition to high-quality manufacturer's calibration, BlowerDoor GmbH, as a DAkkS-accredited lab, now also offers the calibration of measuring gauges with DAkkS certification.

The calibration procedures at BlowerDoor GmbH meet the highest quality standards. The calibration lab at BlowerDoor GmbH has been DAkkS-accredited since April 2015.

BlowerDoor clients can now choose between the manufacturer's calibration and the DAkkS-calibration of their measuring devices. All calibrations are preceded by a functional test and include an inbound calibration as well as an adjustment. The firmware of older pressure gauges is updated free of charge. These services guarantee the success of the subsequent calibration process and ensures that the pressure gauge will work with the highest possible accuracy.

Further information: www.blowerdoor.com



TightVent welcomes Industrias Gonal as new partner

TightVent is very pleased to welcome Industrias Gonal, as new partner.

Industrias Gonal is a European leading Manufacturing Company which through its registered Brand TUBPLA®, produces thermoplastic ductwork systems for ventilation (MCV and HRV systems). The company, has recently developed its innovative system TUBPLA® Airtight consisting of ductwork systems with extremely airtight mechanical connections (Class "D" according to EN 12237). Our aim and challenge is to develop and transfer to the market the innovative solutions of thermoplastic ductwork for better practices, aligning products technologies together with ventilation strategies in order to meet the requirements of regulations in terms of indoor air quality and energy efficiency. We believe that TightVent Europe is a special partner to share together the promotion of knowledge and solutions in order to improve comfort and energy efficiency for dwelling occupants.

Events Calendar

- **September 12-14, 2016:** 37th AIVC –ASHRAE- IAQ joint conference "Defining Indoor Air Quality: Policy, Standards and Best Practices" in Alexandria, VA, USA.
- **May 22-25, 2016:** 12th REHVA World Congress CLIMA 2016, Aalborg, Denmark
- **January 12, 2016 10:00-11:30 (Brussels time):** QUALICHECK-TightVent webinar: "Building airtightness and initiatives to improve the quality of the works"

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