

## Foreword

Airtightness testing has been one key element in the on-going market transformation on building airtightness in several countries: it has shown policy makers and professionals the gap between expected and actual airtightness levels and urged them to revisit envelope airtightness policies as well as its design and implementation. Besides, several airtightness testing quality schemes now fully operational are a data mine gold for public bodies and for the industry. Things aren't perfect, but at least, we know better where we are in terms of airtightness of new buildings. This is not the case for the long-term performance where research is still needed to understand the physical mechanisms degrading envelope airtightness. This newsletter outlines some initiatives on these issues.

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

## 13-14 September 2017 - 38th AIVC & 6th TightVent conference in Nottingham, UK

The 38th AIVC- 6th TightVent & 4th venticool conference "Ventilating healthy low-energy buildings" will be held on 13 and 14 September 2017 in Nottingham, UK.

The event will place its focus on:

- thermal comfort and ventilative cooling (the application of ventilation to cool indoor spaces and reduce overheating risk in buildings);
- air infiltration through cracks in the building envelope and ductwork;
- the relationships between ventilation, indoor air quality and health.

The conference will consist of 3 parallel tracks largely devoted to airtightness issues, ventilative cooling, ventilation in relation to IAQ and health. It will consist of a mixture of well prepared and structured sessions focused on the conference topics, presentations on invitation and presentations arising from the call for papers.

Contributions are invited in the areas of research, development, application, and market and legislative implementation of ventilation and infiltration. Preference will be given to abstracts focusing on airtightness, ventilative cooling, ventilation, IAQ and health relationships. Specific topics of interest on airtightness include:

- Durability of building and ductwork airtightness;
- Energy and IAQ impact of envelope and ductwork leakage;
- Field data and case studies;
- Infiltration measurement techniques and IR thermography;
- Design and construction approaches for airtight buildings;
- Risks related to airtightness

Selected papers will be invited for submission to special issues of the 'Energy & Buildings' journal, the 'International Journal of Ventilation' and the REHVA journal.

The conference is organised by:

- the International Network on Ventilation and Energy Performance (INIVE) on behalf of the Air Infiltration and Ventilation Centre (AIVC), TightVent Europe (the Building and Ductwork Airtightness Platform), and venticool (the international platform for ventilative cooling);
- Brunel University London;
- The University of Nottingham; and
- The Chartered Institution of Building Services Engineers (CIBSE).

Visit the conference website <http://aivc2017conference.org> for further information.



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## TAAC news

On October 3 2016, the TightVent Airtightness Associations Committee (TAAC) held their 16th meeting since the committee's launch in September 2012. 13 TAAC members and guests from 5 European countries (Belgium, France, Latvia Spain and the UK) attended the meeting.

Liesje Van Gelder from the Belgian Construction Certification Association (BCCA) presented the BCCA database deriving from a quality framework for building airtightness testing developed for the Flemish region in Belgium.

Barry Cope, from the UK's Air Tightness Testing & Measurement Association (ATTMA) Trade Association introduced the ATTMA Lodgement system and gave key statistics from the industry.

Adeline Bailly, from the French Centre for Studies and Expertise on Risks, Environment, Mobility and Urban and Country Planning (CEREMA), described the French database in an analysis of about 90 000 airtightness measurements performed in France on residential and non-residential buildings from 2008 to 2014.

In case you have interest to obtain further information and/or join us, please write an email to [info@tightvent.eu](mailto:info@tightvent.eu).

## March 31 – April 1, 2017, Conference, Hannover – “10th International BUILDAIR Symposium”

The tenth anniversary of the International BUILDAIR Symposium “Airtight Buildings, Thermography and Ventilation Systems in Practice” will be held from March 31 to April 1, 2017 in Hannover Germany. The BUILDAIR Symposium has been for over 20 years a major event on airtightness issues in Germany.

For further information please visit: <http://www.buildair.de/homepage.html?Itemid=42>

## New QUALICHeCK factsheets available

QUALICHeCK recently released several new factsheets. Factsheet #21 describes the quality framework for reliable fan pressurisation tests.

Airtightness performance of the building has a significant weight in the Belgian EPB-calculation and the number of pressurisation tests in new buildings is strongly increasing. To face the potential lack of tester's skills and to ensure a reliable value, a quality framework has been developed according to which testers have to pass an exam and could be controlled. This factsheet describes the relevant quality framework and its context.

All factsheets are freely accessible and browsable by date and topic at the QUALICHeCK [website](#).

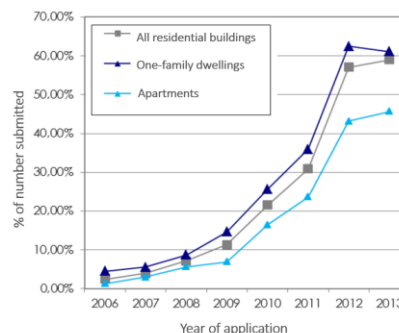


Figure 1: Evolution of pressurisation test numbers for new buildings in the Flemish Region of Belgium

## Feedback from the 37th AIVC –ASHRAE- IAQ joint conference Alexandria, VA, USA, September 12-14, 2016

The 37th AIVC Annual Conference was held in Alexandria, VA, USA in collaboration with ASHRAE's IAQ triannual conference. 176 persons from 21 countries attended the conference. This conference had a clear focus on indoor air quality, and confirmed the relevance of future research topics identified by the AIVC including IAQ metrics, air cleaning, cooker hoods, and measurement methods.

## ATTMA Technical Standard L1: Measuring air permeability in the envelopes of dwellings

The Air Tightness Testing & Measurement Association (ATTMA), has recently updated the Technical Standard L1: “Measuring air permeability in the envelopes of dwellings”, including changes and clarifications in order to reduce and remove ambiguity within the testing industry. This Technical Standard sets out to provide detailed guidance and clarification of BS EN 13829:2001: “Thermal Performance of Buildings. Determination of air permeability of buildings. Fan pressurisation method” and ISO 9972:2015, in order to ensure consistency by testing companies.

To download and read the full document please visit the ATTMA [website](#).

## New guide by BSRIA | Floor Plenum Airtightness – Guidance and Testing Methodology

A new guide, released by the Building Services Research and Information Association (BSRIA), focuses on energy efficiency issues and users' discomfort related to the air leakage of floor plenums, and recommends worst acceptable criteria.

According to the document, appropriate limits should be included within design specifications and measured on site to demonstrate compliance. Distinctions are made between plenum leakage (air leakage to adjacent spaces) and raised access floor leakage (uncontrolled air leakage into conditioned zones).

The guide gives a testing methodology for both plenum leakage and raised access floor leakage, and provides guidance on achieving both. For further info please visit the BSRIA [website](#).

## DURABILIT'AIR: a research project on durability of airtightness products

*First results from a literature review, preparing a field measurement campaign and a laboratory protocol for airtightness accelerated aging and performance characterisation*

Over the past thirty years, much progress has been made to increase knowledge about mechanisms governing building airtightness and the impact of air infiltrations on energy efficiency, health effects and construction quality related issues. As a matter of fact, since the early 2000's, regulations in many countries explicitly account for airtightness, sometimes with mandatory requirements, as a consequence of Europe's ambition to generalise nearly zero energy buildings by the end of 2020. Nevertheless, less expertise is available today about the durability of airtightness products, in mid- and long-term scales. Indeed, this subject remains very complex, since it covers both the modelling of the mechanisms of building's and products' loads and deformations, the accelerated aging in laboratory controlled conditions and the performance characterisation from field measurements results.

With the DURABILIT'AIR research project, Cerema, PLEIAQ, CETII and RESCOLL aim at improving knowledge on various questions related to residential buildings envelope airtightness durability. This 36 month project has 4 major objectives:

1. listing the major international research findings dealing with airtightness durability of building products, through a state of the art review;
2. characterising the evolution over time of the airtightness of existing single family dwellings by on site measurement campaigns;
3. understanding and modelling the physical mechanisms causing the airtightness performance

degradation as a function of time with a view to develop laboratory controlled methods in order to test the accelerated aging of airtightness sensitive products and systems;

4. disseminating the main results of this work, with tools and communications among professional of the building sector in order to promote best practices.

### First Results from a Literature Review

PLEIAQ summarised a collective literature review with the major recent published findings on airtightness durability from field measurement studies and laboratory tests. Namely, the variation of the airtightness is found to be qualitatively caused by (1) the building's occupants actions (refurbishment and internal decoration) (2) the aging and degradation of airtightness products; (3) the structure movements (e.g. settlement); (4) the humidity variation. Furthermore, the main results of this review are the following:

- Results of 4 field measurement campaigns have been analysed (samples varying from 6 to 17 buildings), by comparing infiltration airflow rates measurements evolution between dates varying from 1 to 20 years. Infiltration airflow rates appear to increase during the first three years after the construction (in the order of 10-15%), before stabilising.
- Results from 5 field measurements studies highlight possible correlation between the infiltration airflow rates evolution with the seasons of the year and the constructive type.
- No standardised protocol for accelerated aging and testing of airtightness products is available. Results from 7 studies present different experimental protocols, based on specific extreme heating and relative humidity conditions and pressure loads.

### Future Works

Two field measurement campaigns have started in September 2016, led respectively by Cerema and CETII.

They aim at assessing the evolution of the measured airtightness in 2 samples of 30 single family French dwellings in a long-term perspective (i.e., evolution of the airtightness after 5 to 10 years comparative measurements) and mid-term perspective (evolution after less than 3 years comparative measurements). Additional measurements will explore the seasonal influence.

In the meantime, an experimental laboratory protocol is currently designed by RESCOLL and Cerema, in order to develop an accelerated airtightness aging tests for 3 samples of airtightness constructive solutions with representative assembled products.

Final results of the DURABILIT'AIR project are expected for December 2018.

*Support for this work was provided by ADEME, under contract n°1504C0106 and by the French Ministry in charge of Construction (DGALN/DHUP).*

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## TightVent Europe becomes Associated Partner of the Covenant of Mayors

TightVent Europe has joined the Covenant of Mayors as an Associated Partner. Heralded as the "world's biggest urban climate and energy initiative" by Commissioner Miguel Arias Cañete, the Covenant of Mayors for Climate & Energy brings together thousands of local and regional authorities voluntarily committed to implementing EU climate and energy objectives on their territory. New signatories now pledge to reduce CO2 emissions by at least 40% by 2030 and to adopt an integrated approach to tackling mitigation and adaptation to climate change.

For further information please visit: <http://www.covenantofmayors.eu/>

## Events Calendar

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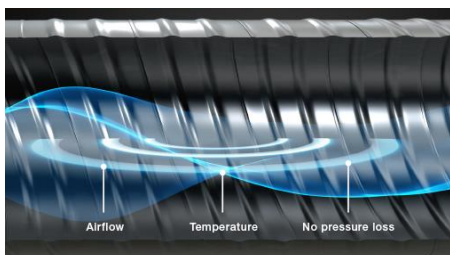
## Product news from our partners

### What does ultra sound has to do with ventilation?

This may seem like a difficult question, but the answer is much more logical and valuable than it may seem at first. Over the past 5 years, the world has seen an increasing number of energy efficiency polices. These, combined with an increasing focus on indoor air quality, raise a demand for new technologies that can help optimise air quality and at the same time reduce energy consumption in buildings. This is where ultrasound becomes part of the picture and why Lindab has invested in the development of a new measurement technology for air flow and temperature – called UltraLink.

Read the full article at: <http://tightvent.eu/archives/2809>

Further information: <http://blog.lindab.com/>



### Retrotec's rCloud app revolutionises blower door & duct testing

Retrotec brings you the rCloud app, a revolutionary way to securely perform and report reliable, repeatable results.

rCloud geolocates your location and automatically performs blower door or duct tests to common standards. Then immediately creates secure compliance reports to be viewed anywhere.

The rCloud app connects directly to your DM32 WiFi smart gauge. Set-up your equipment, open rCloud on your smartphone, tablet or PC, choose the geolocation feature and select the test type. rCloud does the rest.

Available for iOS, Android, and Windows 8.1 & 10.

View additional rCloud information [here](#).



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