

## Foreword

Interest & awareness in the field of building and ductwork airtightness continues to grow. The TightVent Airtightness Associations Committee is continuously increasing its members and broadening its scope in line with their activities in the field. There is a major role and an inarguable commitment for the TightVent Europe platform to continue disseminating information on these fields. The May 2020 edition of the TightVent newsletter informs you on our latest achievements (events, publications, projects etc.) throughout selected initiatives.

Please visit our [website](#), follow us on [twitter](#) and [LinkedIn](#) and [subscribe](#) to our monthly newspaper "Energy Efficiency and Indoor Climate in Buildings" to find out more about our activities. We wish you a pleasant reading!

The TightVent team

## 14 -16 September 2020 – 41<sup>st</sup> AIVC & 9<sup>th</sup> TightVent - ASHRAE IAQ joint conference in Athens, Greece

[COVID-19 update] *AIVC and ASHRAE continue to monitor the COVID-19 outbreak. At this time, preparations for the Athens IAQ 2020 Conference are moving forward as planned – authors are writing papers to be reviewed, workshops are being organized and the conference schedule is being developed. AIVC and ASHRAE are following the recommendations of the World Health Organization and the Centers for Disease Control and Prevention and will comply with relevant national and local laws and regulations.*

The conference "IAQ 2020: Indoor Environmental Quality Performance Approaches Transitioning from IAQ to IEQ", organized by ASHRAE and AIVC will take place September 14-16, 2020 in Athens, Greece. The conference will also be the 9<sup>th</sup> TightVent and 7<sup>th</sup> venticool conference.

Indoor Air Quality (IAQ) has been the core of ASHRAE'S IAQ series of conferences for the past 30 years. This conference will expand from Indoor Air Quality to Indoor Environmental Quality (IEQ). IEQ includes air quality, thermal comfort, acoustics, and illumination and their interactions. The particular focus of this conference is on performance approaches including the metrics, systems, sensors and norms necessary to implement them.

**Conference topics:** Health and Well-being; Appropriate technical and

operational definitions; Performance Metrics: For all aspects of IEQ; Interactions: Interactions between IEQ parameters; Occupant Behavior: How behavior impacts IEQ and how IEQ impacts behavior - psychological dimensions of IEQ; Smart Sensors and Big Data: Sensor properties, data management, cybersecurity, applications; Smart Controls: Equipment properties, commissioning, equivalence; Resilience and IEQ: Responding to climate change and disasters; Ventilation: Mechanical, passive, natural and hybrid systems; Air Tightness: Trends, methods and impacts; Thermal Comfort: Dynamic approaches, health impacts and trends; Policy and Standards: Trends, impacts, implications

**Keynote speakers:** Philomena Bluysen, Professor of Indoor Environment, TU Delft; Richard de Dear, Ph.D., Director, Indoor Environmental Quality Laboratory, University of Sydney; Mariana Figuero, Director of the Lighting Research Center, Rensselaer Polytechnic Institute; Benjamin Jones, Associate Professor, University of Nottingham; Cath Noakes, PhD, FIMEchE, FIHEEM, Professor of Environmental Engineering for Buildings, University of Leeds; Stephanie Taylor MD, M Architecture, CIC, FRSPH(UK), MCABE, Taylor Healthcare Consulting, Inc.

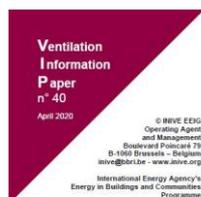
For more information, please visit the [conference website](#) or contact [meetings@ashrae.org](mailto:meetings@ashrae.org)



## In this issue

- Foreword
- 14 -16 September 2020 – 41<sup>st</sup> AIVC & 9<sup>th</sup> TightVent - ASHRAE IAQ joint conference in Athens, Greece
- AIVC Ventilation Information Paper no 40 "Ductwork airtightness- A review"
- TAAC news
- TightVent-AIVC Webinars on durability of airtightness – Recordings available
- AIVC- TightVent project: Integrating uncertainties due to wind and stack in declared airtightness results
- Durabilit'AIR project: Feedback and follow up
- Guidelines for airtightness measurements of high-rise buildings
- Product news from our partners

## AIVC Ventilation Information Paper no 40 “Ductwork airtightness – A review”



The Air Infiltration & Ventilation Centre with the support of TightVent has just released Ventilation Information Paper no 40: “Ductwork airtightness – A review”. The paper aims to complement Ventilation Information Paper VIP 01 “Airtightness of ventilation ducts”. It provides a literature review of the work performed since 2003 in the field of ductwork airtightness. Its objectives are to provide information on the impact of ductwork airtightness; regulations and standards; measurements methods; and the implementation of ductwork airtightness.

The document is available to download at:

<https://www.aivc.org/resource/vip-40-ductwork-airtightness-review?volume=33977>

## TAAC news

The TightVent Airtightness Association Committee (TAAC) continues to meet 4 times per year (3 web meetings and 1 physical meeting). When it was first launched in 2012 the objective of TAAC was to improve building airtightness competent testers schemes and compare building airtightness protocols. Now the scope of TAAC has broadened, in line with its participants activities. Nowadays, in more and more countries the objective of the regulation is not only to reduce energy use but also ensure good indoor air quality with a well-functioning ventilation system. Therefore, building airtightness tests are more and more often combined

with inspection of ventilation systems and ductwork airtightness tests.

The TAAC meeting on December 10<sup>th</sup>, 2019 was dedicated to airtightness tests of high-rise buildings. Guidelines issued by the Passive House Institute as well as ATTMA recommendations (including sampling) were discussed and presented.

The last TAAC meeting on March 31<sup>st</sup>, 2020 focused on the inspection of ventilation systems. It included presentations on the BCCA (Belgian Construction Certification Association) schemes as well as the French activities and outcomes of the EPBD19a feasibility study (<https://www.epbd19a.eu/>). Moreover, information on TAAC’s new work item comparing approaches for the inspection of ventilation systems in Europe was also discussed. During the meeting, TAAC welcomed a new representative from Switzerland, Michael Wehrli.

In case you are interested to obtain further information and/or join us, please send us an email at [info@tightvent.eu](mailto:info@tightvent.eu).

## TightVent-AIVC Webinars on durability of airtightness – Recordings available!

The recordings and the slides of our recent webinars: “Durability of building airtightness: Assessment through field measurements” held on January 30<sup>th</sup> 2020 & “Durability of building airtightness: Assessment through laboratory testing” held on Friday 21 February 2020 and organised with the support of TightVent Europe and the Air Infiltration and Ventilation Centre, are now available online.

The full collection of past events’ recordings and slides can be found at <http://tightvent.eu/events/webinars> Subscribe to our [YouTube channel](#) to receive our latest video updates!

## AIVC- TightVent project: Integrating uncertainties due to wind and stack in declared airtightness results

The aim of this AIVC project is to better understand the impact of wind and pressure variation along the building envelope influencing the result of the building airtightness test, and to provide guidance on how to estimate and reduce it.

To this end we have gathered researchers & experts from the BBRI - Belgian Building Research Institute, BlowerDoor GmbH, CEREMA -Centre d’études et d’expertise sur les risques, l’environnement, la mobilité et l’aménagement, Chalmers University, CVUT-the Czech Technical University in Prague, the Energy Conservatory, ENTPE - École Nationale des Travaux Publics de l’État, IETCC - Instituto de Ciencias de la Construcción Eduardo Torroja, LBNL-the Lawrence Berkeley National Laboratory, OsloMet- the Oslo Metropolitan University, Retrotec, TNO-the Netherlands Organisation for applied scientific research, UC Louvain- Université catholique de Louvain and the University of Nottingham. The working group has met 4 times with the objective to:

- define the problem; and
- gather information (existing publications and on-going work).

From these discussions we have drafted an AIVC Ventilation Information Paper which describes and discusses the problem, provides a literature review, highlights the research needed in the field and gives practical advice on how to reduce the impact of wind on the results of airtightness tests.

This document will be reviewed by the working group during its next meeting in June. The objective is to publish the paper by the end of this year. Once the paper is published a webinar will be organized to present it together with some key studies.

## Durabilit'AIR project: Feedback and follow up

*Andrés Litvak (Cerema, France)*

The DURABILITAIR project<sup>1</sup> was completed in October 2019, after 4 years of research work. The outcomes of the project were presented during the recent TightVent-AIVC webinars on Durability of building airtightness<sup>2,3</sup>, as well as the AIVC-TightVent joint conferences of 2017, 2018 & 2019<sup>4,5,6</sup>.

Unquestionably, this project has helped us to better understand the durability of building airtightness. The results improved our knowledge both on the on-site characterization of the evolution over time of the airtightness of dwellings and on the definition of an accelerated aging test protocol under controlled laboratory conditions. One of the major conclusions of this project are that the conditions of implementation appear to be critical for the durability of building airtightness. Moreover, if the envelope airtightness varies over time it is mainly during the first year of the building's life; it then stabilizes.

These conclusions were consistent with other similar studies. At the same time new questions were raised which led the project research team to prospect for future work with a view to set up the new project DURABILITAIR 2, in order to:

- identify the possible factors degrading the airtightness of the envelope during the first year of occupation,
- make recommendations to limit or even eliminate these factors (in particular, those related to the conditions of use of air-tightness products), and
- quantify the impact of poor implementation conditions on the durability of airtightness.

The first objective of the DURABILITAIR 2 project involves quantifying and qualifying the evolution of the envelope airtightness of a sample of 12 new single-family

dwellings, in the very short term. For this, instrumented and visual visits will be scheduled during construction on each worksite to establish an inventory of conditions for the implementation of airtightness products linked to the building envelope. The second objective is to perform measurements of the envelope air permeability on this sample at close periods (0, 1, 3, 5, 7, 9, and 12 months) after reception, in order to finely assess the evolution of air permeability during the first year of building use. Another objective of this work will be to adapt the laboratory accelerated test DURABILITAIR protocol during complementary laboratory tests. Depending on the nature of the samples, we plan to adapt the duration of the applied aging as well as certain conditions of the aging cycles.

For more information on the DURABILITAIR project, visit the website: [www.durabilitair.com](http://www.durabilitair.com)

### References:

<sup>1</sup> TightVent Europe [Newsletter 11](#), December, 2016

<sup>2</sup> TightVent-AIVC Webinar | [Durability of building airtightness: Assessment through field measurements](#) | Thursday January 30<sup>th</sup>, 2020

<sup>3</sup> TightVent-AIVC Webinar | [Durability of building airtightness: Assessment through laboratory testing](#) | Friday 21<sup>st</sup> February 2020

<sup>4</sup> [Proceedings of the 38<sup>th</sup> AIVC - 6<sup>th</sup> TightVent - 4<sup>th</sup> venticool Conference](#) "Ventilating healthy low-energy buildings", Nottingham, UK, 13-14 September 2017

<sup>5</sup> [Proceedings of the 39<sup>th</sup> AIVC - 7<sup>th</sup> TightVent - 5<sup>th</sup> venticool Conference](#) "Smart Ventilation for Buildings", Antibes Juan-Les-Pins, France, 18-19 September 2018

<sup>6</sup> [Proceedings of the 40<sup>th</sup> AIVC - 8<sup>th</sup> TightVent - 6<sup>th</sup> venticool Conference](#) "From energy crisis to sustainable indoor climate - 40 years of AIVC", Ghent, Belgium - 15-16 October 2019

## Guidelines for airtightness measurements of high- rise buildings

*Jürgen Schnieders (Passivhaus Institut GmbH, Germany)*

Due to the strong wind and thermal effects on high-rise buildings, special rules must be observed for blower door measurements. The standards, EN 13829 and ISO 9972, do not provide sufficient information in this regard. For this reason, the Passive House Institute has developed a guide for the airtightness measurement of high-rise buildings.

Assume, as an example, a building of 80 m height and a temperature difference between inside and outside of 15 K. This results in a total pressure difference of 48 Pa between the ground and top floors, an influence that cannot be neglected. In addition, it is impossible to comply with the requirement from the norm that a 10% pressure difference deviation must not be exceeded anywhere at the building envelope.

The guide presents practical instructions on how to carry out measurements in high-rise buildings, nevertheless. The general procedure is explained, and it is shown where the blowers can be positioned, which measured values have to be discarded and which additional measurements should be taken. The inaccuracy resulting from the non-linearity of the flow formula is also investigated.

The guide is available on Passipedia, for subscribers and for members of the International Passive House Association:

[https://passipedia.org/planning/airtight\\_construction/airtightness\\_measurement\\_of\\_high-rise\\_buildings\\_guidelines](https://passipedia.org/planning/airtight_construction/airtightness_measurement_of_high-rise_buildings_guidelines)

## Product news as provided by our partners

### Introducing the Retrotec FlowBox: Exhaust Fan Flow Meter & Pressure Pan

The FlowBox is a passive exhaust fan flow meter that utilizes the DM32 manometer to measure exhaust only flows. This tool is perfect for measuring flows for bath fans, kitchen exhausts, room returns and whole-house ventilation. Its increased coverage area makes it easier to measure larger bath fan models with light assemblies. With all the holes plugged, the FlowBox can also be used as a pressure pan to locate leaks with a blower door. This is the only exhaust fan flow meter that can be used as a pressure pan without the need for tape.



Visit [www.retrotec.com](http://www.retrotec.com) or contact [SalesEU@retrotec.com](mailto:SalesEU@retrotec.com) for more information.

### MEZ-BALLOON – For the temporary closing of circular air ducts

MEZ-BALLOON, are high quality duct plugs for a temporary closing of circular ducts during leakage test, duct sealing or duct cleaning. Our duct plugs can be reused at least 10 to 20 times and can be pumped up with a conventional ball pump or compressed air. A clip to close and lock the plugs is also included. MEZ-BALLOON are mainly for circular duct but can be used for smaller rectangular ducts as well if the proportion of the dimensions are more or less equal.

For more information visit <https://bit.ly/351xO6T>.



### Complete air flow control with Lindab UltraLink

The UltraLink controller is a new volume flow regulator developed to deliver an optimal indoor climate to minimum energy consumption. With the UltraLink controller, you have the possibility to create a more efficient and optimized ventilation system with low maintenance costs. Unique features: Precise and reliable measurement with ultrasound even at low airflow; no obstructions in the airflow that causes unnecessary pressure loss; fast and easy commissioning with Bluetooth technology; Rotatable UltraLink sensor and damper housing.



Please visit [www.lindab.com](http://www.lindab.com) for more information

### TEC Auto Test: Multipoint Test According ISO 9972 for Mobile Devices Available

The TEC Auto Test app allows to wirelessly connect with a Minneapolis BlowerDoor DG-1000 or DG 700 pressure gauge to conduct an automated airtightness test of a building. The app will collect and store the required test data from the connected gauge and flow device, and along with manually entered building and customer information, calculate and display test results in a PDF report. Project files can be geotagged using location services on your mobile device. The test reports can be viewed and exported using email or cloud sharing apps installed on your mobile device. TEC Auto Test is designed to be used with Minneapolis BlowerDoor Standard and MiniFan.



TEC Auto Test  
TEC - The Energy Conservatory



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## GOLD PARTNERS



## SILVER PARTNERS



## ASSOCIATE PARTNERS



## PLATFORM FACILITATOR

