

Newsletter No 29

Foreword

Welcome to the November 2025 edition of our biannual newsletter! We're pleased to bring you the latest updates from our activities and events:

1. Announcements of the upcoming 46th AIVC–14th TightVent Conference in September–October 2026 (Incheon, Republic of Korea).
2. Announcement of November 25 webinar, From Inspections to IAQ Measurement: Exploring Databases for Better Indoor Environments.
3. Feedback of the session “Durability of the Building Airtightness” at the AIVC–TightVent Conference in Montreal.
4. Key takeaways from the latest TightVent Airtightness Association Committee meeting.

Please visit our [website](#), follow us on [bluesky](#) and [LinkedIn](#) and [read](#) to our monthly newspaper "Energy Efficiency and Indoor Climate in Buildings" to find out more about our activities.

We hope you enjoy this issue and stay connected with all that's ahead!

The TightVent team

30 September – 1 October 2026, AIVC – TightVent – venticool joint Conference, Incheon, Republic of Korea – Call for Abstracts & Topical Sessions!

We are pleased to announce that the AIVC -TightVent - venticool 2026 Conference: “Innovations in Smart Ventilation and IEQ for Resilient and Adaptive Buildings” is now accepting abstracts & proposals for topical sessions. The Conference will be held on **September 30 & October 1, 2026** and will take place at the **Songdo International District in Incheon, Republic of Korea**.

The conference will feature a mixture of presentations selected from the call for papers & topical sessions as well as invited contributions, all organised into well-prepared and structured sessions aligned with the conference theme and topics. In addition, the event will include an exhibition from industry, offering attendees the opportunity to engage with leading partners showcasing innovative solutions and technologies.

There will be:

- **2 separate calls for abstracts & papers** depending on whether authors wish to have their paper peer reviewed.
- **A call for topical session proposals.**
- **A students' competition.**

Proposals focusing on the [main conference themes & topics](#) are welcome.

Important dates:

- **Authors interested in peer review** (abstract and paper review): **Submit abstracts by December 15, 2025**
- **Authors not interested in peer review** (abstract review only): **Submit abstracts by March 6, 2026**
- **Topical session proposals: Submit by December 15, 2025**

Detailed information and submission guidelines for both calls and the topical sessions are available at: <https://aivc2026conference.org/submissions.do>

For further information and updates visit us at: <https://aivc2026conference.org/>

We are looking forward to welcoming you to Incheon!



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Building Airtightness Durability: Durabilit'air 2 – Summary of the session at the Montreal conference

Valérie Leprince, Cerema, France

Driven by the goal of nearly zero energy buildings (nZEB) and regulations since the early 2000s, building airtightness has become a mandatory requirement for energy performance. However, the effectiveness of these requirements hinges on the durability of airtightness over the building's lifespan. Current practices often involve last-minute sealing efforts, and the long-term integrity of products and assemblies is compromised by construction practices, building movement, and environmental conditions. This session, based on the Durabilit'air 2 project presented findings from both field measurements and accelerated laboratory aging tests.

The State of Knowledge and Research Gaps

The session opened with a state-of-the-art review on existing research, confirming significant progress in initial building airtightness but highlighting the insufficient understanding of its long-term durability. Field studies generally observe a pattern where airtightness levels tend to decrease during the first few years of a building's life before stabilizing. Critically, the causes underlying these variations are rarely investigated in depth. Parallel laboratory aging studies reveal a fundamental lack of standardized protocols for assessing the long-term performance of airtightness product assemblies, pointing to the need for more rigorous and replicable testing methods. This knowledge deficit served as the core motivation for the subsequent, more detailed studies presented.

Field Observations: Understanding Early Airtightness Degradation

To isolate and understand the factors contributing to early-life degradation, a detailed field monitoring study was conducted on 10 newly constructed residential houses. Researchers meticulously followed the construction

process, recording the application conditions of the airtightness layer and environmental parameters such as indoor surface dust levels, temperature, and humidity during installation. Airtightness was measured at commissioning and then repeatedly four to five times during the first year of occupancy.

The findings provided significant lessons regarding the impact of early implementation choices. A notable increase in air permeability (degradation of airtightness) was observed in several cases following the first heating period. This effect was most pronounced in houses where the airtightness layer was applied late in the construction cycle, particularly when relying on mastic sealing on plasterboard substrates, rather than an airtight layer integrated earlier into masonry. This underscores that the long-term performance of airtightness is influenced by the timing of application and the nature of the substrate. It seems that late-stage, mastic-based solutions show greater vulnerability to early thermal cycling and material movement. However, the study also concluded that definitively isolating the primary cause of degradation is challenging due to the complex interplay of multiple parameters, necessitating a much larger sample of buildings for conclusive results.

Reproducing On-Site Conditions in the Laboratory

A crucial limiting factor for the durability of adhesive-based airtightness products is the cleanliness of the substrate. International standards specify that surfaces must be clean, dry, stable, and free from dust for effective adhesion, while it is quite impossible to ensure dustless surfaces in a construction site. To transition from general site observations to quantifiable lab-based research, a study was undertaken to develop a feasible on-site protocol for quantifying surface dust accumulation.

Three methods were reviewed for dust quantification: laser granulometry, visual contrast (NF X 50-792 standard), and weight measurement using adhesive tape sampling. The tape sampling and weighing method was selected for its practicality in a construction environment. Analysis of

seventeen samples across various sites confirmed that this method is suitable for horizontal surfaces, which showed consistently measurable dust quantities. However, it proved less reliable for vertical surfaces, where measured dust masses were low and uncertainty was high, suggesting a need for procedural adjustments such as increasing the sample area. This protocol offers a necessary tool to quantify a key construction site variable—dust—that can be systematically replicated in controlled laboratory studies.

Laboratory Results: Quantifying the Impact of Dust and Temperature

The final presentation detailed an experimental campaign designed to replicate real-world dust and temperature implementation conditions in the laboratory to assess their impact on long-term performance. Three common airtightness junction configurations were tested under three controlled conditions: normal, cold, and dusty.

The experimental results demonstrated distinct performance trends based on the assembly type:

1. **Mastic-based assemblies (PVC/mastic/plasterboard and wood/mastic/plasterboard):** These configurations exhibited greater overall degradation compared to membrane systems. Air permeability often doubled after accelerated aging and tripled when the mastic was applied in cold conditions. Surprisingly, the initial airtightness of these joints was largely unaffected by dusty conditions, suggesting that dust's negative impact on mastic is primarily a latent degradation factor over time.
2. **Membrane and adhesive systems (membrane/adhesive/wood):** These systems were highly sensitive to poor implementation conditions initially. Cold application doubled the initial air permeability, while dusty conditions led to a dramatic, ninety-fold increase in initial permeability. However, following aging, joints applied under normal conditions remained stable, whereas those applied in the cold degraded significantly.

Conclusion and Implications

This session collectively demonstrated that the long-term durability of building airtightness is not solely a function of product quality but is critically dependent on environmental and procedural factors during installation, particularly the implementation method, temperature, and surface cleanliness (dusting). The studies confirmed that early degradation is a tangible reality and provide quantifiable data indicating that late-stage, mastic-based sealing and installation in cold or dusty conditions pose significant risks to long-term airtightness performance. These findings necessitate a critical review of on-site best practices and underscore the need for standardized lab protocols to reliably predict the long-term durability of sealing products under adverse, yet common, construction conditions.

For further information, the AIVC has published a Technical Note entitled *Durability of Building Airtightness* available [here](#).

All publications related to Durabilit'air 1, and 2 projects will be available on the [Durabilit'air website](#). This project has been funded by ADEME (the French Energy Agency) under the "Batiment Responsable" project.



Figure 1: Valerie Leprince presenting during the "Building Airtightness Durability" session at the 45th AIVC-TightVent Conference in Montreal

TAAC Meeting Highlights – September 2025

Nolwenn Hurel, Cerema, France

The TightVent Airtightness Association Committee (TAAC) held four meetings over the past year, all organised as virtual sessions, as only a few TAAC participants attended the AIVC–ASHRAE IEQ joint conference in Montreal this year.

As in previous years, the September

TAAC meeting hosted this year its traditional "News from Countries" session, featuring updates and developments from across the network, in particular in:

- **Denmark:** A first presentation on the national airtightness situation was delivered by new participant **Kurt Lynge Christensen**, highlighting that Denmark has required a minimum airtightness level since 2006 and made airtightness testing mandatory in 2015.
- **Czech Republic:** **Jiri Novak** presented the newly published **ČSN 73 0540-2:2025** standard (September 2025), which introduces required minimum and recommended airtightness levels for new buildings, differentiated according to the type of ventilation system.
- **Switzerland:** **Michael Wehrli** shared insights from the ongoing revision of **SIA 180:2014**, which proposes more ambitious minimum airtightness levels for both new and renovated buildings.
- **Greece:** **Theodoros Sotirios** reported on the conclusion of the public consultation for the revised national energy code, where he used data on airtightness requirements in other European countries (collected through the TAAC network) to advocate for the inclusion of airtightness requirements. He also continues to raise awareness about airtightness through social media with notable success.

In total, 11 presentations were given during this session, giving additional interesting news from Japan (Yuichi Takemasa), Belgium (Liesje Van Gelder), Canada & USA (Darren Kennedy), Netherlands (Niek-Jan Bink), UK (Luke Smith and Paul Carling), Germany (Oliver Solcher), and France (Valérie Leprince).

TAAC is pleased to welcome an increasing number of participants from new countries, further enriching the network. The next TAAC meeting is scheduled for December 12th (2:00 - 4:00 PM CET). It will feature the "News from TightVent Partners"

session, which was postponed from the previous meeting due to time constraints.

Upcoming webinar November 25: "From Inspections to IAQ Measurement: Exploring Databases for Better Indoor Environments"

This webinar will introduce three national initiatives that collect and share data to support healthier indoor environments.

The French National Ventilation Observatory provides inspection results and indicators on ventilation systems, based on data collected since October 2023. It helps to monitor compliance and performance across the country. Similarly, the Belgian ventilation inspection database compiles inspection data. Finally, the SAMHE Database in the UK gathers real-time indoor air quality data from schools, combining measurement with awareness-raising among pupils and teachers.

Together, these examples illustrate how databases can improve knowledge, inform policy, and promote healthier indoor environments.

This webinar is organised with the support of [TightVent](#) and the [AIVC](#). Both initiatives are facilitated by [INIVE](#).

Agenda (CET)

- 10:00 | Introduction, Valérie Leprince & Nolwenn Hurel (Cerema, FR)
- 10:05 | French National Ventilation Observatory (ONV), Antoine Mischler (dooApp, FR)
- 10:20 | Questions and answers
- 10:30 | Belgian Ventilation Inspection Database, Maarten De Strycker (BCCA, BE)
- 10:45 | Questions and answers
- 10:55 | SAMHE Database – IAQ in UK schools, Henry Burrigade (Imperial College London, UK)
- 11:10 | Questions and answers
- 11:30 | End of the webinar

Attendance to the webinar is free of charge, but [registration](#) is required. For further information please download the [flyer](#).

Product news as provided by our partners

Introducing the AirTracer: Retrotec's Handheld Smoke Generator

Retrotec is excited to announce the AirTracer, a professional-grade handheld smoke generator built for quick, accurate air leak detection — all at an affordable price.

With a simple press of a button, the AirTracer releases smoke in a second, allowing for easy leak identification when used alongside a blower door or duct tester.

Features:

- Instant smoke generation.
- Easy cartridge replacement system with digital countdown display.
- USB-C fast charging for minimal downtime.
- Compact smoke diffuser attachment for targeted inspections.
- Professional-grade performance at a budget-friendly price.
- Lightweight and easy to use for all building diagnostics.



Learn more at www.retrotec.com

Contact Retrotec EU | +31 (0) 522 282941 | salesEU@retrotec.com

Circularity in action! Discover the new BCCA'S Mineral Wool Waste Management Service

The EU's upcoming Circular Economy Act aims to boost recycling, reuse, and repurposing of construction and demolition waste, including mineral wool insulation.

Recyclable waste going to landfill will become impossible, making proper recovery, handling and transport essential. With its new verification service, the Belgian Construction Certification Association (BCCA) offers a valuable tool to contribute to mineral wool insulation recycling and regulatory compliance.

Click [here](#) for more information and [here](#) for direct access to the tool.



Infiltrea 5.1: Revolutionizing Multi-Fan measurements

Infiltrea 5.1 marks a major advance in blower door testing. This new version now allows **direct multi-fan measurements** without the need for third-party software.

It features **automatic manometer detection**, **easy channel configuration**, and **manual or automatic fan control**. The new expert view also features real-time data display of pressure curves, automatic verification of pressure drops and advanced analysis tools for optimal control of your measurement even on complex buildings, and ever more accurate results.

To find out more about this new version, please contact us: contact@dooapp.com

Find out more at: www.dooapp.com



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