

Foreword

The new IEA Envelope Roadmap calls for mandatory air infiltration testing. At the same time, it also recommends research and developments for easier and more cost-effective sealing solutions and compliance tests.

This confirms the trends and needs identified in several countries, for example, with the development of competent tester schemes and trainings as well as events to raise awareness among building professionals.

This newsletter will give you information on some initiatives relevant to these concerns. We wish you a pleasant reading and hope you will be able to join us for our future webinars (free of charge), workshops and conferences (see our [event calendar](#)).

Peter Wouters, *Manager INIVE EEIG*



The new IEA Envelope Roadmap calls for mandatory air infiltration testing

By Marc LaFrance, IEA

The International Energy Agency has published in December 2013 its [technology roadmap](#) for energy efficient building envelopes. The roadmap establishes a strategy to transform how the world's buildings are constructed and renovated. Its major findings relevant to building airtightness are summarized below.

- Building envelope improvements can improve occupant comfort and the quality of life to millions of citizens, while offering significant non-energy benefits such as reduced health care costs and reduced mortality of "at risk" populations.
- Air sealing – restricting the passage of air through the building envelope – is a key way of increasing energy efficiency during new construction and deep renovation. Air

sealing alone can reduce the need for heating by 20% to 30%. Tightly sealed structures with proper ventilation control can ensure the indoor climate is healthy.

- It is vital to validate the results of air sealing by carrying out standardised tests of its effectiveness.
- It is vital to accelerate deployment of proven technologies such as insulation, air sealing, low-emissivity (low-e) windows, exterior shading or other attachments, through innovative financing mechanisms such as utility programmes, revolving funds and energy-performance contracts.
- R&D on less labour-intensive air sealing and lower-cost validation testing will lead to greater returns on investment.
- Energy audits, such as the energy performance certificates that are

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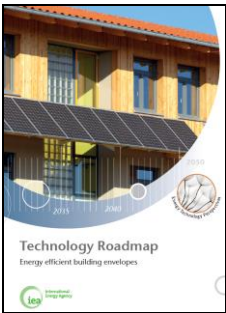
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This roadmap recommends the following actions:	Milestone timeline	Stakeholder
Establish improved methods of air-sealing test validation in all buildings. Implement air sealing validation as part of retrofit and audit programmes for a specified period of times such as 10 years during building energy performance certification.*	2014-20	Builders, researchers, air sealing companies and standard organisations.
Develop improved techniques to seal existing buildings that will result in more cost-effective solutions.	2014-25	Researchers, builders, air sealing companies, and government.

* Air leakage can change over time due to materials aging, weather events, and a variety of other building system operations. A specified period of time for air leakage validation certification would reduce test burden for any subsequent building energy performance certification performed prior to expiration of the air leakage certification.

mandatory in the European Union, should include regular, validated testing of air leakage (e.g. at least every 10 years).

For more information, the full publication is available at:
www.iea.org/publications/freepublications/publication/name,45205,en.html



Reasons behind and lessons learnt with the development of airtightness testers schemes in 11 European countries

Mandatory building airtightness testing has come gradually into force in the UK, France, Ireland and Denmark. It is considered in many other European countries because of the increasing weight of the building leakage energy impact on the overall energy performance of low-energy buildings. Therefore, because of related legal and financial issues, the building airtightness testing protocol and reporting have become crucial issues to have confidence in the test results as well as the consistency between the measurement results and values used in the energy performance calculation method. The reference testing protocol in Europe is described in EN 13829. In addition, many countries have developed specific guidelines to detail or adapt EN 13829 requirements. However, performing and reporting correctly an airtightness test requires

knowledge and know-how as well as pre-requisite on the tools used by the tester.

This study compares the steps taken in 11 European countries to improve the competence of the testers and thereby the reliability of the airtightness measurement. Information has been collected through a questionnaire sent to TAAC (TightVent Airtightness Associations Committee) members. We found out that 8 out of the 11 countries surveyed have developed or were developing a competent tester scheme for airtightness testers. Those schemes go together with technical documents beyond the measurement standard and include most of the time training, examination of testers and the proof of use of appropriate equipment. The feedback from France from the training institutes and experts analysing the reports of applicants as well as the failure rate at the examinations confirm that performing and reporting correctly an airtightness test is not straightforward. Those schemes are reinforced with databases that allow better follow-up of the approved testers and tracking of suspicious results.

Four schemes (DK, DE, CZ, FR) require specific reporting in a database. This has two key advantages, provided that the database is well-structured:

- It becomes easy to analyse large samples and extract meaningful trends, e.g. per building type or construction methods. The French database expects to grow by over 100 000 tests per year;
- It is possible to track suspicious results. To our knowledge, this is not operational in any scheme now but simple checks (and maybe cross-checks with energy performance certificates) could be performed to check the consistency of the results. It can be one step to check the testers' honesty (e.g. by cross-checking the number of tests performed in a single day and the distance travelled).

Figure 1 represents the number of qualified tester in each of the 6 countries with operational schemes in January 2014. Some of those schemes are recent, in which case the number of testers evolves rapidly. In the UK, testers are qualified for



Figure 1: Number of qualified testers in 6 European countries in January 2014

domestic buildings and companies are for non-domestic ones.

The typical background for testers is:

- Building service, building physics consultants;
- Housing inspectors;
- Craftsmen; and
- Industry services.

Download the full article [here](#).

35th AIVC conference, Poznań, Poland- September 24-25, 2014

The 35th AIVC conference: 'Ventilation and airtightness in transforming the building stock to high performance' will be held in the city of Poznań, Poland together with the 4th TightVent and the 2nd venticool conferences in September 24-25, 2014.

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), venticool (the international platform for ventilative cooling); and
- the Poznań University of Technology (PUT).

Important dates:

- Receipt of abstracts: 7 April 2014
- Confirmation of acceptance: 30 May 2014
- Submission of papers: 30 June 2014

Visit the conference website <http://aivc2014conference.org/> for programme and registration information.

Airtightness seminar in Tallinn, Estonia, 6 February 2014

The Estonian Building Centre hosted a seminar on building airtightness on the 6th of February. The seminar included 4 presentations on the general European context, ventilation and airtightness issues in the Estonian context, building airtightness planning and testing, and building airtightness solutions and products:

- *European developments and perspectives in building airtightness*, François Rémi Carrié, INIVE
- *Ventilation and airtightness issues in the Estonian context*, Targo Kalamees, Tallinn University of Technology
- *Building airtightness: planning, building, testing*, Marcos Rojo Espada, BlowerDoor GmbH
- *Performance of airtightness solutions and products*, Filip Van Mieghem, Soudal

The seminar also included the demonstration of a blower door test. About 40 participants attended the seminar and gave positive feedback to the organizers.



Airtightness associations: TAAC news

The TightVent Airtightness Associations Committee now counts about 30 participants from 16 countries. The committee has internet meetings on average every 2 months to exchange on testing issues, standards, training, etc. The committee will have its 2nd physical meeting in Poznan, Poland on Tuesday the 23rd of September, just before the 2014 AIVC conference where building and ductwork air tightness will be a major topic. For more information, please visit: <http://tightvent.eu/partners/taac>

In case you are interested to join this initiative, please write an email to: info@tightvent.eu.

QualiChEck project has started on March 1!

INIVE is pleased to announce that its 'QualiChEck' proposal submitted in the framework of the Intelligent Energy Europe Programme has been accepted and has official started on March 1. The project aims to develop a series of actions to increase attention and foster real actions:

- To improve the confidence in compliance of new and renovated buildings (with specific focus for residential buildings) to the claimed energy performance i.e. "Boundary conditions which force people to do what they declare";
- To achieve better quality of the works, i.e. "Boundary conditions which stimulate and allow the building sector to deliver good quality of the works".

The QualiChEck consortium consists of a broad range of organisations in 10 countries spread over Europe. Its partners and otherwise related members cover a wide range of expertise and competences and have several strong links to many European initiatives. It addresses technology areas that include building and ductwork airtightness, where support and synergy with TightVent is expected. We will give you regular updates on the progress made within this project.

Workshop on Quality of Methods for Measuring Ventilation and Air Infiltration in Buildings, Brussels, Belgium, March 18-19, 2014

The workshop programme includes 26 presentations, most of which are directly linked to TightVent activities. It includes a session on building and ductwork airtightness with several presentations dealing with airtightness durability, wind effect, IR thermography as well as test cases and general issues related to airtightness uncertainty estimates. The following topics are also addressed in specific sessions:

- Impact of measurement uncertainties on energy performance calculations and IAQ
- Challenges for measurements of ventilation and air infiltration in low-energy buildings
- Measurement of air exchange rates with tracer gas
- Measurements of airflow rates in ducts and at air terminal devices
- Measurement solutions and integrated measurement devices
- Schemes to address the quality of measurements

About 70 persons have confirmed their presence at this workshop organized by INIVE on behalf of the AIVC (Air Infiltration and Ventilation Centre); TightVent (Building and Ductwork Airtightness Platform); and venticool (the European platform for ventilative cooling, www.venticool.eu).

The full programme is available at: http://www.aivc.org/sites/default/files/Programme_0.pdf

tremco illbruck: Refocused Brands About to Roll out!

tremco illbruck, the European manufacturer and service provider for the construction and manufacturing industry is refocusing its brands and product categories.

The illbruck brand used to solely stand for expertise in sealing, but with the new and clearer structure the brand name illbruck will now cover all the products that deal with sealing and bonding for windows, facades and interior. Along with this the TREMCO brand now fields all products concerned with flooring, waterproofing, insulating glass (IG) and structural glazing (SSG). To complete the portfolio the Nullifire brand offers solutions for passive fire protection while PACTAN will remain the brand of choice for manufacturers. In short: newly arranged brands with newly arranged product categories enable users and specifiers to execute entire projects with products of the same brand, making things as easy as only a one-stop-shop solution can.

The full article is available for download here:

<http://tightvent.eu/wp-content/uploads/2013/12/Tremco-illbruck.pdf>

Events Calendar

- MARCH 18-19 2014: AIVC-TightVent-venticool workshop in Brussels, Belgium on 'Quality of Methods for Measuring Ventilation and Air Infiltration in Buildings'. More information on: <http://tightvent.eu/>
- SEPTEMBER 24-25 2014: AIVC conference in 2014 in Poznań, Poland on 'Ventilation and airtightness in transforming the building stock to high performance'. More information on: <http://tightvent.eu/>

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