

# Trends in building and ductwork airtightness in different countries

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## ABSTRACT

The current trend in most European countries regarding building ventilation is to follow the “build tight, ventilate right” strategy. New energy efficient buildings are indeed getting more and more airtight to avoid energy losses through uncontrolled air leakages. Instead, mechanical ventilation systems are installed to ensure a good indoor air quality (IAQ) with controlled ventilative air flowrates.

In some European countries, minimum requirements for building airtightness are included in EP-regulations, with sometimes a mandatory justification required by testing or applying certified approach, such as in France, Ireland and United Kingdom. As a result, building airtightness tests are getting commonly performed on new buildings in many European countries to quantify and limit air leakage through the envelope.

On the other hand, if the significant impact of leaky ventilation ductworks on energy use and IAQ has been well established in the literature, the awareness on this issue is raising more slowly.

In 2008 a series of VIP (from VIP 17 to VIP 27) were published by the AIVC, detailing the “Trends in the building ventilation market and drivers for changes” for 10 countries. Regulations have however evolved a lot in most countries since then. A new series of VIPs is being published to get an update on the current regulations in European countries regarding building and ductwork airtightness. They include for both, when relevant, information on:

- national requirements and drivers: airtightness indicator, requirements in the regulation, energy programs, airtightness justifications, sanctions, etc.;
- if it is included in the energy calculations and how, as many simplified models have been developed and are used around the world to estimate the infiltration rate for EP calculations, with different levels of accuracy;
- the airtightness test protocol: qualification for the airtightness testers, national guidelines, requirements on measuring devices (maximum permissible measurement error; calibration, etc.)
- tests performed: tested buildings/ductworks, database, evolution with time of the airtightness level;
- guidelines to build airtight buildings/ductworks.

The presentation is based on at least nine published or under review VIPs (numbered 45.X): for Belgium, China, the Czech Republic, Estonia, France, Greece, Latvia, Norway and Spain. The information collected are compared and summed up to present an overview of the national trends in building and ductwork airtightness in these countries.

## KEYWORDS

Airtightness, building, ductwork, countries, overview