

Building and ductwork airtightness: a critical factor for nearly zero-energy buildings



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Building and ductwork airtightness represents a key challenge for the building sector.

The 2002 Energy Performance of Buildings Directive (EPBD) already indicated the potential importance of airtightness. With the 2010 EPBD recast and its ambitious 2020 targets, there is even more pressure on these aspects since for most European climates and countries, good envelope and ductwork airtightness levels are necessary to achieve nearly zero-energy buildings.

Several studies report an energy impact of leaky buildings on the order of 10 kWh per m² of floor area per year for the heating needs in a moderately cold region (2 500 degree-days) and 0 to 5 kWh/m²/year for the ducts plus the additional fan energy use. There is a growing number of studies showing the significant impact of building and ductwork leakage in hot and mild climates as well. The general consensus from these studies is that attention must be paid to building and ductwork airtightness in nearly all climate regions of the European Union to meet nearly zero-energy targets.

How do we achieve this in practice? First of all, building and ductwork airtightness has to be seen as a part of the building system. Legitimate concerns for energy efficient ventilation, comfort, skills development and market uptake must be considered in a holistic approach, addressing both new and existing buildings. There are promising signals with regard to the measures taken in several Member States to encourage better building and ductwork airtightness. For example, there are over 10 countries, covering all climate regions of Europe, with active (and usually very active) networks of professionals specialized in airtightness issues. Also, the steps taken by some Member States to improve building and ductwork airtightness, including actions on regulation, financial incentives, training, control and awareness raising, look promising.

In 2011, the TightVent Europe platform (www.tightvent.eu) was launched with a strong focus on market change in airtightness. The large number of attendees at the two last AIVC-TightVent conferences, as well as the large range of countries and issues addressed during these conferences, linking airtightness, comfort, indoor air quality and market transformation, show the growing interest in this topic.

The 2012 AIVC-TightVent conference, held in Copenhagen, included three tracks specifically focussed on airtightness, ventilative cooling, and indoor air quality and health. As can be seen from the summaries presented in this issue, as well as from the initiatives presented by experts from various Member States, the route towards nearly zero-energy buildings has many challenges, but it is also a unique opportunity to investigate new paths for product development, construction methods, commissioning, and building operations. To seize this opportunity, the building sector needs to be both creative and reactive: sharing experience and knowledge is surely key to meet this need. ☞