Comparison of different performance-based approaches for the definition of ventilation requirements in dwellings

Speaker and affiliation

Romy Van Gaever, Samuel Caillou
Belgian Building Research Institute (BBRI), Belgium

Overview of the presentation

As part of a research project preparing the future revision of the ventilation standard in Belgium, this paper aims to compare different performance-based approaches for ventilation requirements in dwellings and to identify the strengths and weaknesses of these approaches. Different approaches currently in use in different contexts in Europe have been a source of inspiration (new Spanish regulation on IAQ, ATG-E Equivalency in Belgium, VLA Equivalency in the Netherlands).

The following approaches, sorted from descriptive to performance-based, will be discussed:

- Required flow rates and descriptive design rules (as in the current ventilation standard in Belgium);
- Required IAQ criteria, to be demonstrated using an equivalency approach:
    - at system level, based on numerical simulations carried out on one or several reference building(s) and standard conditions (occupancy profile, climate, etc.);
    - at building level, based on numerical simulations carried out on the real building to be evaluated, with standard conditions (occupancy profiles, climate, etc.);
    - at building level, but with real conditions (design occupancy profiles, local climate, etc.);
- Required IAQ, to be measured on-site in the real building in use.