Introduction:

The Ventilation performance indicators (Air change efficiency) (Local air change index) and (Local air change indicator) evaluated in the past aim to characterize the air flow patterns in the measured space. These indices are based on Sandberg and Sjöberg 1983 (Sandberg and Sjöberg 1983).

The results obtained from Herdern and ESHL show several measurements with short-circuits

The distribution of fresh air in the room is governed by one or more of the following:

1. The volume flow from the ventilation device
2. The placement of ventilation device
3. The boundary conditions
4. The recirculation of fresh/old air by the ventilation device

The effect of factors 1,2, and 3 on have been discussed in studies from Herdern, ESHL and Offenburg but the effect of 4 could not be quantified because is derived based on the assumption that "neither is it possible for a molecule either to return upstream once it has entered the room, or to re-enter the room once it has left it". This eliminates the possibility to evaluate how much fresh air is recirculated by the push-pull device. This raises a question of what does according to Sandberg and Sjöberg 1983 actually represent ? and how can recirculation (R) be quantified ? According to Federspiel 1999 (Federspiel 1999) the from Sandberg and Sjöberg 1983 is actually (Relative air change efficiency) which is the measure of the airflow pattern in the room without considering the recirculation by the ventilation device.

In other words, when the recirculation by the ventilation device is not considered the describes the distribution of air flow patterns in the measured space. However, the measured efficiency is lower than . This is doe to fact that that recirculation exists in push-pull devices and the old air is recirculated in the room instead of fresh air

Publication bibliography

Federspiel, Clifford C. (1999): Air-Change Effectiveness: Theory and Calculation Methods. In *Indoor Air* 9 (1), pp. 47–56.

Sandberg, Mats; Sjöberg, Mats (1983): The use of moments for assessing air quality in ventilated rooms. In *Building and Environment* 18 (4), pp. 181–197.