

Pressure distribution and reflow paths with BlowerDoor measurements of large buildings

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ABSTRACT

Objective

During the BlowerDoor building test, it must be ensured that all building parts of the test building or the test section have air connection, and that the test object can be considered one single zone. This also applies to large buildings like office buildings, schools, indoor pools, etc. with several floors and winding floor plans. Overly tight airflow paths from the leakages to the measuring device prevent an even pressure distribution. The pressure differences inside the building should be less than 10% of the pressure differential between the interior and the exterior.

In testing practice, most pressure distribution considerations are theoretical. Which approaches in measuring technology are available to improve knowledge of the actual pressure distribution, and thus the evaluation of the measurement results? What do the results look like? What possibilities are there to conduct a measurement even in critical conditions?

Approach and methodology

During the BlowerDoor tests in large buildings (with several floors and/or winding floor plan) additional measuring points are set up in the zones considered critical. The pressure differentials between the BlowerDoor measuring device and these zones are recorded and can be evaluated by the testing team. If the values are within the established limits, the test is continued. If they are outside the limits, you need to identify the root cause. Causes can be, for example, apertures (windows / outside doors) that have not been properly closed, or large leakages. If the latter is the case, an additional measuring device may need to be set up in this zone.

Presentation content

This presentation will illustrate the problem with pressure distribution in large buildings with several floors and / or winding floor plans with tight reflow paths.

It features measuring results and pressure distributions for different buildings and possibilities for the distribution of the measuring devices.