The Blower Door measuring method "Bestimmung der Fugendurchlässigkeit von Fenstern und Fugen" used for decision of large buildings air tightness

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ABSTRACT

As operator of the Blower Door-test we often come in for a dilemma when government regulations shall be documented. According the standard the test shall be performed on the finished building, but the contractor would like to know if the buildings envelop is airtight as early as possible. A traditional Blower Door-test it often possible for the first time when the building stands nearly completely finished.

The problem becomes even more distinctly when we speak about large buildings, where it always becomes finished in sections. For example the ground floor can be nearly finish and at the same time the roof is completely open to the outside.

By using the test method developed by BlowerDoor.de to decide the windows air tightness you make the Blower Door-test very early in the construction period and document parts of the envelops air tightness.

Illustration 1:
By using a membrane Blower Door measuring it is possible to start document the envelops air tightness as soon a represent part of the envelop is finest.

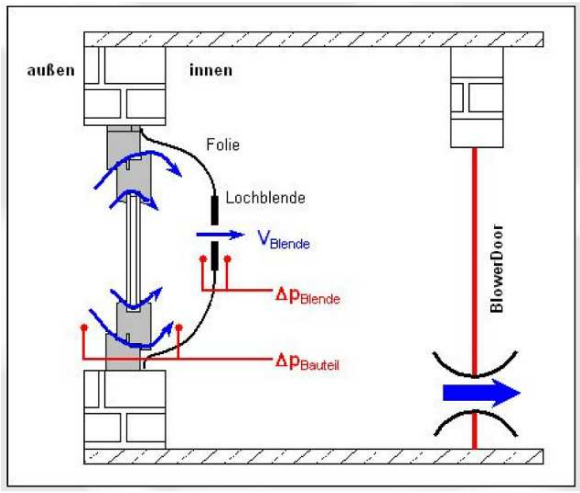
Illustration 2:
Square meters = 8450 m^2, Volume = 45000 m^3,
1 firesektion, 1 open office building no rums except few meting rum.

With the building shown in illustration 2 the air tightness of the whole building is documented by the Membrane Blower Door-test method described by the article "Bestimmung der Fugendurchlässigkeit von Fenstern und Fugen". The problem in this specific case was that it was not possible to find a houseful zone to make a section test for check of air tightness. The hole volume space stood completely open. No sections or rooms were available for a check. The contractor had the intensive wish to get a value of the almost complete part of the building. Therefore it seems to be a god idea to make measuring whith the Membrane Blower Door-test method.

The method

In large buildings where testing is performed check by sections one of the large challenges is often to ensure that we do not get contributions from other internal rooms. By using the membrane method this contribution is completely avoided when the membrane ensure an effective zone for the construction part we wish to measure.
The building was documented whit nine Membrane Blower Door-tests and by thermographic control of critical pars of the building.

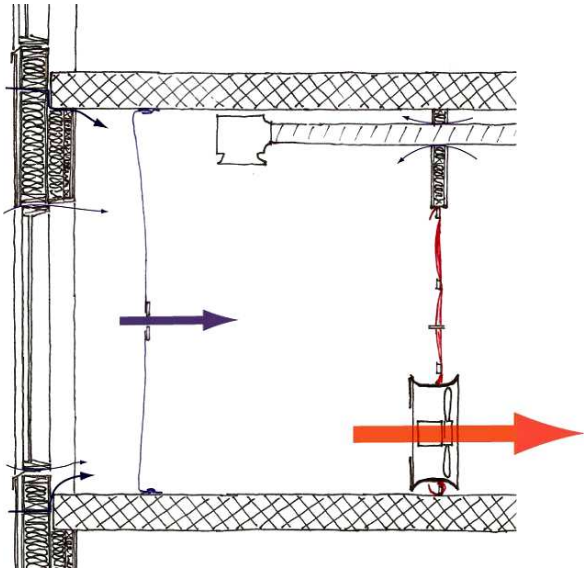
The method developed by BlowerDoor.de



How to do?

At the envelope it has to be possible to locate critical parts of the envelope and to focus the measuring at that part of the envelope.
The operator of the Blower Door-test has to have authority to pick where the test shall be performed.
By involving the craftsmen on site you get the bonus effect that the quality of the work whit the vapor barrier gets better and is wary visible in the measuring. The quality of the building and the air tightness becomes simply better.

The same method used at a part of the envelop



The final test can be performed as a traditional Blower Door-test on the whole building or as in case a thermographic control with refrains in the 9 parts of the envelope where the air tightness is known. The deal was that in case we located any serious deviations and air leaks the test stopped. Otherwise a test on the whole building should be performed.