

Airtightness Measurement Before Rehabilitation



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Reasons for measuring airtightness in existing buildings

- Planned energetic rehabilitation
- Modifications/extension of an existing building



The building airtightness should be taken into account in rehabilitation and/or conversion projects and should be completed or newly planned.

Purpose of the airtightness measurement in existing buildings:

Status analysis before rehabilitation

When planning a modernization (complete or partial rehabilitation) it is of great importance to examine the air permeability of the building envelope **before the remediation process** in order to obtain planning-relevant details.

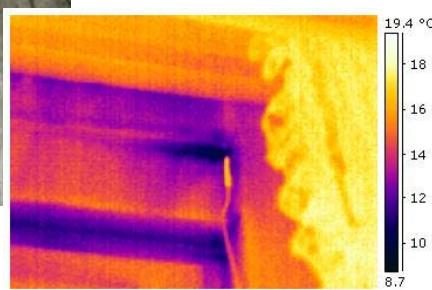
The measurement of the **leakage rate** also serves to determine target and limit values for the object to be remediated and can be carried out simplified as a **one-point measurement** (see WTA-Recommendation 6-11-15 Airtightness of buildings, Part 3: Measuring Procedure).



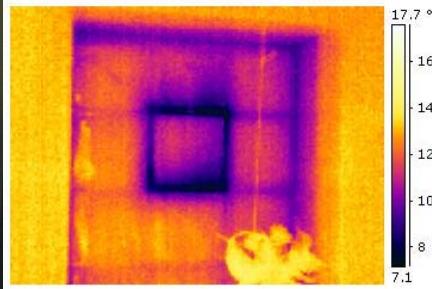
Status analysis with thermography at negative pressure



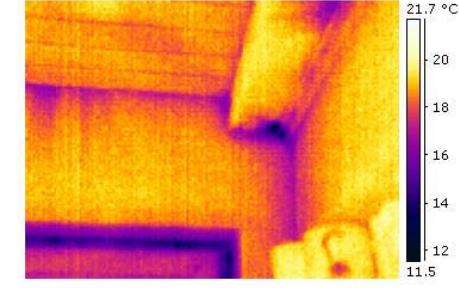
Roller shutter box



*Glass bricks,
one can be opened*

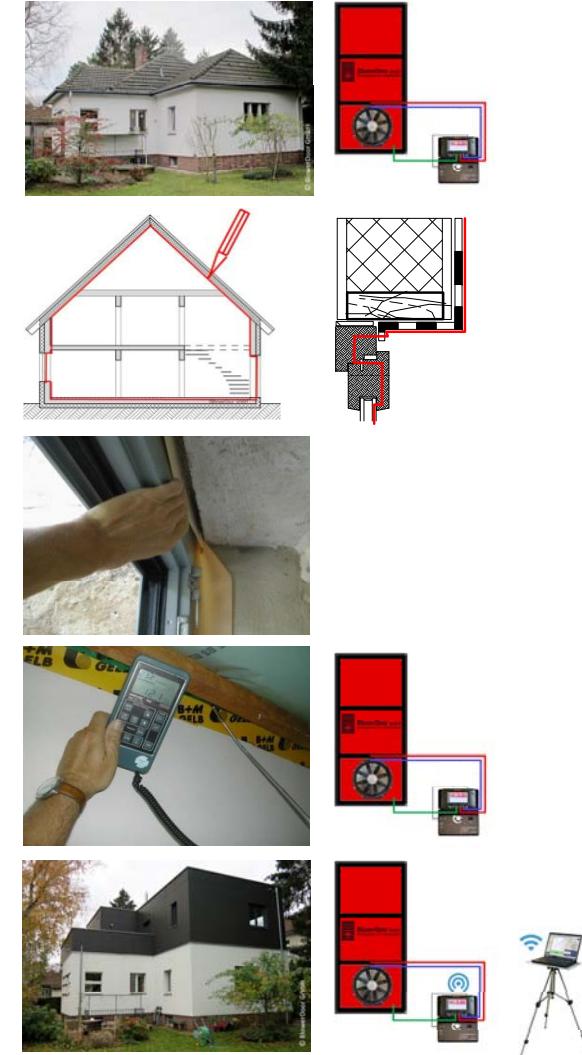


*Ceiling
connections*



Timing of an airtightness measurement in case of rehabilitation

- **Status analysis** of the building (surfaces and connections) incl. determination of the characteristic value **before renovation**.
- Establishing a detailed plan of the airtight envelope
- Execution of the remediation measures
- Monitoring the implementation during the remediation measures as long as the air barrier is still accessible
- Conducting a BlowerDoor test after completion of the remediation measures





Airtightness measurement during and after rehabilitation

In WTA-Recommendation 6-11-15 further measurements are recommended in addition to the **airtightness measurement for status analysis prior to rehabilitation:**

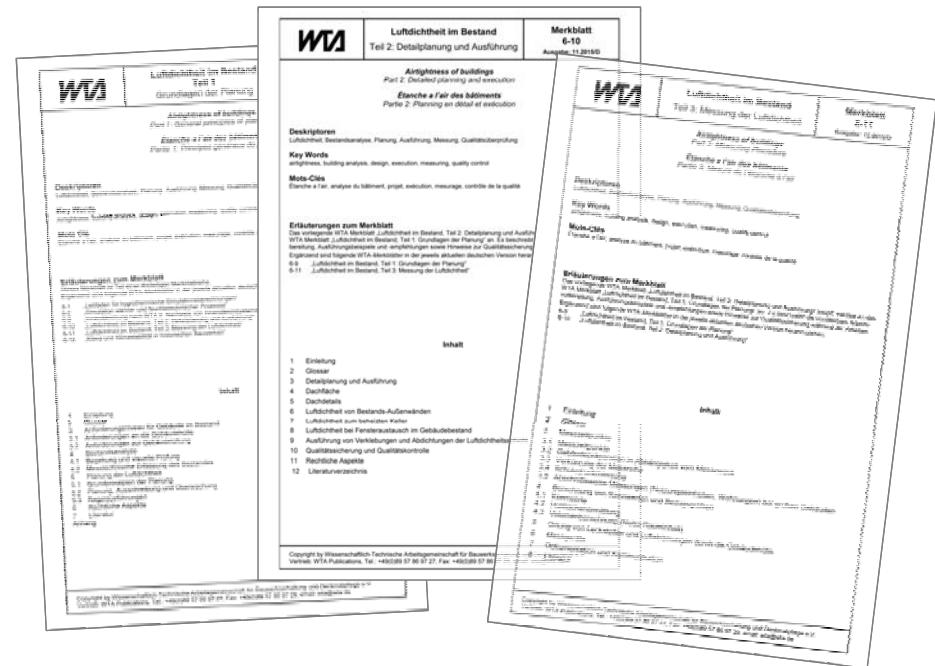
Airtightness measurement for quality control during the rehabilitation process and a **final measurement** to compare the characteristic values before and after the rehabilitation.

The top slide features a blue header with the number '30' and the text 'Examination during construction'. It includes two images: one of a house under construction with a red banner and another showing the interior of a building under construction. Below the images is the text 'Checking the air barrier for quality assurance purposes'. The bottom slide has a blue header with the number '30' and the text 'The standard-compliant BlowerDoor final measurement'. It features an image of a finished house and the text 'why, when, what, how'. Both slides include the BlowerDoor logo and copyright information: '© BlowerDoor GmbH; 2019' and 'www.blowerdoor.com'.

*Further presentations in the context of
“30 years – 30 applications and testing methods”*

Literature and Links

- Wissenschaftlich-Technische Arbeitsgemeinschaft für Bauwerkserhaltung und Denkmalpflege e. V. (WTA), Pfaffenhofen, Germany, a scientific-technical working group for preservation of buildings and historical monuments, offers current articles on building repair in various publications
 - <http://wta-international.org>
 - WTA-Recommendation for Airtightness of buildings



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