



Airtightness testing: Status and trends in competent tester schemes in Germany

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Introduction – What's the FLiB?

FLiB e. V. (Fachverband für Luftdichtheit im Bauwesen e. V)

German Association for Airtightness

www.flib.de / www.flib.eu

Founded in **2000**

in the preparation procedure of the coming Energy Savings Directive EnEV

284 Members (2013)

Mainly air tightness testers (app. 80 %)

Manufacturers of sealing components

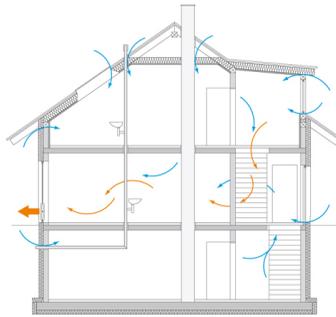
Manufacturers of test equipment



Introduction – Why do we need the FLiB?

Goals

- Improve the importance of air tightness tests of the building envelope



Grafik: FLiB e.V.

- Establish a **good / right test procedure** for air tightness tests acc. EN 13829 in order to be able **to compare the results**

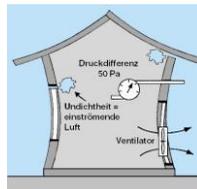


Introduction – What does the FLiB?

How does the FLiB do that?

- Publications (public and specialized press, www, book)
- Technical guidelines and standardization
- **Certification schemes**

- Air tightness testers



- Craftsmen





History of FLiB certification

EnEV 2002 - national implementation of EPBD – **defined n_{50} -limits**

Test acc. DIN EN 13829

Without ventilation system $n_{50} \leq 3,0$ ACH

With ventilation system $n_{50} \leq 1,5$ ACH

No qualification requirements for testers



Association for Air Tightness in Buildings (FLiB e.V.) started to work out the qualification procedure

In 2002 FLiB e. V. started its certification program for airtightness testers

Certification procedure costs

ca. 1.900,- EUR including the education program at the training facilities

770,- EUR certification alone (FLiB members pay less)



Future

EnEV 2014 still will not make testing mandatory

Testing mandatory is mandatory if

Ventilation systems are considered in EP calculations

Using Funding programs by KfW ("State owned" bank)



FLiB certified leakage testers

Only the **tester gets certified** not the company

To be able to be certified leakage testers shall have a technical education as **engineer, technician or master craftsman**

To produce good test results testers must be able to understand what they do

Testers shall proof their testing ability

1. Attending a **FLiB approved education program** or
2. send **5 test reports acc. EN 13829** to the examination board or
3. do **2 tests with two different FLiB - certified testers**



FLiB certified leakage testers - certification procedure

Certification contains of two parts

1. Theoretical test
Theoretical background
of air tightness testing
2. Practical test
Ability to perform the test
in the right way with own equipment



Recertification after 3 years



Other Certification schemes

Some other certification procedures have been established in Germany after the FLiB but **FLiB certification** is one with a **very high reputation**.

***Recognition of one funding organisation** in Hamburg that make it mandatory to have an airtightness test been performed by a certified tester such as a tester with FLiB certificate*

Other certificates are available:

- Some are given out after a short education from some manufactures
- Some others are more sophisticated and follow the rules that have been established by the FLiB



Other Certification schemes

One other larger certification program (~160 certified testers) that was focussed rather on testing craftsmen **resigned this year**

The demand for certification of air tightness testers was too low to be profitable

FLiB is a non-profit organization and FLiBs statutes define to spread good testing quality

FLiB offers recertification of testers certified by this scheme with a round robin test



FLiB approved certification schemes

To give an overview of certification procedures that produce well educated leakage testers FLiB e.V. decided to check out other systems.

- To have an independent classification of the different certificates, other certification institutes can have their certification procedure been checked by the FLiB e.V.
- If the procedure meets the standards set by FLiB testers are able to recertify at the FLiB e. V.
- Yet, only **one certification could meet the standards** and is accepted by FLiB e. V.



Progress of certification

Since 2002 around **230 FLiB certificates** have been passed out.

The figures varied over the years

The demand for certification is not strong but steady: **~ 20 to 30 testers per year**

No certification is needed to start testing

Many testers on the market, that do not perform test on a regular basis

Only some testers realize certification helps in the market

Only one funding program makes testing by certified tester mandatory

Future

- **Testing quality** is very important in **judging i.e. leakages** - refurbishments
- Testing **large buildings** needs knowledge and experience



Thank you very much for your kind attention