Klimaskaerm
Competent tester scheme in Denmark
Status and trends

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What is Klimaskaerm?

• The Danish association for testing of building performance especially Air Tightness Testing and Measurement
• Independent non profit association with limited resources
• Founded 2006
• 50 member companies (surveying companies, testing equipment suppliers, manufacturers, institutes)
• Platform and society for the testing of building envelope with blowerdoor and/or infrared camera
• Located at the Danish Construction Association in Copenhagen, Denmark
• Homepage www.klimaskaerm.dk
Klimaskaerm - Areas of interest

- Building performance
- Airtightness measurement and documentation
- Infrared measurement, interpretation and documentation
- Thermal performance of buildings
- Leakages in buildings
- Performance and protection of the envelope as a whole
- Quality Assurance of testing

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Klimaskaerm - Main activities

- Give third party information on building airtightness, thermal performance and testing as a whole
- Seminars, training courses and education of testers
- Member meetings
  - Communicate experience regarding testing
  - Forum for discussion and exchange of views and ideas to improve testing and quality of testing
  - Yearly held conference
- Develop tools (guidelines) for the administration of tests and quality assurance

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Klimaskaerm – Mission

- To achieve and promote the highest standards of air tightness testing in DK
- Platform for testing procedure, methodologies and information exchange
- Undertake training of testers
- Provide Good Practice testing and technical guidance
- Give information regarding airtightness testing for the public, builders, contractors, consultants, designers (architects) etc
- Platform for the registration and accumulation of airtightness data of buildings in DK

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What have Klimaskaerm achieved 2014?

- Paradigms (guidelines) prepared for
  - Quality assurance manual for the surveyor company
  - The testing with Blowerdoor in compliance with EN13829 for small buildings, large buildings and passive houses (3 paradigms incl. common test reporting)
  - Local Authority handling of tested building airthigtmes and reports
- Prepared and executed a education programme for the certification of testers
- Prepared and promoted qualifikation and qualification procedures
- Prepared system for the registration and reporting of tests done and providing a database
How to become a certified leakage tester

- Certification of air tightness testing is possible in DK through Byggeriets Kvalitetskontrol, Danish Standard Certification (DNV GL Business Assurance Denmark) or Bureau Veritas
- The tester company need to establish a quality system (manual) specific for testing in accordance with EN 13829
- The tester is certified on basis of
  - Proof of knowledge (certificate)
  - Examination of practical competence (knowledge and experience)
  - Proof of equipment calibration

What is Byggeriets Kvalitetskontrol?

- The Quality Assurance & Certification for Building and Construction in Denmark certifies businesses within the Danish building and construction sector.
- The certification is conducted in accordance with either ISO-standards or Danish national regulations and encompasses:
  - Authorisations
  - Voluntary quality schemes
  - Schemes for energy marking or review reports for buildings, e.g. air tightness tests
The Certification process

- The company contact an accredited auditor and enter a written certification agreement.
- The company prepares a Quality Assurance System targeted for certification of air tightness testing in accordance with EN 13829.
- The company submits its Quality Assurance System to the auditor.
- The auditor evaluates the company’s Quality Assurance System and when appropriate, an audit of the company is executed.
- When the Quality Assurance System is implemented, an certification audit of the company, the tester’s knowledge, experience, and equipment calibration and evaluation of selected reports will take place.
- A certificate with a validity of 3 years shall be issued to companies that implement certification audit with a positive result.

Surveillance audit and recertification

- Within the next two years, a conducted surveillance audit of the company will take place at intervals of 12 months.
- After 3 years, a full recertification of the company is necessary.

Note

The certification is voluntary and therefore not mandatory in Danish Building Regulation.
Kilmaskaerm - Training of testers is the key

To become a certified tester

- A tester must attend a 2 day intensive course to understand the theoretical background of air tightness, building performance and testing
- A tester need to pass
  - a multiple choice test to prove his understanding of air tightness
  - a practical test to prove his ability to perform a test in the right way and to handle his own equipment for the testing
- A tester must attend a recertification course and pass a new multiple choice test every 3 years

Status

- Paradigms established to support the EN 13829
- Courses prepared and executed with success
- 30 of 50 members have by now attended basic courses
- 10 members have been audited and are certified by 3rd party e.g. The Quality Assurance & Certification for Building and Construction in Denmark
- Discussions with Danish Energy Agency and Danish Building Research Institute on how to improve the quality of the testing of air tightness