Quality Control in Wood Construction

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Quality is defined as:
“Degree to which a set of inherent characteristics fulfills requirements”
-ISO 9001:2008-

Quality management
... the whole of features and characteristics of a product regarding its ability to meet the quality requirements.
EN ISO 9000

Rules for the organization, implementation and monitoring of measures

What customers want:
• Customer focus and customer service
• Compliance with the contractual agreed quality

What companies want:
• Profitable construction project
• Compliance with the contractual agreed quality
Quality management - works!

Quality requirements - present

Materials for timber constructions

Support by certified constructions

Quality criteria for the construction process

Requirements for high quality products

- Quality Awareness
  - The company management must want quality
- Quality Production
  - Specialization, prefabrication
- Quality Products
  - Clear definition, e.g. wall elements with quality certification labels
- Quality Control
  - Internal and external controlling (external monitoring)
- Quality Management
  - Procedures: Organization and implementation of measures
Quality Control in Wood Construction - Anton Kraler

Quality Monitoring during Production and Construction

Damage caused by leakages

Quality Control

Quality Monitoring during production and construction

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Quality Monitoring during Production and Construction

Damage caused by leakages

Quality Control
Why quality control? Why airtightness?

Problem: A gap with airflow from humid side
outside: 0°C, 80% r. F.
inside: 20°C, 50% r. F.

1 mm gap in construction

360g water/day/m²
For comparison: with vapor diffusion, only 1g water/day/m²

Quality assurance by quality monitoring

Measuring System
• Door frame with a membrane
• Measuring Instrument
  (data capture and evaluation)
• Fan

Aids and Appliances
Fog generator
Flow meter

Quality control – airtightness
Quality control – timber

Drill resistance measuring device

Quality control – thermal insulation

without thermal insulation  with thermal insulation

Why quality control? Why airtightness?

Heat loss through leakage

4.8 times more heat is lost across the gap than over the entire surface of 1m² of insulation.

Example:

U-Value (calculated) = 0.30 W/m²K
U-Value with the gap (0.30 W/m²K x 4.8) = 1.44 W/m²K

outside: 0°C, 80% r. F.; inside: 20°C, 50% r. F.;

Infrared thermography

Thermography camera

Example: Installation (wiring)
Example: roof connection

Example: faultless execution

Quality control: heating, water, ventilation

Thank you for your attention