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

What is quality?

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

Regulations and quality marks

Why quality control?

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

Why quality control?
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Quality management - works!

- stave church - 900 years
- farm - 500 years

Quality requirements - present

- Wood Protection
- Moisture Protection
- Fire Protection
- Sound Insulation
- Heat Protection
- Airtightness

Materials for timber constructions

Support by certified constructions

Quality criteria for the construction process

- architect
- construction specialists
- expert planners
- Fire protection, structural design, building physics, building technology, passive house planners, etc.

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
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Quality Monitoring during Production and Construction

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Quality Monitoring during production and construction

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Damage caused by leakages

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Damage caused by leakages

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Damage caused by leakages

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Damage caused by leakages
Planning and execution fault

Why quality control? Why airtightness?

Problem: A gap with airflow from humid side
outside: 0°C, 80% r. F.
360g water/day/m²
inside: 20°C, 50% r. F.
1 mm gap in construction

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
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.
Quality control: blower door - thermography

Example: roof connection

Quality control: blower door - thermography

Example: faultless execution

Quality control: heating, water, ventilation

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Quality Control

Thank you for your attention