To learn about energy standards and how to design advanced energy efficient building envelopes. Passive house principles and fundamentals on thermal, moisture issues, and air tightness will be covered.

Asst.-Prof. DI Dr. techn. Anton Kraler

Activities as a craftsman
- apprenticeship as a joiner
- lumberjack
- journeyman joiner
- master carpenter

Academic education
- technical school for furniture design
- study of architecture
- doctor of technical sciences

Program – Workshop 1

1. Introduction 1:00 – 1:05 Anton Kraler
2. Sustainable Wood Construction Practices in Austria 1:05 – 1:30 Anton Kraler
4. Passive House Principles 2:00 – 3:00 Anton Kraler

Break 3:00 – 3:30

5. Detailing for Durability 3:30 – 4:30 Paul Fisette
6. Discussion Forum 4:30 – 5:00 Moderator Alexander C. Schreyer
Room cells – modular construction with CLT

Interior of room cells

Modular construction

Connectors for the shear force

Exterior view

Cross laminated timber (CLT) without glue

Social - center
Requirements for timber construction systems

Hybrid: solid wood and timber frame construction
Detail – Party Wall, Ceiling and Exterior Wall

Comparison of low energy house – passive house
Typical U-Values in W/(m²K) in Austria

Typical thermal insulation for timber construction
Wooden softboard
10 in – 15 in for U - Value 15kW/m²K

Typical thermal insulation for timber construction
Cellulose
10 in - 14 in for U - Value 15kW/m²K

Typical thermal insulation for timber construction
Mineral wool
9 in - 11 in for U - Value 15kW/m²K
Typical thermal insulation for timber construction

Sheep’s wool

10 in - 14 in for U - Value 1.5 kW/m²K

Special thermal insulation for timber construction

Vacuum-insulation panel (VIP)

2 in for U - Value 1.5 kW/m²K

Important factors for timber construction systems

Sound insulation

Air tightness

Quality assurance

Quality assurance

Blower Door and Thermography measurements

Quality assurance

University of Innsbruck / Timber Engineering Unit

Thank you for your attention