

NEW AGENDA 20/20/20 OF LOW-ENERGY HOUSES – FUTURE DESIGN AND CONSTRUCTION



European 20-20-20 Targets

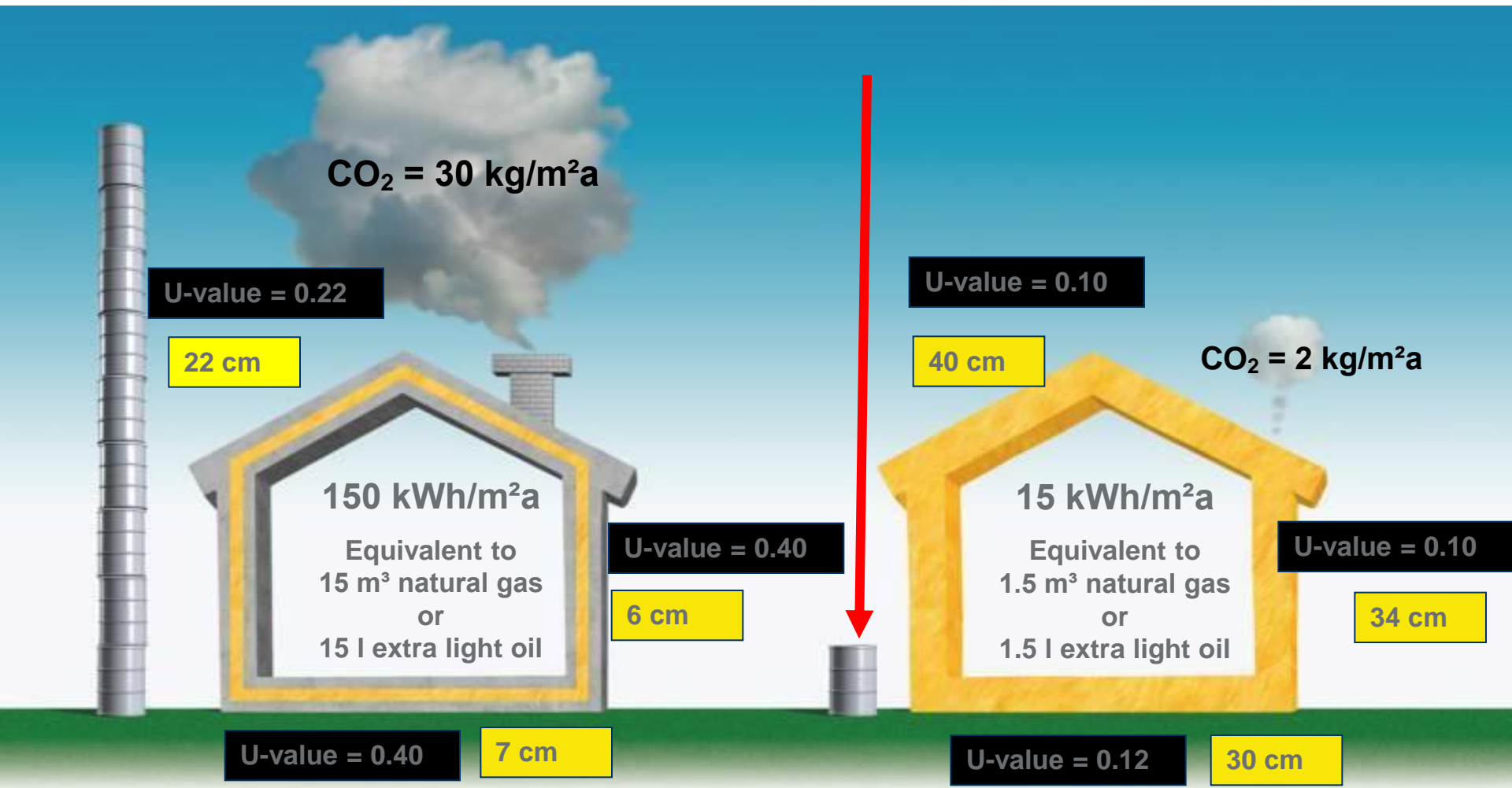
the 2020 goals - the three pillars : Security of supply, competitive markets and sustainability.

- 20% (or even 30%) reduction in CO2 emissions,
- 20% of energy coming from renewables,
- 20% increase in energy efficiency.

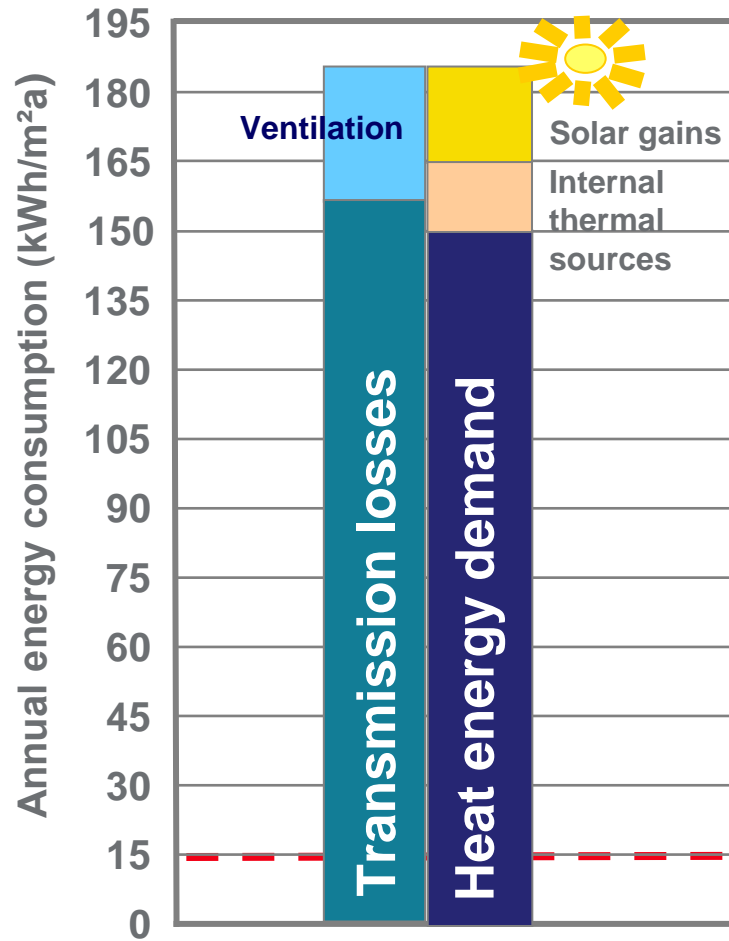
All new residential buildings should be net zero-energy performance by 2020

(European Parliament resolution of 2008: “Action Plan for Energy Efficiency:” and “2050: The future begins today)

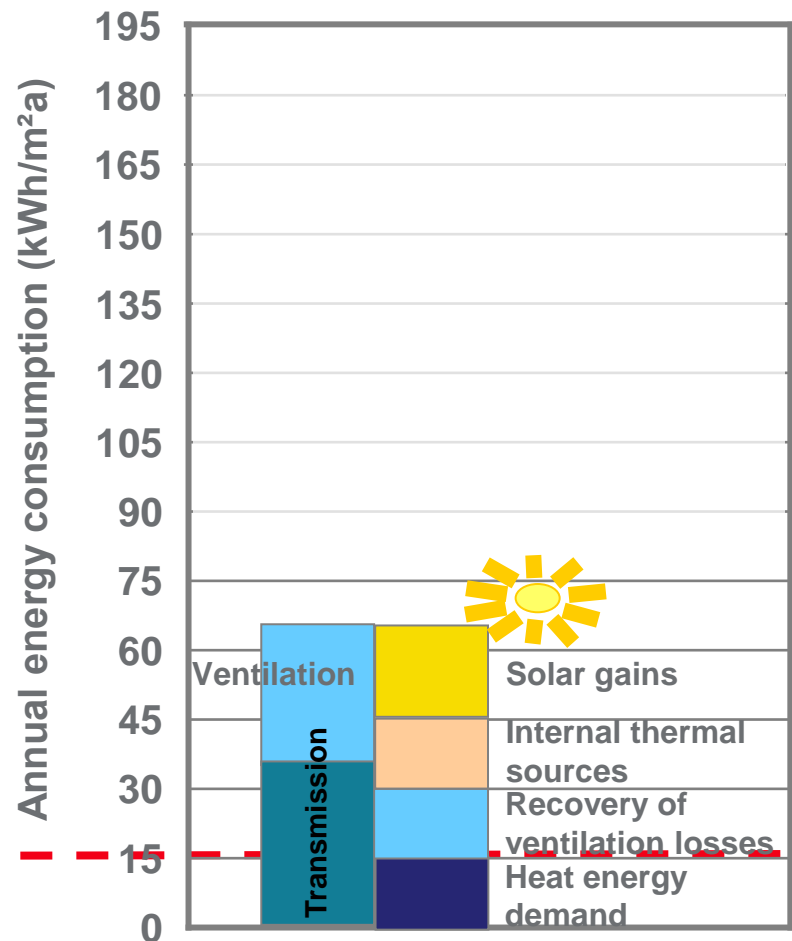
Principle



Schematic description of the past and future net energy demand of a single-family house

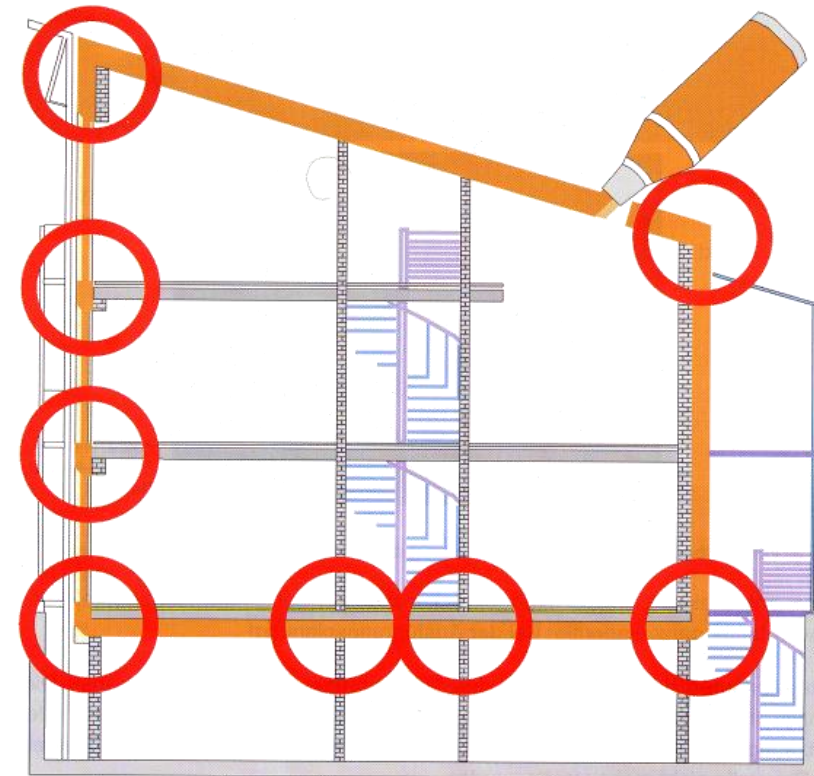
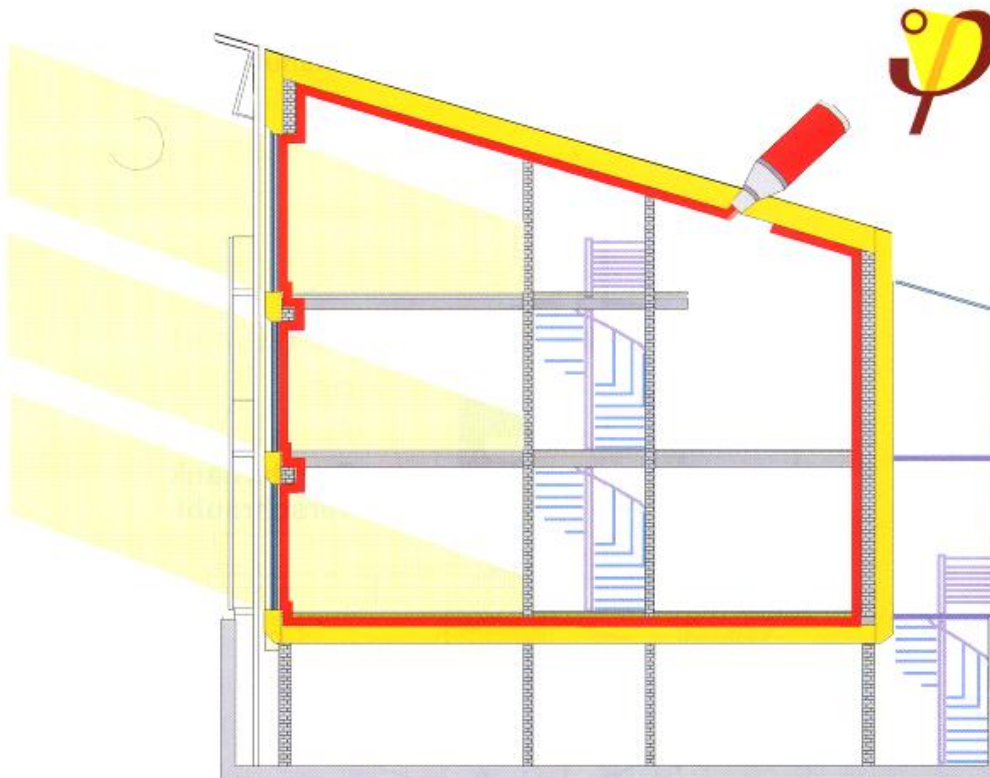


App. 1100 EUR/m²

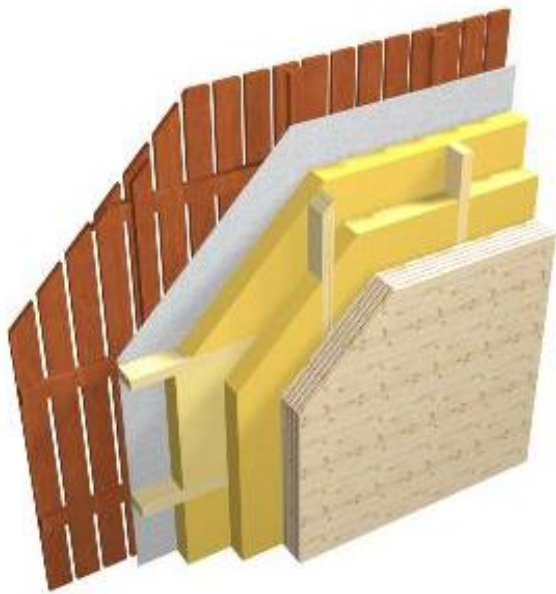


App. 1450 EUR/m²

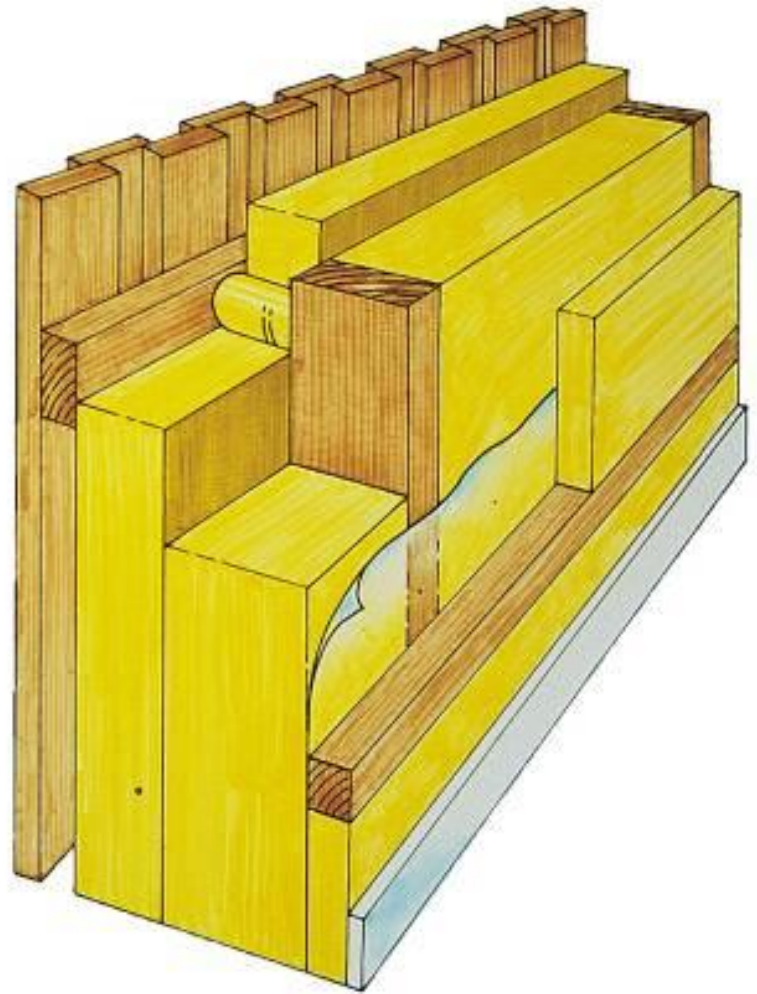
Principles of Nearly-zero Houses – Design of Envelope



Actual constructions



Actual constructions

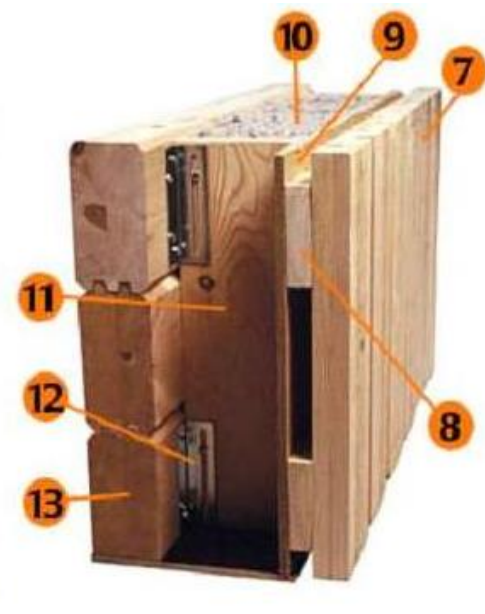


Actual constructions





Stenová štruktúra s interiérovou
dodatočnou izoláciou

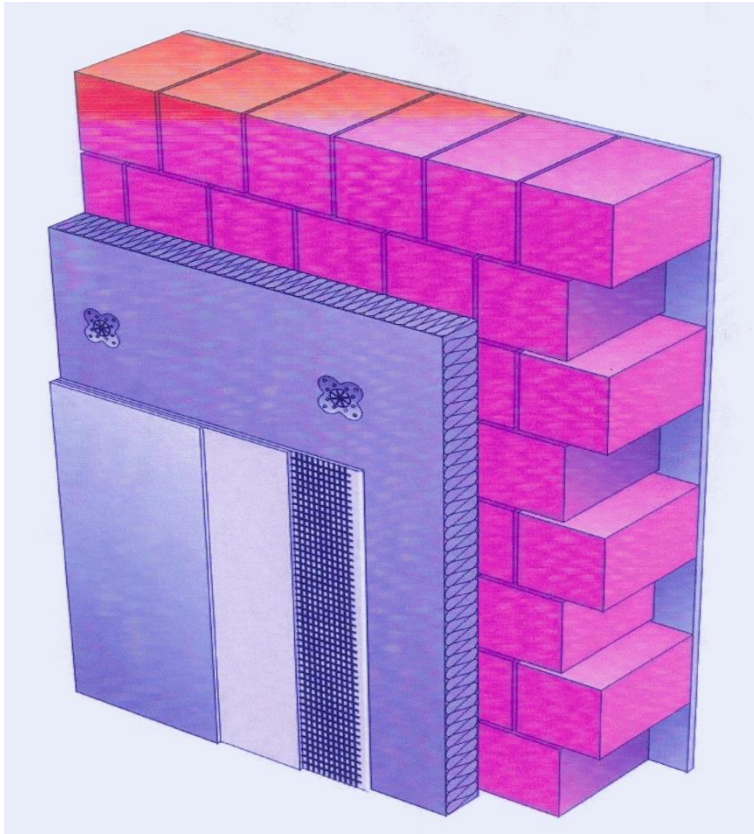


Stenová štruktúra s exteriérovou
dodatočnou izoláciou

Silicate versus Wood Construction

Target U -value

$$U = 0,15 \text{ W}/(\text{m}^2\cdot\text{K})$$

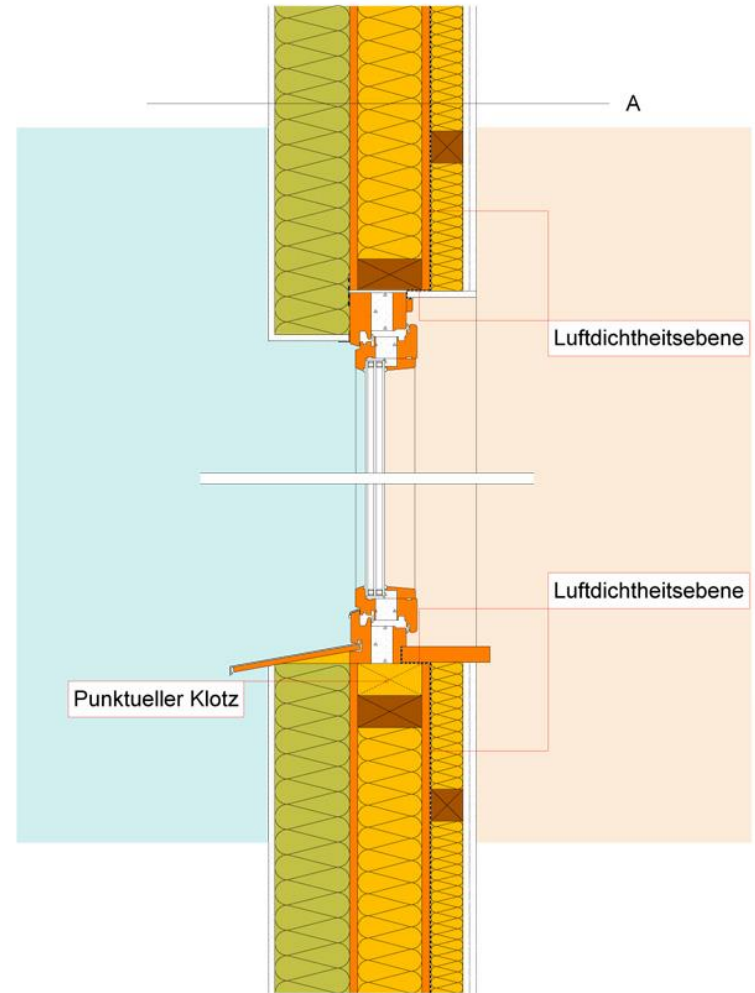
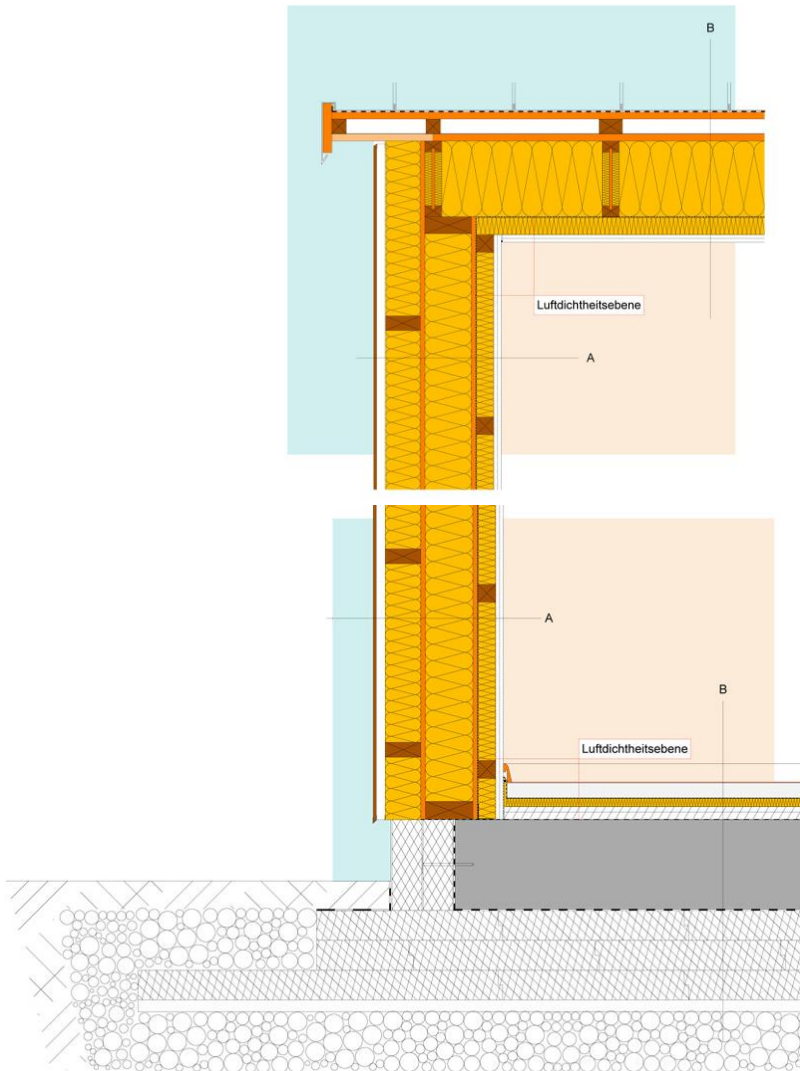


Massive masonry wall
thickness 50 cm

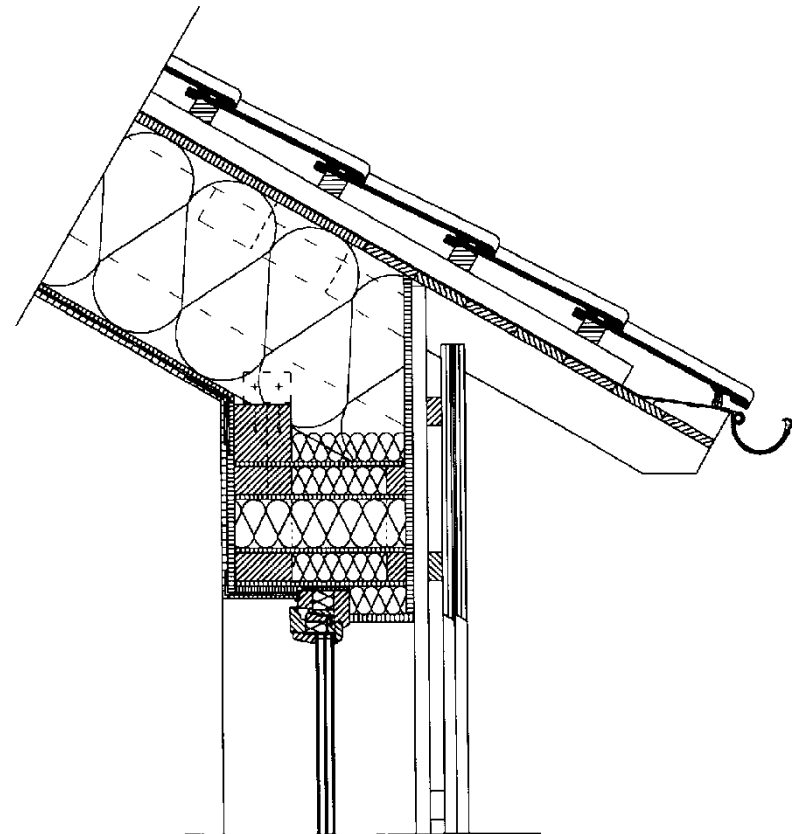
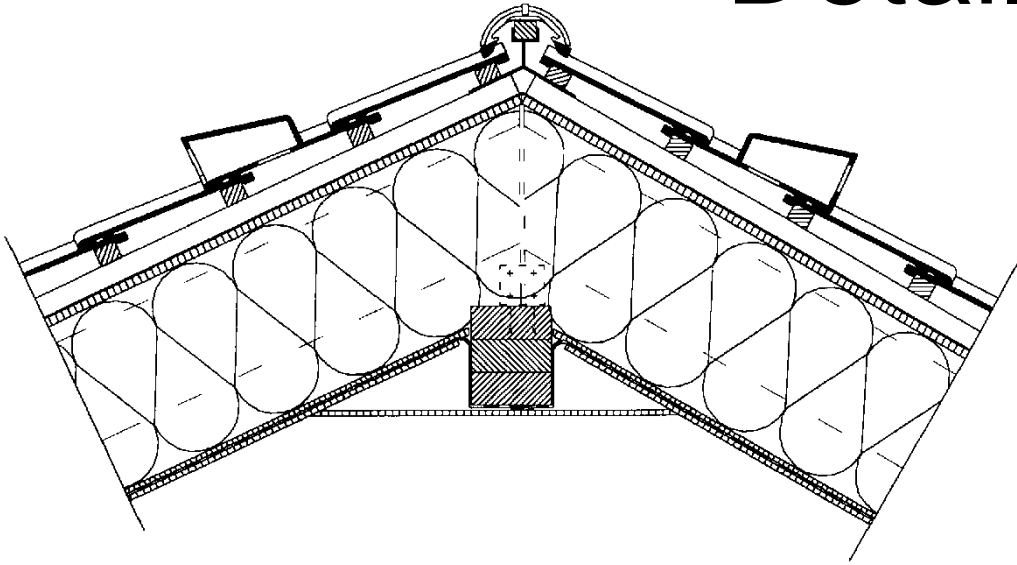


Wood frame light ladder construction
thickness 34 cm

Details



Details



Summer overheating control



