



Energy optimisation services

February 2009

Construction above and below ground, wooden houses

- Passive houses or passive standard houses
- Highly thermally insulated wall and roof structures (new buildings)
- Energy-related renovation of building shells (old buildings)
- Cellar ceiling insulation (polystyrene, mineral wool, Heraklith)
- Facade insulation (thermal insulation composite system - polystyrene, mineral wool)
- Interior insulation (if not possible on the exterior)
- Cellar sealing - thermal insulation underground
- Loft conversions - thermal insulation between and under the rafters
- Insulation of the top floor ceiling, also suitable for walking on
- Blower door measurements (old buildings and new buildings)
- Energy calculation for each individual window (old buildings and new buildings)
- Energy advice incl. issuing EnEV certificates/building energy passports, e.g.:
 - Building-orientated energy passport
 - Consumption-orientated energy passport
 - Energy requirement certificate for new buildings
 - Calculation for passive houses using PHPP (passive house planning program)

Heating and sanitary installation

- Solar-thermal installations
- Biomass installation - firewood/wood chips/pellets
- Surface heating - floor/wall/ceiling
- Oil-fired heating systems
- Gas-fired heating systems
- Circulation control systems to suit needs
- Electronically regulated pump technology
- Storage systems (heating, hot water)
- Thermal insulation of pipework systems
- Intelligent room temperature regulators
- Heat pump systems (air/water, water/water, brine/water)
- Controlled ventilation and extraction systems
- Moisture recovery



Windows, doors, interior

- Windows and window-door combinations with extremely high thermal insulation properties (up to "complete window" = $U_w 0.62$ - certified for passive houses)
- Insulation between building structure and windows/doors
- "Air-Pur-Module": shutter box with integrated decentral ventilation system/heat exchanger
- Sun protection & shading (exterior and interior)
- Usage of room colours with high light reflection (up to 100%)
- Advice on colour schemes in rooms (with optimum colour scheme between 4 and 8 percent of heating costs can be saved)

Intelligent building services, electrical installations

- Switching as needed using e.g. movement detectors, presence sensors
- Energy efficient lighting using e.g.
 - LED
 - Fluorescent lamps
 - Energy saving lamps
 - High pressure vapour lamps
 - Electronic ballasts
 - Regulation as a function of levels of daylight
- Intelligent, efficient building service systems using bus technology
- Integration of renewable energy systems e.g.
 - Photovoltaic / solar technology
 - Heat pumps
 - Cogeneration
- Integration of photovoltaic installations in metal roofs and metal facades (e.g. bonding)