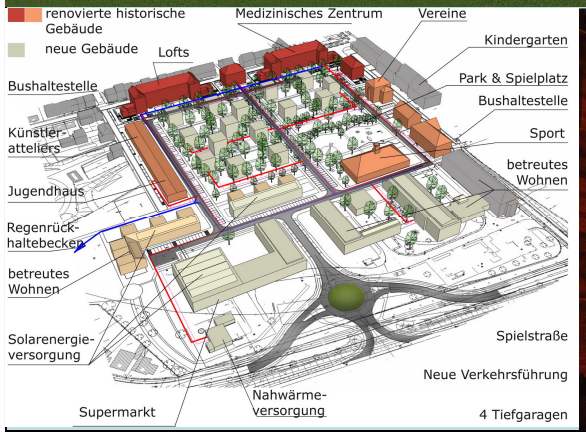
HIS Apt blocks, Speyer Quartier Normand DE

PROJECT SUMMARY
Conversion of former military area isolated since 110 years into residential lofts and a medical center.

SPECIAL FEATURES
Interior insulation, Passive House components, CO_2 neutral energy supply in heritage buildings

ARCHITECT
Osika GmbH-Klemens Osika, AAg, Bernd Melcher

OWNER
Osika GmbH with 55 private owners residential and commercial units
8,500 m²



IEA – SHC Task 37
Advanced Housing Renovation with Solar & Conservation

SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

Before

After

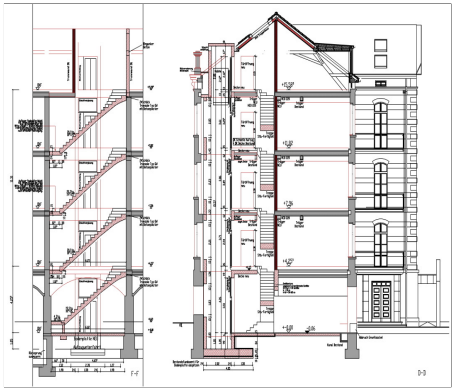
BACKGROUND

Built in 1888 for a Bavarian pioneer regiment

Area and buildings used by French armed forces until 1997. Old windows, no insulation, decentral heating with coal fired furnace

SUMMARY OF THE RENOVATION

- Interior facades insulated with 100mm and vapour tide membrane.
- Roof insulation 240mm.
- Ceiling 1rst floor insulated with 80mm (no basement existing).
- Ventilation system with 85% heat recovery, decentral in each apartment..
- Heat und hot water supply CO_2 neutral (biomass and solar power).
- Passive House components used, thermal bridges minimized, esp. at balconies.
- Structural changes for new open floor plan ground storey.
- House in house principle: division into five groupings of condominiums.



Section

Ground floor

Entrance with old bricks and new entrance

CONSTRUCTION

Roof construction	*U-value: 0.1 W/(m²·K)*
gypsum plaster board	12.5 mm
metal substructure 2x27	54. mm
vapour tight membrane	0.2 mm
mineral wool front and between rafters	240.mm
existing sarking membrane	0.3 mm
battens with roof tiles	85. mm
Total	392. mm

Wall construction	*U-value: 0.25 W/(m²·K)*
(interior to exterior)	
gypsum plaster board	12.5 mm
humidity adapted vapour tight membrane	0.2 mm
mineral wool in metal substructure	10. mm
plaster	15. mm
brickwork	380. mm
Total	418. mm

lower ceiling	*U-value: 0.28 W/(m²·K)*
(top down)	
parquet	10. mm
Cement screed with foorheating film	80. mm
Humidity adapted vapour tight membrane	0.2 mm
Polystyrene insulation	80. mm
exesting wooden floor on arch of bricks	700. mm
Total	872. mm

Roof-top apartments, details facade, lift, interior

Summary of U-values W/(m²·K)

	Before	After
Attic floor	3.0	0.15
Walls	1.56	0.25
lower ceiling	1.3	0.28
Windows	3.0	1.3

BUILDING SERVICES

Before renovation: only a few stoves for heating

After renovation: central local space and domestic water heating from biomass and solar collectors (CO_2-neutral).

Decentral ventilation system with 85% heat recovery in each apartment.

RENEWABLE ENERGY USE

Local heat supply for the whole neighborhood produced with biomass and solar energy, which is the reason the energy performance, in primary energy is so low.

ENERGY PERFORMANCE

Space + water heating (primary energy)*
Before: 180 kWh/m²
After: 11.66 kWh/m²
Reduction: 94%
*EnEV 2007, LEGEP Germany

INFORMATION SOURCES

Osika GmbH – Projektentwicklung
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