NEUHOFEN (Austria)

45 % energy saving

Improvement of the living quality

All tenants happy with the "new" house

Project data

Location, address:	Sportallee 40, 4501 Neuhofen
Region:	Upper Austria
Surroundings:	North of the country, low hilly landscape
Climate:	Continental climate
Heating degree days:	3672
Year of construction and renovation:	1979 (constructed); 2004 (renovated)
Typology:	Apartment building
No of dwellings:	25
Total floor area:	1,810.30 m²
Owner:	LAWOG (social housing association)
Architect and Builder:	LAWOG
Costs of energy saving measures:	Approx. € 565,000 (incl. VAT)
Renovation financed by:	Loan and reserves by LAWOG, subsidies from Regional Government

Figure 1: Building after renovation

Objectives and Results

Depending on the age and the condition, one after the other building of the social housing association LAWOG is renovated. The tenants are informed about the renovation measures in written form. During the renovation phase, the site engineer is always in contact with the tenants and is therefore able to react on wishes and proposals very quickly.

Of course a construction site always comes along with troubles like noise and dust, but as in other cases, the tenants were very happy and satisfied with the results of the renovation. The visual appearance and the living quality were improved and the heating costs were cut.

Renovation concept

Key renovation features

- Insulation of façade
- Insulation of ground floor
- Insulation of the top ceiling
- New windows
- New entrance area
- New burglar-proof apartment entrance doors
- New lock system with individual passkeys (one key unlocks apartment door, entrance door, cellar door...)

State-of-the-art

Before renovation	After renovation
Constructions [U-values: W/m²K] • Non-insulated roof [0.54] • Non-insulated ground floor [0.95] • Non-insulated façades [0.55] • Windows [2.5]	*Constructions [U-values: W/m²K]* • Insulation of roof [0.15] • Insulation of ground floor [0.35] • Insulation of façades [0.25] • Windows [1.2]
Installations • Gas heating system	*Installations* • Gas heating system • Renewal of the electric system in the stairwell

Energy saving and monitoring

Energy consumption before renovation:
kWh/m²

Energy Performance Indicator	86 kWh/m²,a

Energy consumption after renovation:
kWh/m²

Energy Performance Indicator	47 kWh/m²,a
Percentage saving	45 %

Figure 2: Building before renovation

Additional information

- The existing gas heating system was newly adjusted after the renovation, so an efficient operation is ensured.
- The renovation project was planned by the social housing association with support from an energy advisor. Main objective of the project was an optimal and efficient insulation of the building.

Lessons learned and conclusions

- The reaction from the occupants is very positive: they feel much better than before and they save money because of the reduction of the heating costs.
- The tenants are pleased with the visual appearance of the building and this compensates for the noise and dust during the renovation.
- The living quality was improved.

References

[1] LAWOG (Gemeinnützige Landeswohnungsgenossenschaft für OÖ), Garnisonstraße 22, 4017 Linz, Tel. +43 732 9396-0, verwaltung@lawog.at, www.verwaltung.at