

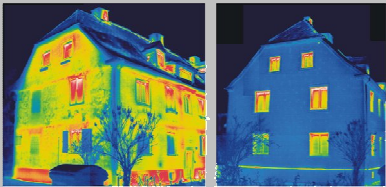
"Denggenhofsiedlung"



General information

Building owner	Ennstal-Neue-Heimat Wohnbauhilfe, Gemeinnützige Wohnungsgesellschaft m.b.H. (a non-profit housing association)
Address	Bozenerstraße 17-19, Hammer-Purgstallgasse 21-23, 8020 Graz
Total heated floor area	25.000 m ²
Year of construction	1940
Year of refurbishment	2001

Initial situation



The residential estate consists of 12 independent economic units with altogether 72 buildings and 447 accommodation units. The heating system were splitted in 50 % individual heating and 50 % district heating. The center of attention of this project was to improve the tenant's quality of life and to involve the tenant's interests in the decision making.

Innovative financing model



The implementation of the measures for the energetic improvement of the "Denggenhofsiedlung" in these properties was realised under an ecological refurbishment model called Thermoprofit PLUS. Thermoprofit PLUS includes special ecological measures in addition to a standard Thermoprofit - project.

This kind of refurbishment combined the general optimal realisation with comprehensive garanties for the operating companies. There are advantages for die building companies and for the tenants.

for the building companies:

- the flats get high-order (more significant)
- less work for the management of the tender

for the tenants:

- improvement of the quality of life
- no additional costs

The investments are financed through the **Maintenance and Improvement Contribution** with energy savings of 100.000 Euro per year.

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Energy related activities

Building shape	Insulation of outer walls (with 10 cm mineral wool) Insulation of cellar floor Insulation of attic floor Replacement of windows
Other activities	Renewal of the outdoor installations Development of green areas
Solar system	no solar system

Energy related indicators

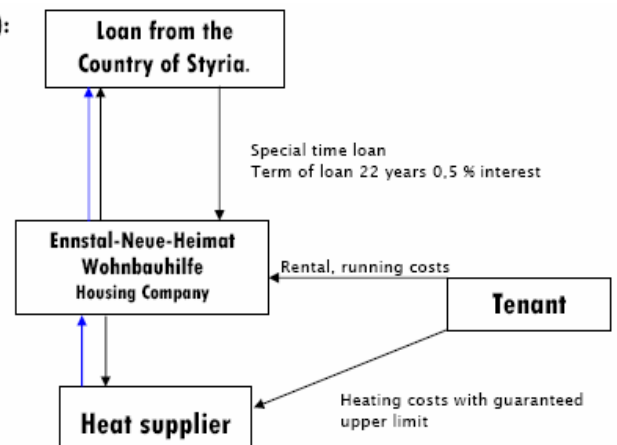
	Initial situation	After refurbishment	Reduction
Energy performance	130 kWh/m ² a	63 kWh/m ² a	51%
Energy consumption	3,5 Million kWh/a	1,7 Million kWh/a	51%
CO2 - emission	564 t/a	282 t/a	50%
Heating system	50% District heating system 50% individual heating systems	District heating system	
DHW - system	Individual systems	District heating system	
Monitoring system	No monitoring	Energy management and controlling system	

Financial indicators

Energy costs	200.000 €/a	100.000 €/a	50%
Investment costs of the total refurbishment	4 Million €		
Investment costs of the energy related refurbishment	Unknown		
Costs per saved kWh	2,20 € (referring to the total costs of 4 Million €)		

Report of the investment costs

Finance-Flow Chart (sale & lease back):



Statement Julius Rozner (leader of the property management):



The general refurbishment, especially the thermal insulation of the outer walls, resulted in energy savings of 50%. We are very proud of the tenant involvement process, which has been taken a very important part for a successful and satisfying refurbishment - without additional costs for the tenants.

The production of this good practice example is supported by