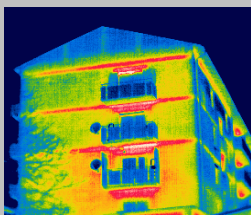




General information

Building owner	GGW (Gemeinnützige Grazer Wohnungsgenossenschaft)
Address	Daungasse 4-8, Asperngasse 22-24, Wagner-Birostraße 23-25
Total heated floor area	7.485 m ²
Year of construction	1960
Year of refurbishment	2001

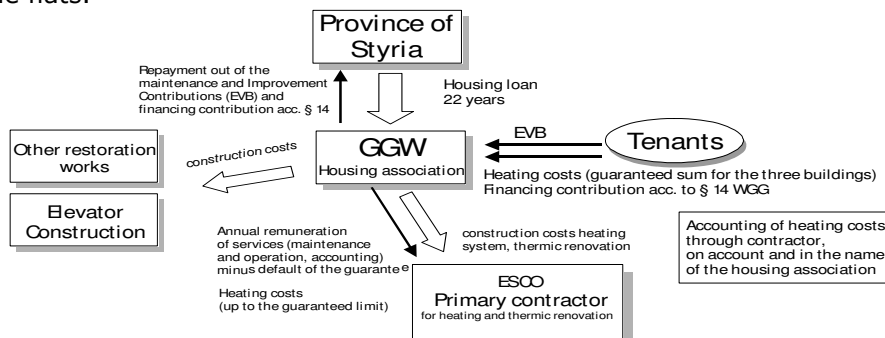
Initial situation



The Graz Energy Agency was responsible for the complete renovation of a residential estate (altogether 150 accommodation units) consisting of three residential buildings arranged around one common green area. The useable floor space is 7485 m² in total, the average useable space amounts to approximately 50 m² per flat.

The flats are inhabited predominantly by socially disadvantaged tenants, the City of Graz (Social Welfare Office) is responsible for the allocation of the flats.

Innovative financing model

The implementation of the measures for energetic improvement of the "Daungasse" in these properties has to be realised under a contracting model called **Thermoprofit**. Thermoprofit is a comprehensive package of services for reducing the energy consumption in buildings. Planning, execution of the measures, optimisation, financing, maintenance and operation during the entire contract term are managed by one single party.

The property owner was offered a balanced package of services provided by one single contractor – planning, installation, professional energy management.

The contractor

- furnished a contractual **guarantee** for keeping the agreed upper limit for space heating and the entire heating costs and accepts all related technical and economic risks.
- was responsible for the **complete optimisation** of the external walls of the properties, the heating and hot-water supply systems (installation and routine maintenance of the systems).
- undertook to maintain the **highest quality standards** with respect to the installation and functioning of the systems.
- contributed to a general **improvement of the environment** by reducing the level of energy consumption.

Contact **Graz Energy Agency**
Kaiserfeldgasse 13/1
8010 Graz
Fon: +43-316-811848
mailto: office@grazer-ea.at

GGW - Gemeinnützige Grazer Wohnungsgenossenschaft
Neuholdaugasse 5, 8010 Graz
Fon: +43-316-8027-0
mailto: verwaltung@ggw.at

Energy related activities

Building shape	Insulation of outer walls (with 8 cm mineral wool) Insulation of cellar floor (with 8 cm mineral wool) Insulation of attic floor (with 20 cm mineral wool) Replacement of windows
Other activities	Installation of seven lifts Improvement of the electric system in the cellar and staircases Information of the residents
Solar system	85 m ² (for domestic hot water supply)

Energy related indicators

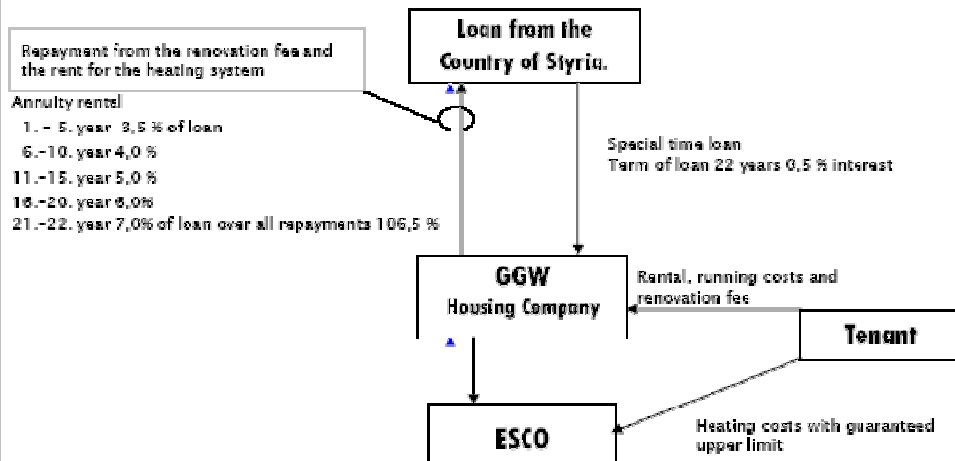
	Initial situation	After refurbishment	Reduction
Energy performance	140 kWh/m ² a	77 kWh/m ² a	45%
Energy consumption	1.052.556 kWh/a	578.906 kWh/a	45%
CO2 - emission	586 t/a	181 t/a	69%
Heating system	Individual heating systems (gas,oil,break,wood,electricity)	Gas central heating system	
DHW - system	Individual systems	Solar system	
Monitoring system	No monitoring	Energy management and controlling system	

Financial indicators

Energy costs	54.300 €/a	29.800 €/a	45%
Investment costs of the total refurbishment	2.180.000 €		
Investment costs of the energy related refurbishment	1.230.000 €		
Costs per saved kWh	2,60 €		

Report of the investment costs

Finance-Flow Chart (sale & lease back)



Statement



Ing. Giulio Insam (GGW)

The Thermoprofit model has been an approach to improve the energetic quality of existing buildings. In the beginning we were unsure about Thermoprofit, but by now, we know about the advantages of integrated planning models. We intend to apply this model at an upcoming refurbishment project. The cooperation with Steirische Gas Wärme has proven to be very successful.

The production of this good practice example is supported by