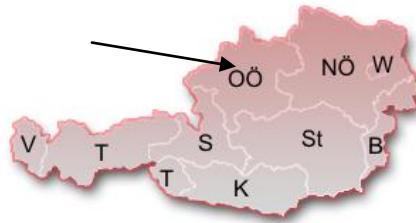




El-Education  
Best practice example No 9 from Austria



**RIED  
(Austria)**

**60 % energy saving**

**Renovation of the heating system**

**Disability friendly entrance areas**

### Project data

Location, address:	Ried im Innkreis
Region:	Upper Austria
Surroundings:	North of the country, low hilly landscape
Climate:	Continental climate
Heating degree days:	3942
Year of construction and renovation:	1979 (constructed); 2005 (renovated)
Typology:	Apartment building
No of dwellings:	53
Total floor area:	4,093.47 m <sup>2</sup>
Owner:	Joint ownership of the apartment owners
Architect and Builder:	ISG (social housing association)
Costs of energy saving measures:	1,008,300.00 (incl. VAT)
Renovation financed by:	Loan and reserves by ISG, owners, subsidies from Regional Government



Figure 1: Building after renovation

### Objectives and Results

In the beginning of the 90's, 60 % of the buildings of the social housing association ISG (Innviertler Gemeinnützige Wohnungs- und Siedlungsgenossenschaft) were heated with oil, today they only have 35 % oil and 65 % of the houses are heated by wood chips, pellets, gas and geothermal heat. The ISG intends to decrease the share of oil heating systems progressively – nearly all renovations include a renovation of the heating system and many of them include also a switch of the fuel.

Another objective of the housing association is that each renovation project is decided unanimously. Due to this philosophy, constant calls and complaints can be avoided and the projects are proceeding faster.

### Renovation concept

#### Key renovation features

- Insulation of façade with a special air-permeable construction
- Insulation of the roof
- Insulation of the ground floor
- Fuel switch from oil to gas boiler
- High efficiency gas condensing boiler
- New windows (a part of the building)
- Buffer storage for the hot water supply
- Disability friendly entrance areas

### State-of-the-art

#### Before renovation

##### Constructions [U-values: $W/m^2 K$ ]

- Non-insulated roof [3.57]
- Non-insulated ground floor [0.54]
- Non-insulated façades [1.30]
- Windows [2.50]

##### Installations

- Old oil boiler

#### After renovation

##### Constructions [U-values: $W/m^2 K$ ]

- Insulation of roof [0.25]
- Insulation of ground floor [0.31]
- Insulation of façades [0.30]
- Average of the Windows [1.4]

##### Installations

- New gas condensing boiler
- Hot water supply with buffer storage
- Disability friendly entrance areas

### Energy saving and monitoring

Energy consumption before renovation:  
 $kWh/m^2$

Energy Performance Indicator 75  $kWh/m^2, a$

Energy consumption after renovation:  
 $kWh/m^2$

Energy Performance Indicator 30  $kWh/m^2, a$   
Percentage saving 60 %



Figure 2: Building before renovation

### Additional information

- Nearly every renovation is decided unanimously. The social housing association informs the apartment owners a quite long time before the renovation starts.
- As there are more and more older people living in this building, a disability friendly entrance area and a special lift (Plattformtreppenlift) were installed.

### Lessons learned and conclusions

- The more clarifications are done before the renovation, the lesser trouble arise during the renovation.
- The satisfaction of the owners and occupants is very important; all the wishes and proposals should be duly noted and – where possible – fulfilled.

### References

- [1] ISG, Goethestraße 29, 4910 Ried im Innkreis, Tel.: +43-7752-85828-0, [office@isg-wohnen.at](mailto:office@isg-wohnen.at), [www.isg-wohnen.at](http://www.isg-wohnen.at)