

Historic Building in Irdning - AT

PROJECT SUMMARY

Renovation of a historic building in Irdning built in 1567, with four flats and two shops. Complies with low energy requirement.

SPECIAL FEATURES

- Central mechanic ventilation system with heat recovery
- Activation of the thermal mass
- 8 m² solar panels for domestic hot water

ARCHITECT

Hegedys & Ull, Gebäude und Naturraum Projektierung GMBH

OWNER

Mag. Manfred Hofer
Private



IEA – SHC Task 37

Advanced Housing Renovation with Solar & Conservation

Before



After

BACKGROUND

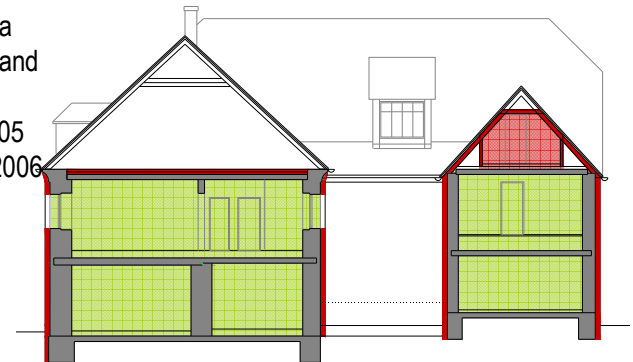
The enclosure of this two storey, 16th century building was in a poor condition. The massive exterior walls were not insulated and damp. The original windows were still in place. Space heating was supplied by a central oil furnace to meet the demand of 205 kWh/(m²a). Domestic hot water was heated by electricity. In 2006 the building was renovated, with attention to ecological issues and the heating demand was reduced to 38 kWh/(m²a). The renovation was done without subsidies.

OBJECTIVES OF THE RENOVATION

- Reduction of the heating costs to a minimum
- Attention to ecological issues and using renewable resources
- Optimised building performance meeting local "low energy standards"
- Preservation of the exterior appearance of the building

SUMMARY OF THE RENOVATION

- High insulation of the facade, roof and basement
- Renovation of the old windows, restoration of the doors
- Closing in the part of the court space
- Construction of four flats
- Preservation of ceiling and walls with stucco ornamentation
- Central ventilation system with heat recovery
- Solar panels for domestic hot water preparation
- District heating with biomass
- Activation of the thermal mass
- Modernized electrical and sanitary installations



Section



Added
Renovated

Ground floor



Renovated box-type window



Activation of thermal mass



CONSTRUCTION

Roof construction

(interior to exterior)

plasterboard	15 mm
boarding	24 mm
cellulose insulation	220 mm
boarding	24 mm
ventilation space	
lathing	40 mm
roof covering	
Total	323 mm

U-value: 0.178 W/(m²·K)

Wall construction

(interior to exterior)

lime plaster	15 mm
solid brick	500 mm
mineral wool insulation	140 mm
lime plaster	20 mm
Total	675 mm

U-value: 0.245 W/(m²·K)

Basement ceiling

(top down)

slab	15 mm
floor screed	60 mm
cork insulation	130 mm
reinforced concrete floor	100 mm
crushed brick	150 mm
Total	455 mm

U-value: 0.285 W/(m²·K)



Mildew in the ground floor



Removing the existing floor





Central mechanic ventilation



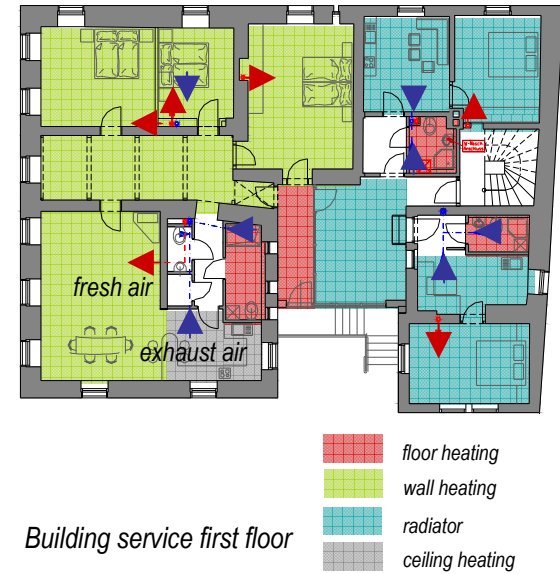
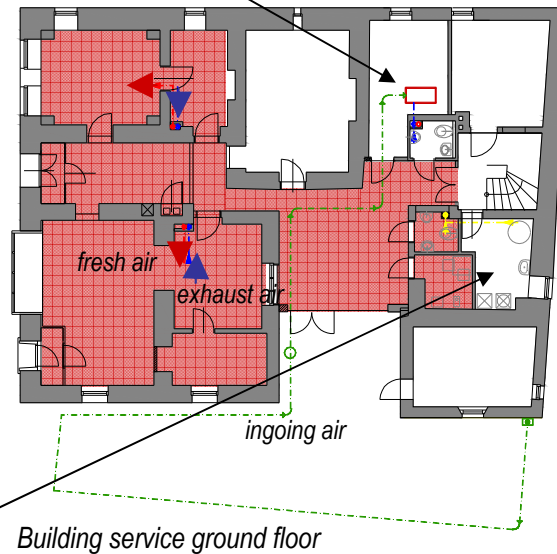
District heating system and hot water storage

BUILDING SERVICES

A new central ventilation system with heat recovery (efficiency > 95%). A ground-air heat exchanger preheating cold incoming air. Space heating is provided by a biomass fired district heating. Heat is delivered by activating the thermal mass from the building and a few radiators. Domestic hot water is heated by solar panels and backed up by the central district heating, instead of a central electric boiler.



Solar panels on the roof





Summary of U-values $W/(m^2 \cdot K)$

	Before	After
Attic floor	0.7	0.18
Walls	0.9	0.25
Basement ceiling	2.0	0.29
Windows	ca. 2.7	1.35

RENEWABLE ENERGY USE

8 m² solar panels for domestic hot water preparation are installed on the southeast-oriented roof. High use of ecological material.



ENERGY PERFORMANCE

Space + water heating (primary energy)*
 Before: 331.7 kWh/(m²a)
 After: 24.64 kWh/(m²a)
 Reduction: 93 %

* according to OIB Richtlinie 6

INFORMATION SOURCES

Hegedys & Ull
 Gebäude und Naturraum Projektierung GMBH
 Mitterlaßnitzberg 31
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 www.hegedys-ull.at

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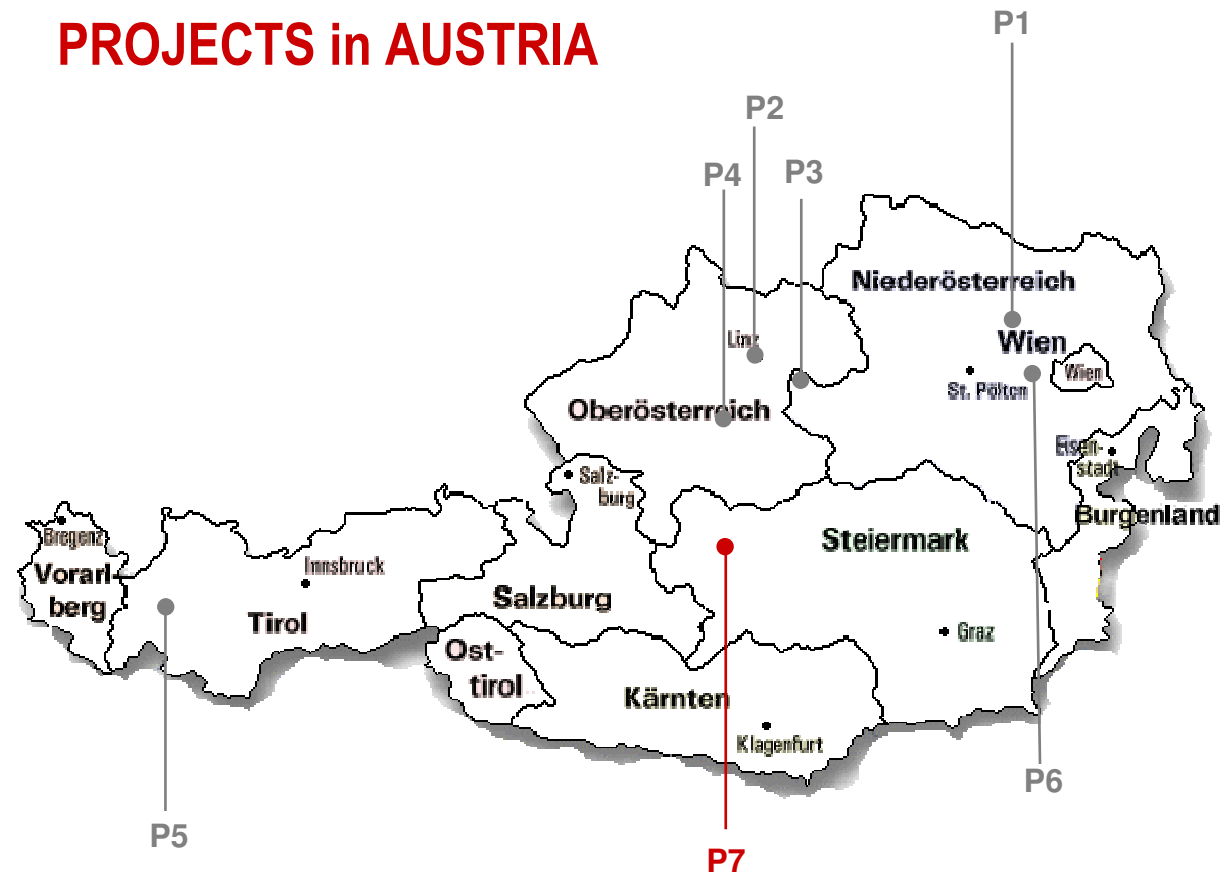
TEAM AUSTRIA



PROJECTS in AUSTRIA

PROJECT SUMMARY

- P1 Apartment building in Kierling
- P2 5 story apartment house in Linz
- P3 Enhancement house Wimmer in St. Valentin
- P4 Single-family house in Pettenbach
- P5 Old people's home in Landeck
- P6 Housing in Purkersdorf
- P7 Historic building in Irnding**
- P8 Enhancement in Mautern
- P9 Attic conversion in Innsbruck
- P10 House Schilchegger in St. Martin
- P11 Single-family house Kraiger in Kufstein
- P12 Apartmentbuildings in Dornbirn



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