Gneis-Moos Housing Estate

Picture

Basic information

Location:	Gneis-Moos, Salzburg, Austria
Climate:	Middle European
Project brief:	61 Low energy residential dwellings in Gneis-Moos (City of Salzburg)
Client:	
Architect:	Georg W. Reinberg
Engineers:	- Building physics: GSWB, Salzburg, Austria - Energy: Steinbeis Transfer Zentrum, Salzburg, Austria - Building services: RFG Engineering GmbH, Austria
Timetable:	Start project: 1993 Start construction: 1997 End construction: 1999
Main contractor:	GSWB, Salzburg, Austria
Area:	Total area: 4694 m^2; housing area: 2600 m^2
Cost:	Approx. € 6.2 million

Design features

Bioclimatic features:	Passive solar: large windows on the South side of the houses; winter garden through which the ventilation air is lead into the house for pre-heating.
Materials / construction:	Brick and reinforced concrete; roof and winter garden wooden frame.

Technical features:	430 m^2 solar water heater (solar plant) with 100 m^3 reservoir for hot water production and heating purposes. Additional collective district (block) heating fired with a natural gas boiler. Low temperature heating through radiators with temperature spreading.
U-values:	- U-value large surface west-facing windows: 0.9 W/m^2K; - U-value glass with thermal insulation: 0.4 W/m^2K; - U-value winter garden glazing: 1.3 W/m^2K
Energy consumption:	Total: 496,860 kWh/yr total (approx. 1200 $kWh/yr/m^2$); Solar energy: 158,600 kWh/yr (approx. 32%; 380 $kWh/yr/m^2$)
Sound insulation:	No specific measures.

Details of the project

Context and site:	Low energy housing estate with 61 dwellings and a solar power station on a peripheral location of the Austrian city of Salzburg with complete exposition to sun for optimal solar gains, both active (solar plant) and passive (south-oriented and winter gardens).
Function and form:	Family dwellings
Structural system:	Brick and reinforced concrete; Roof and winter garden wooden frame.

Energy efficiency control:

Thermal insulation of the building envelope:	Walls: 25cm of brick with 14 cm full thermal insulation Glass: see U-values
Space heating, cooling, ventilation, air conditioning:	Heating through solar plant and district heating fired with natural gas boiler. Balanced ventilation: decentralised controlled drain-off of exhaust air with heat recovery. Supply air with preliminary heating over south-oriented winter gardens. The waste heat from the air of the dwellings is used for keeping the common rooms at a moderate temperature.
Water heating:	Water heating through solar plant and natural gas boiler.
Lighting:	No specific measures
Other appliances and equipment:	No specific measures
Renewable energy use:	Solar plant (430 m^2 collector area and 100 m^3 reservoir) will account for approximately 35% of hot water and heating demand.
Green site approach:	No specific measures
Acknowledgements:	

Additional pictures