



after refurbishment



GENERAL INFORMATION	The building used to be owned by an electricity trading company and now belongs to an ownership community (dwellings are sold)
Building owner	ownership community
Address	Gdańsk, Mściwoja Str. 67/69
Number of dwellings	30 before refurbishment 30 after refurbishment
Number of floors	4
Average size of the dwellings	51.7 m ² before refurbishment 51.7 m ² after refurbishment
Total heated dwelling floor area	1,551 m ² before refurbishment 1,551 m ² after refurbishment
Year of construction	1959–61
Year of refurbishment	2004
Has the refurbishment been carried out while the dwelling was occupied?	Yes
Has an independent quality assurance been carried out?	No
Current total building costs	36,000 €/a (water, waste water, waste, electricity, natural gas, heat, administration, refurbishment fund)
Current building costs concerning energy recovery	15,000 €/a

INITIAL SITUATION/LOCAL CONDITION	<ul style="list-style-type: none"> • Ground floor external walls consist of 38 cm of brick (U-value = 1.43 W/(m²K)) • on the first, second and third floor the outer walls are 24 cm thick and made of gas concrete bricks (U-value = 1.19 W/(m²K)) • the rib-and-slab floors are 35 cm thick, the attic floor is insulated with 7 cm of clay (U-value = 1.71 W/(m²K)); the flat roof is insulated with sawdust concrete (U-value = 1.08 W/(m²K)) • the high peaked roof has a wooden structure, the roof above heated space is insulated with 19 cm of mineral wool (U-value = 0.21 W/(m²K)) • windows have double wooden frames (U-value = 2.6 W/(m²K)), most of them have been replaced by tenants with windows that have a single vinyl or wooden frame and double pane glazing (U-value about 2.0 W/(m²K))
TYPE OF REFURBISHMENT (MEASURES WHICH HAVE BEEN CARRIED OUT)	<ul style="list-style-type: none"> • insulation of building envelope • improvement of heating system
WHY HAVE THE MENTIONED MEASURES BEEN CARRIED OUT?	The measures mentioned above have been selected on the basis of the energy audit which was performed according to the Thermo-modernisation Law. In compliance with this Law, the most important criterion was to obtain energy savings of more than 25 % in heating and hot water consumption.

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PLANS	Not available at present.
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ENERGY RELATED ACTIVITIES			
Exterior components	<ul style="list-style-type: none"> • insulation of outer walls with 15 cm of mineral wool • insulation of flat roof with 15 cm of foamed polystyrene • insulation of attic floor with 15 cm of foamed polystyrene • insulation of walls to unheated attic with 12 cm of foamed polystyrene 		
Systems engineering	<ul style="list-style-type: none"> • installation of thermostatic valves on radiators • installation of section control valves in heating system • replacement of central venting system with vent valves on risers • hydraulic balancing of heating installation 		
ENERGY RELATED INDICATORS			
	Initial situation	After refurbishment	Reduction
Energy performance	229.60 kWh/m ² a (only heating)	134.32 kWh/m ² a (only heating)	41.5 %
Energy consumption	356,111 kWh/a (only heating)	208,333 kWh/a (only heating)	41.5 %
CO ₂ -emission	108.23 kg/m ² a (only heating)	63.26 kg/m ² a (only heating)	45 kg/m ² a
Heating system	Central heating with local DH substation	Central heating with local DH substation	
DHW-system	Decentralised DHW preparation system based on gas-fired heaters (11 flats) and electric heaters (19 flats)	Decentralised DHW preparation system based on gas-fired heaters (11 flats) and electric heaters (19 flats)	
Monitoring system	Heat meter in DH substation measures heat consumption for heating every month	Heat meter in DH substation measures heat consumption for heating every month	
Current regional energy costs	10.91 €/GJ (0.0393 €/kWh) + 20,140.19 €/MW/a (district heating)		

SUBSIDIES	Financing: 20 % own funds, 80 % loan. 25 % subsidy from the capital for the loan taken by the investor. Subsidy institution: Thermomodernisation Fund.
STATEMENT	
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