



after refurbishment



before refurbishment



GENERAL INFORMATION	A typical building from seventies, which is built only with prefabricated concrete units
Building owner	ownership community
Address	Gdynia, Powstania Śląskiego Str. 6
Number of dwellings	60 before refurbishment 60 after refurbishment
Number of floors	5
Average size of the dwellings	40.7 m ² before refurbishment 40.7 m ² after refurbishment
Total heated dwelling floor area	2,442 m ² before refurbishment 2,442 m ² after refurbishment
Year of construction	1969
Year of refurbishment	2006
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	62,000 €/a (water, waste water, waste, electricity, natural gas, heat, administration, refurbishment fund)
Current building costs concerning energy recovery	21,500 €/a



INITIAL SITUATION/LOCAL CONDITION	<ul style="list-style-type: none"> the outer gable walls are made of prefabricated ferroconcrete blocks with insulation of 15 cm gas concrete, total thickness of these blocks is 30 cm, the walls have additional insulation with 8 cm of foamed polystyrene ($U = 0.405 \text{ W}/(\text{m}^2\text{K})$) the outer longitudinal walls are 24 cm thick and made of gas concrete bricks ($U = 1.19 \text{ W}/(\text{m}^2\text{K})$) the floors are girderless, made of prefabricated hollow concrete slabs, the basement floor is insulated with 1 cm of foamed polystyrene or 1.25 cm of fibreboard ($U = 1.09\text{--}1.22 \text{ W}/(\text{m}^2\text{K})$) the flat roof is insulated with 15 cm of gas concrete ($U = 1.16 \text{ W}/(\text{m}^2\text{K})$) windows have double wood frames ($U = 2.85\text{--}3.00 \text{ W}/(\text{m}^2\text{K})$), most of them have been replaced by tenants with windows with single vinyl or wood frame and 2-pane glazing (average U assumed as $2.0 \text{ W}/(\text{m}^2\text{K})$)
TYPE OF REFURBISHMENT (MEASURES WHICH HAVE BEEN CARRIED OUT)	<ul style="list-style-type: none"> additional insulation of building envelope replacement of basement windows

The production of this good practice example is supported by

Intelligent Energy  Europe

The sole responsibility for the content of this publication lies with the authors. It does not represent the opinion of the European Communities. The European Commission is not responsible for any use that may be made of the information contained therein.

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 Thermomodernisation Law. The most important selection criterion was obtaining more than 15 % energy saving for heating and hot water production according to this Law.

PLANS

Not available at present.

ENERGY RELATED ACTIVITIES

Exterior components

- insulation of outer longitudinal walls with 12 cm of foamed polystyrene
- insulation of outer gable walls with 8 cm of foamed polystyrene
- insulation of flat roof with 18 cm of granulated mineral wool

Systems engineering

- repairing of thermal insulation of DHW pipes
- hydraulic balancing of heating installation

ENERGY RELATED INDICATORS

Initial situation

After refurbishment

Reduction

Energy performance

217.38 kWh/m²a
(only heating)

142.42 kWh/m²a
(only heating)

34.5 %

Energy consumption

580,833 kWh/a
(only heating)

347,778 kWh/a
(only heating)

34.5 %

CO₂-emission

53.21 kg/m²a
(only heating)

34.86 kg/m²a
(only heating)

18.4 kg/m²a

Heating system

Central heating supplied by group DH substation

Central heating supplied by group DH substation

DHW-system

Decentralised DHW preparation system based on gas-fired heaters

Decentralised DHW preparation system based on gas-fired heaters

Monitoring system

Reading of the heat meter measuring the consumption for building heating is taken once a month. The consumption of gas is measured in each flat every two months.

Reading of the heat meter measuring the consumption for building heating is taken once a month. The consumption of gas is measured in each flat every two months.

Current regional energy costs

10.24 €/GJ (0.0369 €/kWh) + 18,973.11 €/MW/a (district heating)

SUBSIDIES

Financing: 21.48 % of own funds, 78.52 % of loan. 25 % of subsidy to the capital of the loan taken by the investor. Subsidy institution: Thermomodernisation Fund.

STATEMENT

CONTACT

Bałtycka Agencja Poszanowania Energii SA
ul. Budowlanych 31
80-298 Gdańsk
Phone +58 3475535
E-mail: bape@bape.com.pl