



after refurbishment



before refurbishment

GENERAL INFORMATION	
Building owner	School and dormitory for deaf children "Decho Denev"
Address	Public state property
Number of dwellings	Sofia
Number of floors	
Average size of the dwellings	
Total heated floor area	9,263.7 before refurbishment 9,263.7 after refurbishment
Year of construction	1938
Year of refurbishment	2007
Has the refurbishment been carried out while the dwelling was occupied?	Yes
Has an independent quality assurance been carried out?	An energy audit has been carried out. The quality of refurbishment measures has been approved by licensed experts.
Total building costs	159,800 €
Building costs concerning energy recovery	159,800 €

INITIAL SITUATION/LOCAL CONDITION	<ul style="list-style-type: none"> • Poor condition of external wall insulation • Poor condition of windows
TYPE OF REFURBISHMENT (MEASURES WHICH HAVE BEEN CARRIED OUT)	<ul style="list-style-type: none"> • Replacement of windows • Thermal insulation of walls
WHY HAVE THE MENTIONED MEASURES BEEN CARRIED OUT?	Refurbishment measures have been carried out to decrease heat losses and reduce the annual energy consumption as well as to improve living conditions and comfort.



PLANS	Not available at present.
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ENERGY RELATED ACTIVITIES			
Exterior components			
Systems engineering			
ENERGY RELATED INDICATORS	Initial situation	After refurbishment	Reduction
Energy performance	160.8 kWh/m ² a	99.76 kWh/m ² a	38 %
Energy consumption	1,489,603 kWh/a	924,147 kWh/a	38 %
CO ₂ -emission			
Heating system	Centralized water heating system	Centralized water heating system	
DHW-system	Electric water heaters	Electric water heaters	
Monitoring system			
Regional energy costs	1 MWh = 67 €		

SUBSIDIES	100 % financed by the Ministry of Education and Science
STATEMENT	The general condition of building was estimated to be poor and inadequate for living of the tenants due to high air infiltration through the windows as well as poor external wall insulation. After an energy audit of experts, the result showed that total energy savings of 37,9 % could be achieved after applying two energy saving measures (Replacement of windows, thermal insulation of external walls).
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