



after refurbishment



GENERAL INFORMATION	
Building owner	ATC Novara
Address	via Toscanini 17, Cameri (NO)
Number of dwellings	27 before and after refurbishment
Number of floors	6
Average size of the dwellings	68.5 m ² before and after refurbishment
Total heated floor area	1,846 m ² before and after refurbishment
Year of construction	1983
Year of refurbishment	2003
Has the refurbishment been carried out while the dwelling was occupied?	Yes
Has an independent quality assurance been carried out?	No
Total building costs	195,000 €
Building costs concerning energy recovery	195,000 €
INITIAL SITUATION/LOCAL CONDITION	
TYPE OF REFURBISHMENT (MEASURES WHICH HAVE BEEN CARRIED OUT)	<ul style="list-style-type: none"> • replacement of dwellings gas-boiler with a central heating for the whole building • each dwelling provided with a management unit (thermostate and on/off) • also DHW is produced by the central heater
WHY HAVE THE MENTIONED MEASURES BEEN CARRIED OUT?	At first it was a safety measures: the most of the gas-boiler were out of norm, old and not really exiting the exhausted gas. Better conditions for the tenants, by saving the autonomy in the heating setting
PLANS	Not available at present.

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ENERGY RELATED ACTIVITIES			
Exterior components	<ul style="list-style-type: none"> insulation of the whole heated envelope new entrance doors to the apartments new windows with passiv house standard 		
Systems engineering	<ul style="list-style-type: none"> controlled room ventilation with heat recovery conventional low temperature system with flow and return pipes 		
ENERGY RELATED INDICATORS	Initial situation	After refurbishment	Reduction
Energy performance	60 kWh/m ² a	60 kWh/m ² a	0 %
Energy consumption	93 kWh/a	72 kWh/a	22.5 %
CO ₂ -emission	18.9 kg/m ² a	14.5 kg/m ² a	
Heating system			
DHW-system	single boiler per flat	centralized DHW production	
Monitoring system	no possibility to collect the consumption data	yearly consumption	
Regional energy costs	natural gas 0.6 €/m ³		
SUBSIDIES	The measure was realized with own funds from the housing association (owner of the building and in charge for the maintenance).		
STATEMENT			
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