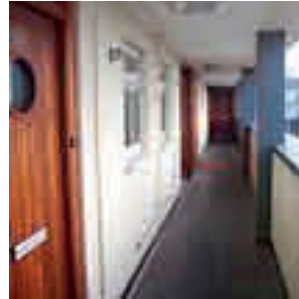




after refurbishment



before refurbishment

GENERAL INFORMATION	
Building owner	Dublin City Council
Address	Ballybough
Number of dwellings	26 before and after refurbishment
Number of floors	5
Average size of the dwellings	60.83 m ² before refurbishment 59.8 m ² after refurbishment
Total heated floor area	1581.58 m ² before and after refurbishment
Year of construction	1960's
Year of refurbishment	2001-2006
Has the refurbishment been carried out while the dwelling was occupied?	no
Has an independent quality assurance been carried out?	no
Total building costs	115,000 €
Building costs concerning energy recovery	21,241 €



INITIAL SITUATION/LOCAL CONDITION	The building was over 40 years old and the fabric of the building had deteriorated in particular the windows, roof and concrete works. The block of flats had minimal insulation and therefore problems with dampness and condensation was common.
TYPE OF REFURBISHMENT (MEASURES WHICH HAVE BEEN CARRIED OUT)	<ul style="list-style-type: none"> • High level of insulation • High efficiency gas boilers • High quality glazing
WHY HAVE THE MENTIONED MEASURES BEEN CARRIED OUT?	To reduce heat loss through building fabrics and increase the internal area of the units. To tackle fuel poverty and to reduce the developments contribution of greenhouse gas emissions.

The production of this good practice example is supported by

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PLANS



ENERGY RELATED ACTIVITIES

- | | |
|---------------------|---|
| Exterior components | <ul style="list-style-type: none"> • Mineral fibre quilt insulation giving the roof a U-value of 0.16 W/m²K • New brick outer leaf with 60mm insulation for a wall U-value of 0.27 W/m²K • Double glazing with a U-value of 2.4 W/m²K |
| Systems engineering | <ul style="list-style-type: none"> • 79 % efficiency individual unit natural gas boilers • Individual smart card payment system |

ENERGY RELATED INDICATORS

	Initial situation	After refurbishment	Reduction
Energy performance	984 kWh/m ² /yr	191 kWh/m ² /yr	80 %
Energy consumption	1556274 kWh/a	302081 kWh/a	81 %
CO ₂ -emission	345.3 kg/m ² /yr	36.9 kg/m ² /yr	308.4kg/m ² a
Heating system	Open solid fuel fire	79 % efficiency gas fired boiler	
DHW-system	None	None	
Monitoring system	None; Yearly metre reading collection. Temperature & RH logging of subset of flats.		
Regional energy costs	20,170 €		

PROMOTION

SUBSIDIES

STATEMENT

Kieran Gallagher, Deputy City Architect, Dublin City Council
 The overall objective of Dublin City Councils refurbishment programme was to demonstrate a high standard of energy-efficiency in refurbished social housing apartments within an overall integrated area plan for social, economic & environmental regeneration of the inner city. Energy Refurbishment was considered in terms of reduction of greenhouse gases, combating full poverty and preservation of housing stock. Codema secured a grant of € 500,000 for the energy efficient refurbishment of 100 Dublin City social housing flats in 2003, which facilitated higher specifications for fabric insulation, high performing windows and the installation of an efficient heating system

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