



after refurbishment

GENERAL INFORMATION	
Building owner	Dublin City Council
Address	Oliver Bond St, Dublin 8
Number of dwellings	391 before and after refurbishment
Number of floors	4
Average size of the dwellings	47.22 m <sup>2</sup> before and after refurbishment
Total heated floor area	18,463 m <sup>2</sup> before and after refurbishment
Year of construction	1936
Year of refurbishment	1995
Has the refurbishment been carried out while the dwelling was occupied?	Yes
Has an independent quality assurance been carried out?	No
Total building costs	35,770 €
Building costs concerning energy recovery	14,097 €

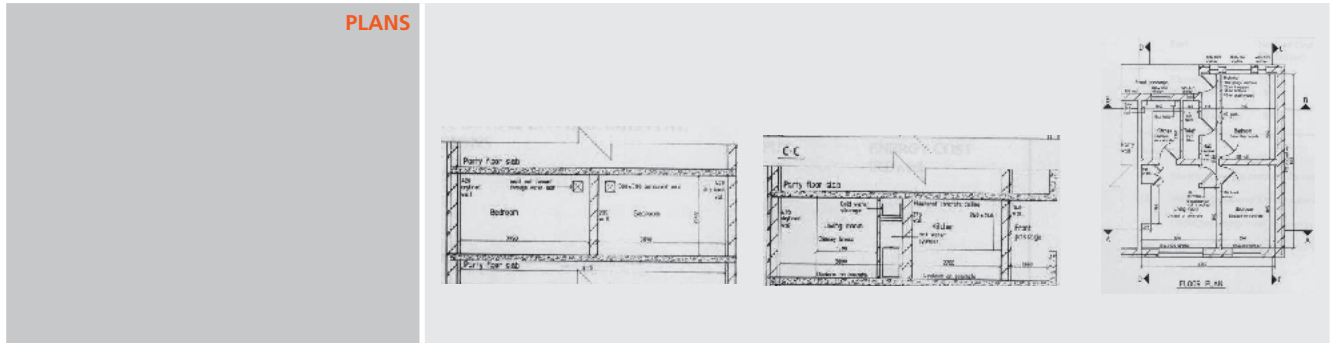


<b>INITIAL SITUATION/LOCAL CONDITION</b>	The development was built in the 1936, the construction consists of 325mm solid brick work and block walls and solid concrete floors. The windows were single glazed. The roof is pitched with interlocking concrete tiles. The units were heated by a single gas fire in the central living room
<b>TYPE OF REFURBISHMENT (MEASURES WHICH HAVE BEEN CARRIED OUT)</b>	<ul style="list-style-type: none"> <li>• Double glazed UPVC windows</li> <li>• Gas fired central heating system</li> <li>• Draft proofing and roof insulation</li> <li>• Dry lining</li> </ul>
<b>WHY HAVE THE MENTIONED MEASURES BEEN CARRIED OUT?</b>	To reduce heat loss through building fabrics , to help alleviate fuel poverty, preservation of housing stock

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<b>ENERGY RELATED ACTIVITIES</b>			
Exterior components	<ul style="list-style-type: none"> <li>• Double glazed UVPC air filled windows U-value 3</li> <li>• Internal dry lining</li> <li>• Roof insulation</li> <li>• Draft proofing</li> </ul>		
Systems engineering	79% efficient central gas fired system		
<b>ENERGY RELATED INDICATORS</b>			
	Initial situation	After refurbishment	Reduction
Energy performance	984 kWh/m <sup>2</sup> /a	234 kWh/m <sup>2</sup> /a	76 %
Energy consumption	18,167,592 kWh/a	4,320,342 kWh/a	76 %
CO <sub>2</sub> -emission	345.3 kg/m <sup>2</sup> /a	47.5 kg/m <sup>2</sup> /a	297 kg/m <sup>2</sup> a
Heating system	Single gas fire	79 % efficient gas fired central heating	
DHW-system	None	None	
Monitoring system	None		
Regional energy costs	40.65 €/m <sup>2</sup> (theoretical figure to heat comfortably entire flat with solid fuel (2008 prices)	13.1 €/m <sup>2</sup> (theoretical figure to heat comfortably entire flat with gas (2008 prices)	68 %

<b>PROMOTION</b>	
<b>SUBSIDIES</b>	None
<b>STATEMENT</b>	<p><b>Kieran Gallagher, Deputy City Architect, Dublin City Council</b></p> <p>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 &amp; 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 later 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</p>
<b>CONTACT</b>	<p>Codema Unit 50, Guinness Enterprise Centre Taylor's lane, Dublin 8 Fon: +353-1-4100-659 mailto: edel.giltenane@codema.ie</p>