



General information

Building owner	Dublin City Council
Address	Queen Street
Total heated floor area	4399m ² (after refurbishment)
Year of construction	1970
Year of refurbishment	2002

Initial situation

The building was almost 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.

Innovative financing model

The refurbishment of Ballybough wsd funded by the Department of Environment & Local Government. Codema secured additional funding for the refurbishment from the national Energy Agency, Sustainable Energy Ireland, through the House of Tomorrow Research, Development, & demonstration Programme under the Economic & Social Infrastructure Operational Programme of the National Development Plan (2000 – 2006).

The principle objective of the House of Tomorrow Programme to generate results from funded projects, which can lead to more sustainable energy practices in Irish Housing, both new build and existing stock. This includes contributing to workable, least cost solutions which can improve energy performance and reduce environmental emissions from Irish housing to help meet the technologies, products, processes, practices and policies aimed at impacting the housing market.

The programme budget is €21.1M over the period 2001-2006, with a total budget for the upgrade of existing homes of €2.5M and total available support of €5,000/unit or 50% of the additional costs for energy features and aspects.

The requirements of the project are summarised here:

- 40% reduction of energy and CO₂ emissions relative to minimum compliance with Building Regulations 2002
 - Planning & design features to include integrated site planning, energy source, landscaping & shelter, built form, design & orientation
 - Energy technology specification to include fabric elements, ventilation & air quality control, heat generation source, heating distribution & controls, sanitary water & waste facilities, building materials & electrical appliances.
- Monitoring, reporting & dissemination:

Contact

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Energy related activities

Building shape

Insulation of floor
70mm rigid insulation board on flat roof improves Uvalue from 1.94 to 0.31W/m2K

Replacement of windows improves Uvalue from 5.0 to 3.0W/m2K

Compact built form to reduce heat loss: enclosing balconies

Other activities

Highly efficient gas boiler & insulation of pipe work & storage tanks
CFC & HCFC free materials, low energy lighting

Solar system

N/A

Energy related indicators

Initial situation

After refurbishment

Reduction

Energy performance

1042.6 kWh/m²a

201 kWh/m²a

81%

Energy consumption

4,586,397 kWh/a

884,199 kWh/a

79%

CO2 - emission

365.9Kg/m²/yr

38.8 Kg/m²/yr

89%

Heating system

Open fire
(solid fuel)

Gas fired central heating

DHW - system

Individual systems

Individual systems

Monitoring system

No monitoring

1 year metre reading collection as requirement of grant
Temperature & RH logging of subset of flats as requirement of grant

Financial indicators

Energy costs

€43.07/m²/a

€11.30/m²/a

74%

Investment costs of the total refurbishment

€ 105,000

Investment costs of the energy related refurbishment

€ 19,394

Costs per saved kWh

Report of the investment costs

The refurbishment costs are not passed on to the tenant. Tenants pay rent in accordance with their income and irrespective of the condition or size of their accommodation. The main reason for this is to help alleviate the problem of fuel poverty.

The Department of the Environment scrutinises in detail all applications for funding of social housing in terms of value for money and period of payback periods.

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 fuel 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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Intelligent Energy  Europe

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