

## Introduction



The Allingham St. development consists of fourteen three-storey townhouses and six single-storey residential units in a dense urban site.

The development was commissioned by the NABCO-co-operative to provide housing for those on the city's social housing lists.

The homes were designed to improve on current building regulation targets by 20%.

The architect won the special mention in the 1997 Architectural Association of Ireland Award.

### Clients / Utility

*National Association of Building Co-operatives, Dublin*

### Architects

*Gerry Cahill Architects Dublin Ireland*

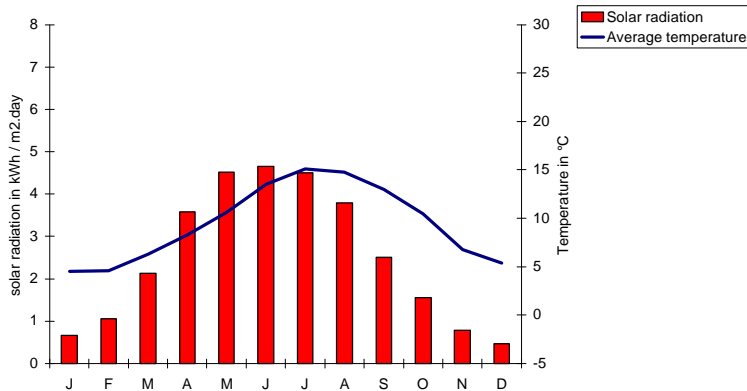
### Consultant

*Energy research Group UCD Dublin  
www.ucd.ie*

## Regional and Urban Context



Development Allingham street (Sráid Allingham in Irish) is located in the centre of Dublin, within easy reach of public transport. Comfort and brightness have been high priorities in the design. Surveys show user satisfaction with the homes.



### Climate

Type of climate	<i>temperate</i>
Altitude (m)	31
Latitude	53°26' N
Longitude	6°15' W
Average ambient temp	
January	4.5°C
July	15.1°C
Degree days (base 18°C)	2,272
Global irradiation (kWh/m <sup>2</sup> )	920
Sunshine hours (h/day)	4.1



## Block and Building



Passive solar design with living spaces to the south and service space to the north. Direct gain from south facing fenestration is used as preheating for ventilation air. Higher than normal levels of envelope insulation and low emissivity double glazed wooden windows were specified throughout. The heating system uses a gas fired condensing boiler coupled to radiator controlled by thermostatic valves. Night spaces and day spaces are zoned separately for higher efficiencies. An additional solid fuel stove reduces ventilation heat loss, which is increasing comfort.

Project Data	Project case		Reference case	
Renovation Construction costs (€)	1998			
<b>Urban plan</b> Area (ha) Floor Area (m <sup>2</sup> gross floor area) Floor Area Ratio (m <sup>2</sup> gross floor area)	±34 85 2.5			
<b>Transport</b> Distance to car park Distance to public transport Frequency of public transport Bicycle storage Telecommunication				
<b>Waste separation</b> Construction and demolition waste Household waste Design for deconstruction	no no no			
<b>Building Materials</b> Construction Facades Roof Window frames Internal walls Recycled materials	concrete brick and plaster blockwork tiles timber blockwork, low emissivity finishing No			
<b>Insulation</b> Ground floor area (m <sup>2</sup> /bldg) Roof area (m <sup>2</sup> /bldg) External wall area (m <sup>2</sup> /bldg) Window area total (m <sup>2</sup> /bldg) South (m <sup>2</sup> /bldg)	<b>Area (m<sup>2</sup>)</b>	<b>U-value (W/m<sup>2</sup>K)</b> 0.23 0.32 1.8	<b>area (m<sup>2</sup>)</b>	<b>U-value (W/m<sup>2</sup>K)</b>
<b>Ventilation system</b> Infiltration Exhaust Heat recovery Air exchange rate, heating season	passive passive 0.8		1	
<b>Back-up systems</b> Space heating Domestic hot water Cooling Electricity production Ventilation	<b>system</b> combustion condensing boiler no city grid	<b>energy source</b> natural gas gas	<b>system</b> combustion conventional boiler No	<b>energy source</b> natural gas
<b>Energy data</b> Space heating Space cooling Domestic hot water Electricity (total) Lighting Fans + pumps Small power	<b>(kWh/m<sup>2</sup>)</b> 52%		<b>(kWh/m<sup>2</sup>)</b> 100%	
<b>Solar systems</b> Passive Active PV				
<b>Water</b> Supply Toilet system (4, 6, 9 litres) Shower Bath Sewage Rainwater collection Grey water system	no no			