

LZ CARBON PROFILE

Profile: 010
June 2009



Southdale Homes Hill Top Point

Level 3 Code for Sustainable Homes

CO2 emissions: **At least 25% reduction over Part L2006**

Developer: **Southdale Homes**

Architect: **Nicol Thomas**

Completed: **July 2008**

Location: **Worsley, Manchester**



Hill Top Point, developed by Southdale Homes for Irwell Valley Housing Association, provides four 2-bedroom and two 3-bedroom houses for shared ownership. The properties are of timber frame construction with a brick exterior to give a traditional appearance, in keeping with the local character.

The cost of the six Southdale homes was kept low, with prices at £110,000 for a 2-bedroom house and £125,000 for the 3-bedroom houses. The higher thermal performance of the building envelope combined with the use of a solar thermal panel will reduce carbon emissions and running costs, compared to a house built to current Building Regulations.



Low carbon approach

Fabric Moderately well insulated walls, a very high level of insulation in the roof and a reasonable airtightness performance reduces heat losses through the building envelope significantly.

Heat and power generation A solar thermal array provides the majority of hot water to each home, backed up by a condensing gas boiler. Space heating is provided by conventional gas central heating while electrical power is from the grid.

Outline energy strategy

The design involves improving building fabric performance and shows how, with a solar thermal array, significant reduction (>25%) in carbon emissions compared to 2006 Part L levels is achievable.

Envelope

Walls $U = 0.20 \text{ W/m}^2\text{K}$

Factory-fitted insulation between studs of timber closed panel (150mm thick).

Roof $U = 0.10 \text{ W/m}^2\text{K}$

400mm of layered glass quilt insulation in the roof in layers, with the first layer between the joists, the second at 90 degrees to the first, and the third layer at 90 degrees to the second.

Windows $U = 1.60 \text{ W/m}^2\text{K}$

Windows are uPVC with double glazing units incorporating a 20mm air gap and low 'e' glass.

Airtightness 6.5 to 6.8 $\text{m}^3/\text{m}^2/\text{hr}$ at 50 Pa

Low carbon heat and power

Solar Thermal Array 4 m^2 per home

Flat plate Viridian Solar water heating system which incorporates a condensing boiler in the kitchen and a cylinder in the roof space.

Contacts

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Acknowledgement

This LZ Carbon Profile has been prepared for the Zero Carbon Hub by BRE.

Low energy alignment with the Code for Sustainable Homes (Post Construction Stage – for 3-bedroom variant)

Energy Issue	Credits awarded
ENE 1 Dwelling Emission Rate	5 of 15
ENE 2 Building Fabric Heat loss parameter of <1.30	1 of 2
ENE 3 Internal Lighting 100% of fixed fittings are dedicated and energy efficient	2 of 2
ENE 4 Drying Space Rotary dryer in garden and secured by fence and gate	1 of 1
ENE 5 Energy Labelled White Goods B rated washer dryer and A+ rated fridge freezer	1 of 2
ENE 6 External Lighting Space light fittings are dedicated and energy efficient, and security lighting not supplied so credit awarded by default	2 of 2
ENE 7 Low or Zero Carbon Technologies Credit not sought	0 of 2
ENE 8 Cycle Storage Bicycle sheds are water-proofed, of adequate size and readily accessible, with fixings set into the ground for security	2 of 2
ENE 9 Home Office Bedroom provided with desk, operable windows for ventilation and daylighting, power sockets and telephone sockets for internet connectivity.	1 of 1

Total 15 credits*

* out of a maximum of 29 credits for the Energy Category

Construction type

Foundation: Strip footings with mass fill concrete

Walls: Timber frame closed panel with brick cladding

Floors: Pre-cast beam and block system

Roof: Trussed rafters and concrete tiles

Learning from Southdale Homes Hill Top Point

Affordability Moderate reductions in carbon emissions can be achieved in a cost-effective manner by simply improving the building fabric and adding a single microgeneration energy source