

## Case study 6

## Okement Drive, Walsall

## Archetype

Medium rise flats  
(non-traditional construction)

## Landlord

Wolverhampton Homes



## Description

The Okement Road estate consists of clusters of flats and maisonettes, as well as a number of high rise blocks. The flats are arranged in blocks of 12 units. Each has two bedrooms and has a typical floor area of 70 m<sup>2</sup>.

The flats looked at by this study were constructed using the Wimpey 'no fines' system (as described in BRE report 153), with solid external and load bearing walls of in-situ concrete. Roofs are flat with asphalt waterproofing.

The nature of the construction system has meant there have been problems with damp, which have been addressed by the installation of mechanical ventilation and window trickle vents.

The original warm air heating system have been replaced with modern gas condensing boilers supplying wet space heating.

## Improvements to date

uPVC windows, 2001

Gas boiler and wet space heating system, 2007

Kitchens, bathrooms and rewiring, 2008

## Schedule improvements

None presently scheduled

## Performance analysis

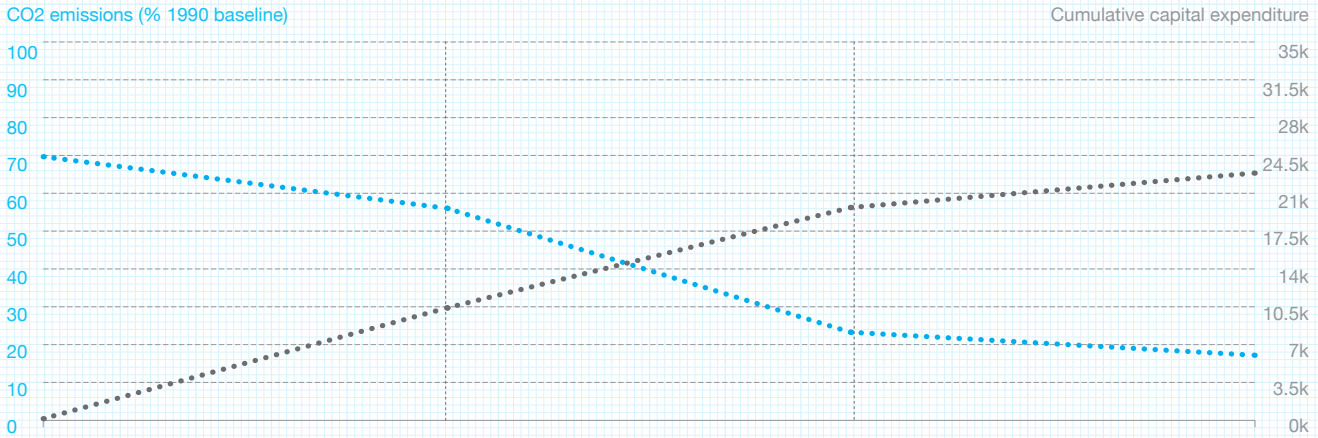
Capital cost	£22,602.33
by floor area	£313.92/m <sup>2</sup>

Performance metrics	1990	2009	2025
SAP rating	51 (E)	76 (C)	86 (B)
Fuel cost	£571.79	£346.01	£194.74
CO <sub>2</sub> emissions	6.6	4.6	1.1
% reduction	- 0%	-31%	-83%

Fabric U-Values	Baseline 1990		As of 2009		Target 2025	
	U Value W/m <sup>2</sup> K	Heat loss W/m	U Value W/m <sup>2</sup> K	Heat loss W/m	U Value W/m <sup>2</sup> K	Heat loss W/m
Windows	4.0	33.9	2.4	19.9	0.7	5.9
Doors	3.0	5.7	3.0	5.7	1.2	2.3
Floor	2.5	155.1	2.5	155.1	0.2	14.3
Walls	1.4	9.7	6.8	46.4	0.4	2.4
Roof	2.0	144.0	0.4	25.2	0.15	10.7

Energy and CO <sub>2</sub> emissions	kWh	CO <sub>2</sub> (tonnes)	kWh	CO <sub>2</sub> (tonnes)	kWh	CO <sub>2</sub> (tonnes)
Space heating	26,365	5.1	16,715	3.2	2,406	0.5
Hot water	3,699	0.7	2,956	0.6	887	0.2
Electricity	1,889	0.8	1,858	0.8	1,109	0.5

### Timeline for future investment



	Phase 1 (2010 - 2015)	Phase 2 (2016 - 2020)	Phase 3 (2021 - 2025)
<b>1. Fabric performance</b>	<b>Roof:</b> Installation of external roof insulation (to 200mm);	<b>Walls:</b> Overcladding of external walls with rendered external insulation system (150mm); <b>Windows:</b> Replacement of existing frames and glazing with high performance triple glazed units;	<b>Floors:</b> Installation of insulated timber flooring (10mm insulation, 25mm overall) over existing concrete ground floor;
<b>2. Fit out</b>	<b>Lighting:</b> Switchover to compact fluorescent (subject to tenant agreement);		<b>Water fittings:</b> Replacement spray taps and/or flow restrictors, low flow shower heads as part of kitchen/bathroom works;
<b>3. Energy supply</b>	<b>Communal solar thermal:</b> Evacuated tube and/or high performance flat plate collectors supplying communal hot water accumulator tank, located within a dedicated outhouse, supplying heat via insulated heat distribution mains and risers;		<b>Gas or biomass-fired CHP:</b> Installation of gas fired CHP linked to the neighbouring hospital supplying heat to the wider estate and neighbouring community buildings via a district heating network;
<b>4. Monitoring</b>		<b>Heat metering:</b> Remotely read heat and power metering to bill for district and solar heat, and provide household access to energy use data; <b>Internal heating systems:</b> Fitting of thermostatic controls and timers for each heating zone in each home;	