

## Case study 1

## Perry Street, Darlaston

## Archetype

Pre-1945 terrace

## Landlord

Accord Housing Group



## Description

The Perry Street terraces form part of three streets of 51 properties which were built between 1900 and 1910. Units are typically two bedroom and a typical floor area of 110 m<sup>2</sup>. The construction is traditional masonry with solid walls. Floors are suspended timber with air brick ventilation.

Gas central heating, dry lining and loft insulation were installed in 1985. It is possible that the dry lining may not have been adequately ventilated. Air bricks have been added to ventilate the suspended timber ground floors. The windows and front doors were replaced in 2004. The windows and rear doors are uPVC units. The windows have relatively narrow reveals of 12mm.

Whilst the external appearance of the streetscape has no formal heritage status it is unlikely that external changes to its appearance onto the street would be accepted. The externals feature a range of window and door features, as well as guttering, and the eaves are relatively shallow in depth.

## Improvements to date

Dry lining, re-roofing (including loft insulation) and gas central heating, 1985

uPVC double glazing (without coating or gas fill) and doors, 2004

Top-up loft insulation to 150mm in total, 2004

## Schedule improvements

Kitchens, 2011/12 (subject to budget)

## Performance analysis

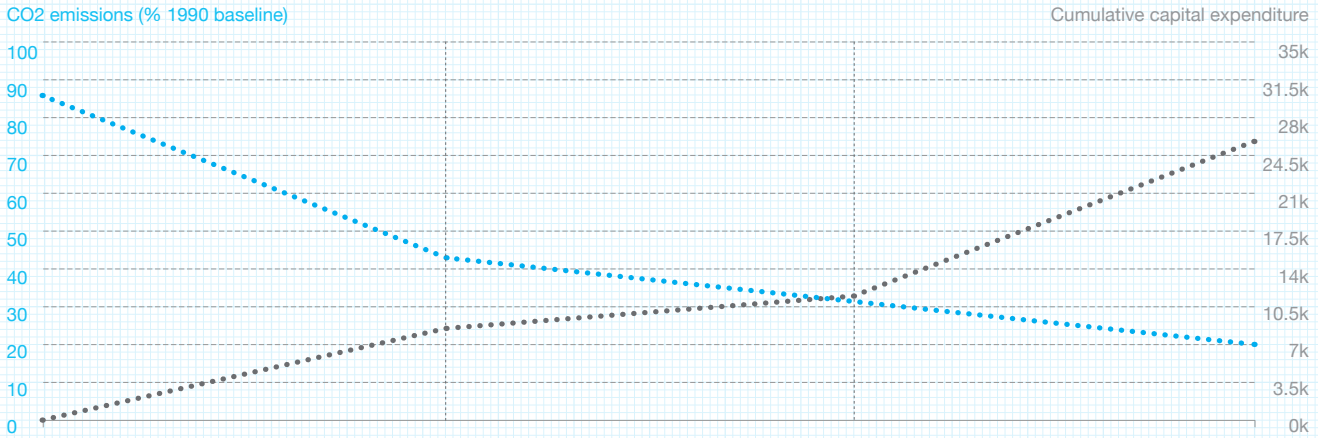
Capital cost	£25,717.68
by floor area	£233.80/m <sup>2</sup>

Performance metrics	1990	2009	2025
SAP rating	64 (D)	69 (C)	86 (B)
Fuel cost	£631.50	£588.59	£273.13
CO <sub>2</sub> emissions	5.8	5.0	1.2
% reduction	- 0%	-14%	-80%

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	53.6	2.5	33.5	1.2	16.0
Doors	3.5	5.5	2.9	4.6	1.2	1.9
Floor	0.7	40.6	0.7	40.6	0.2	9.5
Walls (front)	0.7	13.5	0.7	13.5	0.7	13.5
Walls (rear)	0.7	20.2	0.7	20.2	0.2	5.6
Roof	0.4	19.6	0.35	17.7	0.1	5.1

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	18,772	3.6	14,012	2.7	4,006	0.2
Hot water	3,719	0.7	3,719	0.7	1,389	0.0
Electricity	3,321	1.4	3,385	1.5	2,124	0.9

## Timeline for future investment



	Phase 1 (2010 - 2015)	Phase 2 (2016 - 2020)	Phase 3 (2021 - 2030)
1. Fabric performance	<p><b>Roof:</b> Top-up existing insulation (to 350mm);</p>	<p><b>Walls:</b> Overcladding of back walls and gable walls of properties with a rendered external insulation system;</p>	<p><b>Glazing:</b> Replacement of existing glazing units with high performance double glazing units;</p> <p><b>Floors:</b> Insertion of insulation bats (200mm) between rafters of suspended timber floor;</p> <p><b>Doors:</b> Solid timber panel insulated doors;</p>
2. Fit out	<p><b>Water fittings:</b> Replacement of all tap fittings with spray taps and/or flow restrictors, and the fitting of low flow shower heads;</p> <p><b>Appliances:</b> Provision of new A+ rated washing machines and fridge/freezers as part of kitchen refurbishment (subject to tenant agreement);</p> <p><b>Lighting:</b> Switchover of all light bulbs to low energy compact fluorescent (subject to tenant agreement);</p>		
3. Energy supply	<p><b>Biomass heating:</b> Installation of one communal biomass boiler (sized to phase 2 load), one backup gas condensing boiler and hot water accumulator tank to serve 51 properties and the Innovation Centre;</p> <p><b>District Heating network:</b> Installation of a flow and return network to supply all properties with heat from the energy centre (see above);</p>		<p><b>Solar thermal:</b> Installation of evacuated tube and/or high performance flat plate collector, supplementing primary heating system;</p>
4. Monitoring	<p><b>Heat metering:</b> Fitting of remotely read heat and power metering for the purpose of billing for district and solar heat, and with household access to energy use data;</p>		<p><b>Internal heating systems:</b> Fitting of thermostatic controls and timers for each heating zone in each home;</p>