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## Printworks

EcoHomes Very Good

Developer: **First Base**  
Architect: **Glen Howells Architects**  
Contractor: **Laing O'Rourke**  
Completion: **August 2010**  
Location: **Elephant and Castle, London**

# LZ CARBON PROFILE

Profile: 027  
January 2011



Printworks is contributing to the redevelopment of the Elephant and Castle regeneration area and is part of a major initiative supported by DCLG, GLA and HCA to increase the supply of affordable homes in London. The project seeks to be as sustainable as possible and to offer a low carbon solution which meets local targets for renewable energy. It provides a mix of private, affordable key worker and social-rent homes. Altogether there are 168 apartments:

1 bedroom: 68 units – average floor area 57m<sup>2</sup>  
2 bedroom: 76 units – average floor area 67m<sup>2</sup>  
3 bedroom: 20 units – average floor area 87m<sup>2</sup>.

## Low carbon approach

**Fabric** The four interconnected buildings have been built with a high performance envelope, using a prefabricated unitised façade system.

**Heat and power generation** A modular central gas boiler system supplies low temperature hot water for space heating and hot water. The heating system is designed to allow future connection with the Southwark MUSCo district heating scheme, which will further reduce carbon emissions and the cost of heating for residents.

The roof has six PV (photovoltaic) arrays which provide a proportion of the power used in the development (mostly for lighting in the common areas). The PV array ensures that at least 10% of energy used is from on-site renewables. The scheme benefits from a Feed in Tariff on any energy fed back to the grid.

## Outline energy strategy

The design reduces energy demand by improving building fabric performance, and use of energy efficient lighting. A modular, centralised low NOx gas-fired boiler supplies hot water for space and water heating. PV panels supply some electric power.

## Envelope

**Walls** U = 0.25 W/m<sup>2</sup>K

70mm of Kingspan Thermawell TW55 in cladding panel plus 50-65mm additional insulation to internal lining as required.

**Roof** U = 0.25 W/m<sup>2</sup>K

150mm of Kingspan Insulation.

**Windows** U = 1.25 W/m<sup>2</sup>K

High performance argon filled double glazing.

**Ground Floor** U = 0.25 W/m<sup>2</sup>K

Insulated suspended concrete slab with commercial tenancy below.

## Airtightness

< 7.0 m<sup>3</sup>/m<sup>2</sup>/hr at 50 Pa

Use of unitised facade system enabled sufficient air tightness to exceed the minimum requirements.

## Low carbon heat and power

**Modular Gas Boiler** 500 kW

A series of 3 (500 kW) modular natural-gas condensing boilers.

**Photovoltaic Panels** 35.64 kW

A total of 198 (180 W) PV panels are distributed across the roof in six arrays. These assist in the delivery of an estimated annual CO<sub>2</sub> emissions reduction of 17,000 kg for the development.



## Low energy alignment with Ecohomes 2006 (design)

Energy Issue	Credits awarded
<b>ENE 1 CO2 Emissions</b> 15.99 kg/m <sup>2</sup> /yr	<b>10 of 15</b>
<b>ENE 2 Building Fabric</b> Heat Loss parameter = 0.99 W/m <sup>2</sup>	<b>2 of 2</b>
<b>ENE 3 Drying Space</b> Credit not sought	<b>0 of 1</b>
<b>ENE 4 Eco-labelled Goods</b> Some apartments fitted with A rated appliances others provided with information on purchasing eco-labelled appliances	<b>1 of 2</b>
<b>ENE 5 Internal lighting</b> 75% of fixed internal light fittings are dedicated energy-efficient fittings	<b>2 of 2</b>
<b>ENE 6 External Lighting</b> Energy efficient external lighting with suitable controls	<b>2 of 2</b>

**Total 17 credits\***

\* out of a maximum of 24 credits for the Energy Category

## Construction type

**Foundation:** Concrete Piles

**Structure:** In-situ post-tensioned concrete frame

**Ground Floor:** In-situ post-tensioned concrete slab over basement

**Walls:** Unitised façade and dry lining inter-tenancy walls

**Roof:** In-situ post-tensioned concrete inverted flat roof

## Learning from Printworks

**Southwark MUSCo connection** The ability to connect into future local energy infrastructure will mean that Printworks is capable of taking advantage of future benefits of carbon reduction obtained from the local heating network.

The key challenge is ensuring the central plant system usage is measurable and manageable on day one as well as sufficiently flexible to enable future services connections and billing structure to be implemented.

## Contacts

**Design:** First Base

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