



Project: 31 Berkeley Crescent – The Barnet Eco House

Category: Low Carbon Retrofit

Client: Barnet Homes

Challenge

Barnet Homes is committed to providing good quality housing that meets the needs of its tenants and responds to the environmental challenges of climate change mitigation and adaptation. With over 11,000 properties to manage, many of which can be classified as hard to treat in terms of improving energy efficiency, presents a significant refurbishment challenge. In order to better understand these challenges and develop appropriate solutions Barnet Homes wanted to undertake a sustainable low energy refurbishment of a typical unit of their housing stock that would demonstrate how cost effective refurbishment can have a significant impact on carbon emission and energy costs, benefiting both the environment and future tenants.

Approach

Energy Solutions took a ‘Whole House’ approach, working closely with members of Barnet Homes project team and the building contractors Apollo Housing to ensure we designed a refurbishment plan that achieved significant environmental improvements but was also cost effective and replicable. Our holistic approach ensured we identified local suppliers, environmentally sensitive products and efficient technologies.



The energy performance improvements included internal solid wall insulation; roof insulation using sheep’s wool ; an energy efficient A rated boiler and boiler energy manager, solar thermal hot water; ‘A’ rated white goods; low energy lighting, natural lighting via sun pipes and light reflecting paints. The wider sustainability features included water metering, water saving devices & rainwater harvesting ; a sustainable urban drainage system; purpose built recycling facilities, a wormery and secure bicycle storage. To compliment all the improvements to the house and ensure tenants and the environment would get the maximum benefit we produced a tenant’s handbook, which explained all the sustainability features and how best to use them.



Results

The finished eco house cut its carbon emission by 53% and predicted running costs are expected to be reduced by 64%. The eco house became an exemplar for sustainable refurbishment in the local area and was opened up to the public for a period to showcase its features and enable people to see first hand the type of improvements they could undertake to make their homes greener and reduce running costs.

Prior to renovation (normal building)		After renovation	
<p><i>External walls:</i> Solid Brick – uninsulated</p> <p><i>Roof:</i> Pitched and tiled with average 50mm fibreglass insulation</p> <p><i>Floor:</i> Part Solid Part Suspended Timber - uninsulated</p> <p><i>Doors & Windows:</i> PVC double glazed windows</p>		<p><i>External walls:</i> Solid Brick – Internally insulated with 65mm of phenolic foam board</p> <p><i>Roof:</i> Pitched and tiled with 300mm sheep's wool insulation</p> <p><i>Floor:</i> Part Solid Part Suspended Timber – 100mm sheep's wool insulation suspended timber area</p> <p><i>Doors & Windows:</i> no change - deemed not cost effective</p> <p>'A' rated gas condensing boiler</p> <p>4m² Solar thermal hot water (east/west orientation) SUDs system on front drive/garden area</p>	
<p>SAP 54</p> <p>Space heating: 20913 kWh/y</p> <p>Water heating: 3618 kWh/y</p> <p>Total: 24531 kWh/y</p>		<p>SAP 82</p> <p>Space heating: 7064 kWh/y</p> <p>Water heating: 2205 kWh/y</p> <p>Total: 9268 kWh/y</p>	
<p>Annual cost @ gas tariff rate 3.5p/kWh £858.59</p>		<p>Annual cost @ gas tariff rate 3.5p/kWh £324.38</p>	

t: 0800 169 5693

e: enquiries@energysolutions.org.uk

w: www.energysolutionsconsultancy.co.uk

