

## Short Case Study for 8 Oakfield St.

1880's mid terrace, 3 bedrooms, small garden, 1 occupant

Total Floor area: 130 Sq metres. Energy Efficiency Rating 87, band B.

**Annual Energy Costs: £640. Feed-in-Tariff income £523.**

**Late Victorian** solid wall construction with slate roof, width is 5m x 14.2m max length. The front of house is rendered, the rear is red brick with breathable lime mortar. Interior consists of suspended wooden floors, walls are lime plastered with decorative mouldings and picture rails. There was one toilet and one bathroom upstairs with a narrow kitchen in the traditional back extension. Rear patio 2.4m deep with steps up to a 5mx5m garden.

**Key features: Double-glazed original wooden sash windows, high levels of roof insulation, whole house under floor insulated, solid wall internal insulation to back extension, whole house Positive Input Ventilation, LED & low energy lighting, Solar PhotoVoltaic panels added in Nov2013 with Immersun to take excess generated electricity to heat hot water in 250L heat store tank. Solar gain lean-to, rainwater collection in numerous water butts, wormery, Warré hive bees and productive multi-layered vegetable and fruit garden which was a Cheltenham-in-Bloom award winner.**

**Recent additions** include 13 solar photovoltaic panels on the two rear roofs rated at 3.25kW Peak with an anticipated annual production of 2,665kW hours. We also added a glass-laminated lean-to which reduces further possible winter heat loss from the back door, window and wall. The lean-to allows seedlings to be 'brought-on' for early season planting and then ripen tomatoes and cucumbers during the summer. It also houses the household recycling boxes and 5x100L inline water butts, collecting and storing rainwater for garden watering.



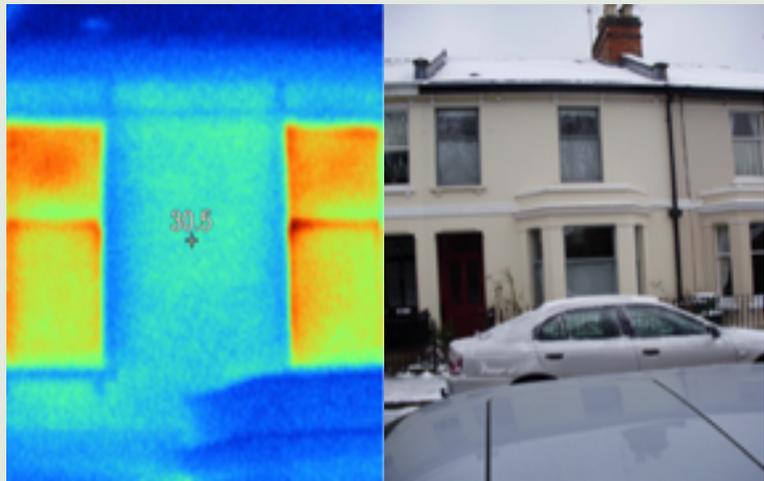
**The garden** is designed for vegetable & fruit growing while attracting pollinators, has a water feature and an eclectic mix of pots & hanging baskets. The main veg & salad growing is in 4 identically sized raised beds and this year I have incorporated the Square Meter method. Organic methods are employed with the aim of producing nutritious food while taking care of the soil and environment. The pots and hanging baskets grow a range of companion plants, insect attracting flowers, bush tomatoes and other shallow routing crops.



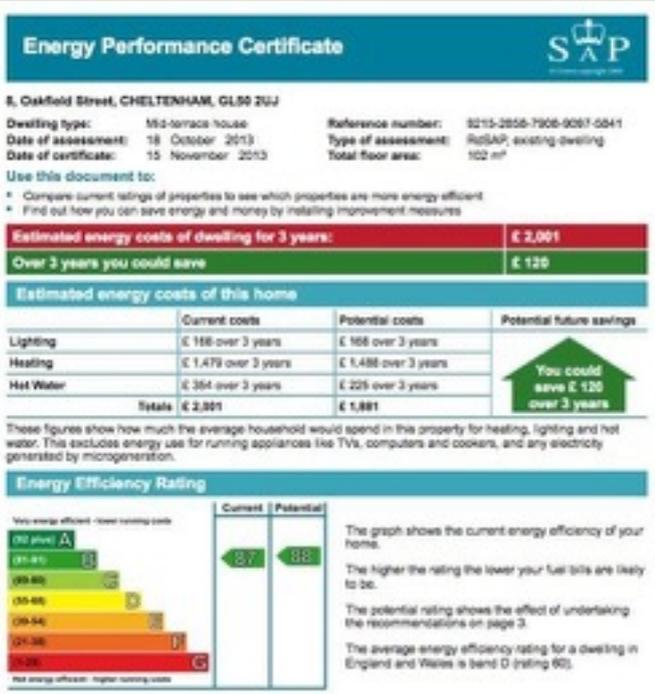
**Inside the house:** The average whole house temperature from 1st October to 31st March 24/7 was 20C, boosted some evenings to 21C, the Positive Input Ventilation system was running 24/7.

**Example 1:** Night time temperature drop through rear internally insulated wall was only 2C. As measured by 2 digital thermometers -20C inside and -5C outside.

**Example 2:** With a room temperature of 20C and -3C outside the temperature on the inside of the double glazed window was 16.6C as measured with infrared camera. Thus a 23C temperature difference between inside and outside resulted in only a 3.4C loss at the window. Snow on roof melts slowest compared to other houses.



**Heating & Cooking Equipment:** Vokera Mynute 35HE gas boiler for central heating and winter water top up with a OSO indirect 250L Heat Store Tank with 3KW immersion coil. All cooker is done on an electric hob or in the electric double oven. 2-3 loaves of bread are baked every week. All appliances are A or A+ rated.



**Life style changes:** The washing machine, dishwasher (used more often), all electrical appliances that need charging are only on when the solar panels are generating electricity. The gas boiler is not used at all to heat water between March and October now I have the Immersun, thus zero cost. Bread is baked during the day.

From the garden fresh high value salad veg can be picked from late spring to early autumn, as can alpine strawberries, blueberries, chuckleberries and blackcurrants. Wonderful tasting carrots, beetroots, peas, broad and french beans along with leaf & tree spinach have been a delight. The bees only arrived in June 2014 yet seem to be very happy and interestingly I have noticed more wildlife in the garden since their arrival.

For more information about Cheltenham Green Doors visit [www.cheltenhamgreendoors.org.uk](http://www.cheltenhamgreendoors.org.uk)

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