

# Downsbrook Middle School

## Dominion Rd, Worthing BN14 8GD



### Features

|                                  |
|----------------------------------|
| Double glazing                   |
| Food growing                     |
| Ground floor insulation          |
| Heating controls,                |
| Loft insulation                  |
| Low energy appliances            |
| Low energy lighting              |
| Low water goods                  |
| Mechanical ventilation           |
| Rainwater harvesting             |
| Solar PV                         |
| Solid wall insulation (internal) |
| Solid wall insulation (external) |
| Underfloor heating               |
| Sedum Roof                       |

### Introduction and approach

Eco issues and sustainable development are high on Downsbrook School's priorities. Not only has the school made significant reductions on utility bills and in CO2 emissions, but the students' raised awareness of eco matters has also carried into their homes and communities. The school has been a part of the Eco Young and Engaged (EYE) project since its inception and received its third prestigious Eco Schools Green Flag award in 2013.

The original buildings date from 1930's, with additions in the 1950's and 1980's. As far as possible, the school has made adaptations, such as the installation of heating controls, to make these buildings more energy efficient.

A new wing of five classrooms, ICT suite, food technology suite and music room was added in 2013/14 and demonstrates the school's commitment to high levels of sustainable design. Walls and roof are insulated to such a level that mechanical ventilation is used to recover heat. Other features include



underfloor heating, a sedum roof and lights that are sensitive to the ambient lighting level.

These measures to reduce the school's total energy consumption are now allied to a large solar photo-voltaic system, which is generating significant levels of renewable energy.

The Headteacher, Eco-Leader and students will conduct guided tours to present not only the measures to improve the energy efficiency of the buildings, but also the wide range of activities that contribute to the school's sustainability credentials. These include educational campaigns such as 'Switched Off Fortnight' and Earth Hour; reducing litter; saving water; green transport and a project to make eco-bricks from recycled paper. The general environment and biodiversity of the school grounds has been further improved by creating herb and vegetable gardens, with composting area and bottle greenhouse.

### Energy and CO2 performance

The school's Display Energy Certificate shows a steady reduction in energy consumption. By 2012 energy use had been reduced to 54% of the consumption of comparable buildings. Smart meters have been installed recently.

The school's solar PV system saves on average over 1 tonne of CO2 emissions per month. To date 42.84MWh of electricity has been generated, saving an estimated 22.5 tonnes of CO2 emissions.

## Energy efficiency measures

### Heating and hot water

The school has installed new, more efficient gas condensing boilers along with heating controls such as TRVs on all radiators. The reduction in energy usage is evident from the school's monitoring of gas and electricity usage.

### Insulation

The new build includes a sedum roof and thermal panels on all external walls to reduce heat loss. As well as providing insulation, the sedum roof stores water, reduces CO<sub>2</sub> omissions, reduces surface rainwater and increases biodiversity. It requires minimal maintenance: some weeding. All single glazing has been replaced with double glazing

### Renewables and low carbon technology

A solar PV system rated at 29.5KwP was installed in the summer of 2013. The system took less than three months from commissioning to installation. The capital cost of £37,000 was financed through a 7-year interest free loan from West Sussex County Council. It is estimated that the system will repay the cost through the Feed-in-Tariff and savings on mains electricity in around 9 years. The life expectancy of the system is in excess of 25 years. It is scarcely visible from ground level, the panels require minimal maintenance.

### Electricity

The characters; Mr Green, Mrs Green and Baby Green are used to remind everybody of the need to turn off unused electrical appliances and to shut doors and windows. 'Switched Off Fortnight' achieved a reduction of around 20% in the use of unused appliances.

Motion sensor lighting has been installed in refurbished cloak rooms. The new build has lights that are sensitive to the ambient lighting level.

### Water

The main water pipe from the road to the office has been re-laid to remove a significant long-term leak. Water saving devices for cisterns and taps have been installed in washrooms, such as movement sensitive taps. Students are made aware of saving water and the need to report water leaks. It is estimated than water use might be reduced by as much as one third.

### Recycling

The school has facilities for recycling paper, plastic, ink and batteries

## Professionals

**Solar PV:** Southern Solar  
[www.southernsolar.co.uk](http://www.southernsolar.co.uk)

