

Case study A shining example of sustainability

Howbery Park, Wallingford
Completed 2005



Developers
HR Wallingford Ltd
Environment Agency

Benefits
Solar panels generate electricity; solar thermal panels provide hot water; rainwater harvested for flushing toilets; permeable paving reduces run-off.

Site background

The owners of Red Kite House – HR Wallingford Ltd – obtained planning permission to redevelop part of Howbery Park as a business science park. We were able to influence the design of the building as we favoured using Red Kite House as our new office.

From the very start of the design process we worked closely with HR Wallingford and their team of architects, designers and engineers. It was agreed that an office would be constructed that would not only meet our operational needs but would also serve as an example of good practice in sustainable office development.

The scheme

The features of Red Kite House include:

Natural cooling and ventilation

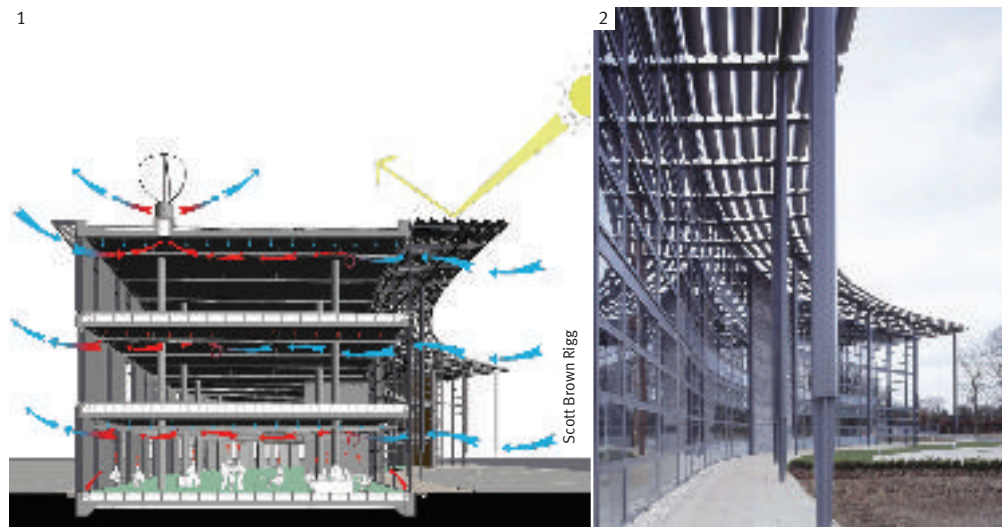
- the building captures the wind through its curved shape and its orientation. This maximises the airflow through the building and supports the cooling processes;
- high-level exposed concrete ceilings on each floor act as a heat sink during the day. They are cooled by air entering through 100 motorised windows on each floor (which open and close automatically); →

1. Red Kite House is an award-winning sustainable building. The basic building achieves the BREEAM 'excellent' rating. Since opening it has been awarded 'Best bespoke office development outside central London, 2005' (Industrial Agents Society/Office Agents Society).



1. A key consideration in the design was the orientation of the building. It was designed so that the air circulates through the building naturally.

2. The south-facing canopy provides shading to the front of the building, especially to the top floor.



- roof-mounted turbines draw air in through the top floor windows to reduce overheating in the summer;
- neutral solar control glass minimises solar heat gain in the summer whilst maximising natural daylight;
- the south-facing canopy provides shading, especially to the top floor.

Energy efficiency

- photo-voltaic cells on the south-facing canopy generate electricity. They reduce the building's carbon dioxide emissions by about 12 tonnes per year;
- solar thermal panels installed on the roof provide hot water and will further reduce carbon dioxide emissions by 1.6 tonnes per year.

Water and drainage

- a rainwater harvesting system collects rainwater from the roof. The water is held below ground in an 8,000-litre tank before being pumped through filters and used to flush the toilets. Tank overspill is directed into a nearby reed bed;
- pervious blocks in the car park allow rainwater to soak into the ground. There is a geotextile membrane here to trap any oils or other pollutants.

Red Kite House has demonstrated that for very small increases in the base-build costs, important contributions can be made to reducing carbon emissions and the pressure on limited natural resources.