

CASE STUDY 12

A large building... with a small footprint on the environment

Who: Heathrow Airport

Where: United Kingdom

What: Terminal 5 (T5)

When: 2008

Why: Sustainable development at the biggest and most complicated building site in Europe

Project

BAA's current major construction project – the biggest single construction project in Europe – is Terminal 5 at Heathrow. At a cost of over £4 billion, T5 represents a huge programme of construction works. Using traditional materials and construction techniques can have a significant environmental impact. BAA has sought to lead the UK construction industry in the use of sustainable construction materials:

- HCFCs and HFCs have been almost completely eliminated from the T5 project.
- Only timber that has been approved by the Forestry Stewardship Council (FSC) has been used by BAA, ensuring it's been sourced from a sustainable supply.
- Over 300,000 tonnes of aggregate was processed and recycled on site from demolition materials and waste concrete.
- Crushed green glass from domestic household recycling banks was used as a base for T5 site roads.
- Around 6.5 million cubic metres of earth was moved during the project. This earth has been used to backfill excavations and landscape the terminal.
- Waste materials were segregated on site and 85% of the waste from the project has been recycled.

Reducing emissions and water usage

Heating, cooling and powering airport terminals all require energy that contributes to CO₂ emissions. BAA is on target to reduce its own CO₂ emissions from energy by 15% below 1990 levels by 2010. This is in excess of the UK's targets under the Kyoto treaty and despite a predicted growth in passenger numbers of 70% during this period.

Water for non-potable use at T5 is sourced from a rainwater harvesting scheme and groundwater boreholes, reducing the demand on the public water supply by 70%. The rainwater harvesting system reuses 85% of all the rainwater that falls on T5. All toilets, taps and showers are water-efficient.

Recycling waste and turning waste into energy

BAA has a target of recycling or composting 40% of its waste by 2010 and 70% of its waste by 2020. They also aim to send zero waste to landfill by 2020. From 2008 waste that currently goes to landfill will go to an energy generating waste incineration plant. BAA is also investigating turning its non-recyclable waste into energy through an on-site anaerobic digestion plant.

Heathrow will be one of the first sites in Britain to trial generating zero-carbon energy from waste heat. The new technology will convert waste heat from Heathrow's existing boilers into zero-carbon electricity. The electricity generated will be used to power the terminals without burning more fossil fuels.

Using combined heat and power (CHP)

Around 85% of Terminal 5's heat needs are provided by combined cooling, heat and power. With CCHP, electricity is generated on site and the waste heat is used to heat the building during the winter. CHP plants are typically twice as efficient as a normal power plant. Future buildings at Heathrow will also use absorption chillers to turn waste heat into cold water and cool buildings in summer.

Optimising performance of existing buildings

Everyone has a role to play in minimising avoidable energy waste. Heathrow runs campaigns across the airport, focussed on staff taking accountability for turning non-essential power off.

BAA is installing intelligent building management systems in its terminals which automatically turn off machinery not in use and dim lights in unoccupied areas or where natural light is bright enough by itself. They also control temperature and constantly monitor energy consumption so that efficient performance can be measured and maintained.



Company profile:

BAA owns and operates seven airports in the UK. Including the busiest international airport in the world, Heathrow.

Privatised in the late 80's, in June 2006, BAA was bought by a consortium led by Ferrovial, the Spanish construction company.

Ferrovial is one of the world's largest construction groups, specialising in three strategic lines of business – construction, transport infrastructure and services - throughout Spain, the UK, Portugal and nine other countries in Europe and the rest of the world.

www.baa.com

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