BREEAM OFFICES

HORIZON HOUSE, BRISTOL

About the building

Horizon House is the Environment Agency's new corporate office. Developed by Westmark, the office building is part of a larger, mixed-use development in the centre of Bristol, which includes another office building and a residential block.

The high BREEAM target was set by Westmark and was key to securing the Environment Agency's tenancy. This building meets the brief to develop a commercially viable building to the highest environmental standards.

Key facts

BREEAM rating:	Excellent
Score:	85.06%
Size:	6,600 m^2
Stage:	Design and Procurement
BREEAM version:	Offices 2006

Overview of environmental features

- Energy use is minimised through a mixed mode ventilation system
- Effective natural ventilation of the deep plan office is achieved by strategic building design
- The building uses ground source heat pumps, solar water heating and photovoltaic panels as renewable energy sources
- Rainwater is collected from the building's roof and used to flush toilets
- The post tensioned floor slab provides lower environmental impact over the whole life of the building
- The construction materials are from ISO 14001 accredited suppliers
- All timber is from sustainable sources
- A wildflower meadow has been established on the office roof terrace
- A SUDs (sustainable drainage system) strategy reduces flood run off from the site
- A green travel plan has been developed to meet the needs of the building users

The BREEAM assessment

The building performed well across all of the BREEAM categories. Full credits were achieved in the Management, Transport and Water sections, and more than 90% of credits were achieved under Health and Wellbeing.

The real success was that the project wholeheartedly embraced the aims of BREEAM, securing the challenging credits as well as the more straightforward ones.

Arup is now monitoring the construction process, on behalf of the developer and tenant, to ensure that the details of the sustainable design are completed on site. In addition, the environmental impact during construction has been reduced through the recycling of waste materials and careful management of energy and resources on site.

Building services

Ground source heat pumps are the primary source of heating, supplemented by gas boilers. The zoned heating is provided by fan coil units located within the raised floor voids.

Ventilation is provided by a mixed mode system. The mechanical ventilation is used at low temperatures, to enable heat recovery, and high temperatures, when cooling is provided. During mid-season conditions, the building is naturally ventilated via high level windows in the façade, and atrium roof openings.

The primary source of cooling is the ground source heat pumps.

Hot water is provided by solar panels and is supplemented by the ground source heat pumps and gas boilers.

Photovoltaic panels supplement the mains electricity supply.

Green strategy

The high environmental aspirations for the project were embedded in the design from the outset, leading to particularly high performance in the following areas:

- 26.32% reduction of CO_2 over building regulations
- 19.5% of the energy demand provided by renewable technologies
- Predicted transport CO_2 emissions from transport of 254.8 kg/person/year
- High provision of cycling facilities
- Over 80% of major building elements A rated and responsibly sourced
- Water consumption of 1.27 m^2/person/year
- Enhancing and maintaining site ecology on a city centre site

Project team details

Developer – Westmark
Tenant – Environment Agency
Main contractor – Sir Robert McAlpine
Architect - Alec French Architects
Building services engineers – Arup (up to stage C) and Hoare Lea (from stage D)
Civil and structural engineers – Arup
Ecological consultant – Clarke Webb Ecology Limited
Landscape architect – Cooper Partnership
BREEAM Assessor – Rowena Jolly, Arup

"The high BREEAM target score set by Westmark was pivotal in securing the Environment Agency as a prestigious and long term tenant. It also gives the tenant the opportunity to reduce running costs, the extent of this being determined by how they choose to use the building services incorporated into the design." Adrian Slade, Westmark