

RENEWABLE ENERGY

Solar water heating is provided to pre-heat water going into the heating boilers. The solar collectors gather in light energy, which circulates to a water heat exchanger and then to the pre-heat cylinders. This system will provide at least 62% of the annual hot water energy needed and over 5% of the building's overall annual energy needs.

ECO-FRIENDLY BUYING

Very high standards for sustainability were set in all contracts – design, construction methods, choice of materials, furniture, office cleaning, new office equipment, waste management and grounds management.

The furniture chosen scores very highly on use of recycled materials, low harmful materials and low energy in construction. The reception desk features Scottish oak and its shape – inspired by the cross section of a shell – makes it both functional and elegant. A further feature is the larch cladding used inside and outside the building, which was all sourced locally.



Office cleaning uses biodegradable products, recycles all materials where possible and uses recycled paper products.

All of the new office and IT equipment has low energy use (computers, flat screens, printers etc.) and many have 'sleep' functions which switch the machines off when not in use. New combined printer/copiers have coded access for printing – this reduces unwanted and uncollected print jobs.

TRAVEL CHOICES

Measures in place or being developed include:

- *car-sharing schemes for travel to work;*
- *good cycle storage, changing facilities, lockers and showers;*
- *improved bus service from the city centre;*
- *video conference facilities to cut down on travel to meetings.*

MAKING LESS WASTE

Great Glen House is designed to help reduce waste and encourage recycling. There are no general purpose rubbish bins at any desks. All the waste has to be separated, putting each type of waste in the right bin at the Recycling Points throughout the building.

The construction team had to do the same on site while building Great Glen House. This was the first site in Scotland to operate in this way.

In addition, the construction programme aimed to minimise waste and re-use as much as possible from the previous building (such as floor beams, slates, old block work).



USING LESS WATER

The building aims for much lower figures than standard office usage. It has low flow taps, toilets and showers, dual flush cisterns, and rainwater is gathered for use in WC flushes. Water meters allow us to monitor water use in different parts of the building and also monitor for leaks.

Rainwater from the roof is collected centrally in a large underground tank. From there it's pumped to high-level header tanks in the building, so that it can supply the WCs and flushing systems in the toilet facilities.

ENCOURAGING WILDLIFE

The site had a variety of local wildlife interest before building began, with the main features being bat roosts in the previous building on the site, some good mature trees and woodland scrub areas. Much of this interest has been retained – the bats have been re-homed on site and trees form key features in the biodiversity plan for the site. All the new trees and plants are, wherever possible,

both native and locally sourced, and the greater variety of habitat will increase the range of wildlife present.

The sedum turf roof on the library will create a new specialist home for insects, plants and birds, together with improving the heat retaining performance of the building once the plants are firmly established.

The main purpose of the SUDS (Sustainable Urban Drainage System) pond is to help manage water run-off from the site. It has been designed to encourage wildlife and the pond plants will also assist with cleaning the water.

PROMOTING GREEN PRACTICE

The Great Glen Way passes through the site and we expect many visitors – locals, building professionals, colleagues in partner bodies – to want to visit the building and see what we're doing. We're also looking at the potential for exhibiting the sustainability story within the building in some way.



Great Glen House

AN ENVIRONMENTAL BUILDING



Great Glen House is designed to be as sustainable as possible – and so are the ways we use it. The design, the lights and heating, the furniture, the way we travel, the ways we manage waste, the grounds around the building – all of these highlight that we care about the environment.

Built by Robertson Property working with Keppie Design, the building functions as a modern office with space for some 290 people. It has been carefully planned to include:

- **Building management system** – this monitors and manages all the services and fuels used in different parts of the building (lighting, heating, water, lifts, boilers, plant/solar heating etc.).
- **Natural ventilation** – the building is naturally ventilated by motorised windows, which are sensor operated. The sensors monitor for both temperature and carbon dioxide. Air passes across the office space and library, up through the atrium and out of the roof through the ventilation chimneys.
- **Heat storage** – the building has concrete floors, walls and ceilings which soak up heat and release it slowly. Together with high levels of insulation, this means the building provides natural chilling in the summer and retains heat in the winter.
- **Double glazing** – high efficiency glass cuts down on heat loss and lets in lots of light.
- **Low carbon emission** – Great Glen House has an output of only 7 kg C/m²/year. This compares with a best practice target of 9 kg, while 15 kg is considered ‘good’ practice.

- **Excellent insulation** – we have high grade performance in all structures and service insulations.
- **Maximum daylight** – the building is designed to give twice as much daylight as the average office.
- **Low energy bulbs / light fittings** – these are controlled by motion / light level sensors, dimmers and timers.
- **Floor coverings** – all wood, stone and carpet floorings comply with the top rated Green Guide specifications.
- **Paints** – are all linseed oil or water based. A project like this needed a wide variety of paints and they were all chosen to reduce harmful products in the air. No CFCs or HFCs (harmful to the ozone layer) were used in any part of the building.
- **Sensitive build process** – Great Glen House was one of the highest performers in the UK under the Considerate Constructors’ Scheme.
- **Sustainable recycling** – all brick and block from the former building on this site were crushed and re-used within Great Glen House. Roof slates were stripped, cleaned, stored and re-used to clad the stairwell areas. Steel from the existing structure was re-used. Floorboards and joists were stripped and re-used where possible. Everything that was reclaimed and not used was made available for other projects on the site.



Great Glen House has been awarded the highest ever design and contract rating in the UK for environmental buildings. It received a score of 84% in an independent review to measure environmental quality. This review is the construction industry standard for environmental buildings. The Building Research Establishment has confirmed that this is the highest score ever given to a building in the UK since the system was introduced in 1998.

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