



Jungle fervour

The green route to more sustainable construction is becoming much easier. Dave Parker reports from Berkshire on one project with more claims to greenness than most.



Environmental friendliness and the importance of sustainability are central to the philosophy behind Hampstead Norreys' Living Rainforest Centre. Some 75,000 visitors a year wander through the former orchid houses that now provide the ideal conditions for a wide range of forest plants and animals (see box).

But the centre is much more than a tourist attraction, says Living Rainforest trustee Graham Burgess.

"This is a major educational asset for the local community. We have many parties of schoolchildren coming here and

learning about the environment from our resident experts, all as part of their national curriculum."

Unfortunately, space for educational activities in the old greenhouses was severely limited. What the centre needed was a proper venue where visitors of all ages could engage in all forms of learning, from formal lectures to hands-on experimentation.

Oxford-based architect Alastair Binnie was tasked with the design of what was dubbed the "Human Impact Project", with the brief to push sustainability to new limits.

Funding for the £1.6M facility came mainly from the Millennium

Commission, with contributions from local charities. In essence it comprises a 21.5m by 11.5m single storey hall, linked to the existing glass houses by a covered walkway, with a new, sophisticated boiler house alongside. But the deceptively simple concept conceals some radical technology, says project manager Scott Wilson's contract administrator Mark Lewis.

"We've really homed in on recycled products and materials with low embodied energy. For example, a value engineering exercise indicated that aluminium would be the best choice for the glazed canopy over the walkway.

But the client would have none of it, so we have gone for timber from sustainable Scandinavian forests instead."

Recycling began with the demolition of the old glasshouses on the site. Concrete was crushed and used for fill on site, bricks from the dwarf walls were saved for reuse, glass was sent away for recycling by others. The timber structure was stockpiled, ready for when the facility comes on stream.

"It will be burned in our new woodchip-fuelled boiler," says Burgess. "The boiler itself comes from Sweden, but the woodchips will come from local coppices

– and the boiler house will be part of the visitor experience."

Newbury based main contractor Feltham Construction director Andy Brown says that many of the recycled materials used in the project were surprisingly easy to find. "The Ecopave slabs made with recycled aggregates were available at local builder's merchants.

"And so were blocks made with recycled glass aggregates. But we had to go to Wales to find recycled glass itself, to use in mortars. And all the products commanded a premium price."

Recycled newsprint was used



Engineered timber construction was chosen to maximise sustainability.

for up to 225mm of insulation to walls, roof and floors, and again this was readily available. Floor coverings are recycled rubber, albeit from Germany, while recycled rubber features again in the British made roofing membrane.

"There was a conscious decision to minimise the use of steel and concrete, again on embodied energy grounds," Lewis adds. "So the structure is glulam, again made with timber from sustainable Scandinavian forests, as are the suspended floor of Orientated Strand Board (OSB) engineered timber on timber I-beams, and the cedar cladding."

Photovoltaic cells will top the canopy that will eventually protect an outside eating area, and there will be a demonstration coppice planted nearby. Recycled plastic worktops have been specified for the new animal husbandry department.

On 21 March the trust plans to release a flock of exotic butterflies inside the greenhouses to mark the new hall's official opening. Burgess hopes that the new development will boost visitor numbers by at least 10,000 a year.

He says: "In terms of sustainability, we're about half way up the ladder heading towards

Running wild



Originally one of Europe's leading orchid nurseries, Wyld Court near Newbury passed into the hands of local philanthropist and former head of Russell and Bromley Shoes, Keith Bromley in 1991. It re-opened in 1993 as a rainforest visitor centre, with some of the original orchid plants still on display. Over the subsequent years other exotic species arrived – crocodiles, tropical birds and a breeding colony of the endangered Goeldi's monkey.

Charitable trust the Living Rainforest now runs the facility. Recently it was awarded £1.6M by the European Union to convert the old orchid houses into "Europe's greenest greenhouses".

totally sustainable construction. Our next project will be a couple of steps higher.

"And we hope we will be able to preach the sustainability message to the construction industry as well as to schoolchildren."

Who's who

Client: Living Rainforest Trust
Project manager: Scott Wilson
Structural and M&E engineer: Halcrow
Timber frame designer: Southern Timber Frame
Architect: Alastair Binnie Architecture & Environment