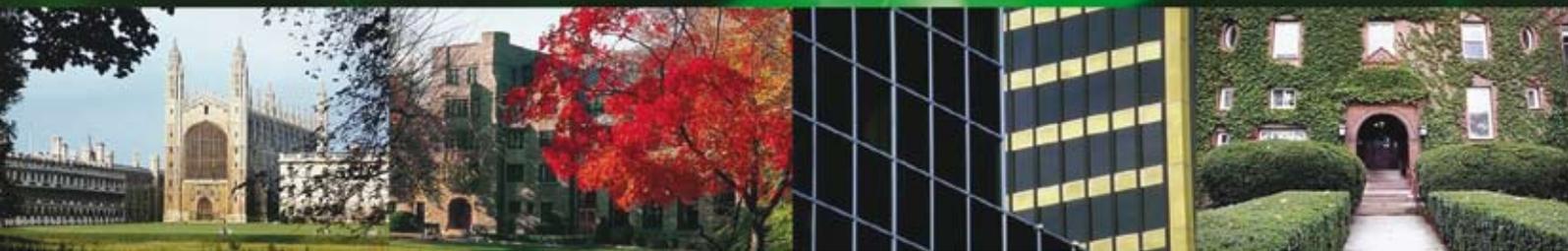


THE GREEN GOWN *Awards*

2007-8

transport
technology
sustainable
environmental
energy efficiency
education



Recognising Progress Towards More Sustainable
Further and Higher Education in the UK

Overall Awards in association with:

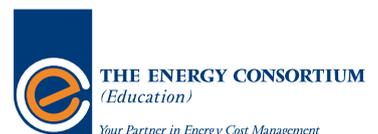


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Foreword



Professor Rick Trainer,
President, Universities UK
and Principal, King's
College, London

The Green Gown Awards are now firmly established as a coveted symbol of good environmental performance and social responsibility within the sector. They provide an increasingly important opportunity for universities and colleges to benchmark their achievements in environmental performance. They also provide inspiration and encouragement for those who are involved in improving performance on the ground, and invaluable recognition - both within and outside their institution - for those who have excelled. I know this from personal experience, as the hard work of our Estates team at King's College London resulted in our King's Building refurbishment winning the Sustainable Construction category in last year's Awards.

Universities and colleges are large, complex organisations with many thousands of students, staff, visitors and activities. We manage millions of square metres of building space and many hectares of land. We run fleets of vehicles, including a few ships and planes. We manage thousands of housing units and high-value research facilities. We use considerable quantities of water and energy in the operation of all these activities. The examples of CHP at the University of Dundee, greener residences at the University of Manchester, and minimisation of car travel at Sheffield Hallam University, all demonstrate best practice in how environmental impacts can be minimised. The Genesis Building at Somerset College provides a similar example in further education.

One of the most important long term impacts of universities and colleges is through the behaviour and actions of learners as they progress through their careers. Durham University provides an example of how institutions can facilitate student initiatives to influence awareness and understanding, whilst Bedford College shows the opportunities for new courses to do the same. So too do the University of Gloucestershire, and Lancaster and Morecambe College, both of which have achieved continuous improvement in their courses and operations through a whole institutional approach to change.

Of course, the Awards can only highlight a few examples of the considerable activity being undertaken in the sector to tackle environmental and social challenges. We are already leading, and will continue to do so in future, research into alternative energy sources, more efficient transport and construction innovation. HEIs are also at the forefront of many local and regional development and regeneration initiatives in the UK, and - as shown by the London College of Fashion's ethical fashion scheme - are assisting sustainable development on other continents. UK universities and colleges will continue to play a key role in all these increasingly critical areas of public policy.

There is certainly more to be done, but this year's winning and commended entries show, like those of previous years, that the sector is rising to the challenge. The Green Gown Awards have a continuing and important role in helping us to do so, by encouraging changes in behaviour, greater efficiencies and innovative solutions.

About the Awards

The Green Gown Awards were originated, and have been organised until now, by the HEEPI project (see next page), in collaboration with the Association of University Directors of Estates; the British Universities Finance Directors Group; the Environmental Association for Universities and Colleges; Guild HE; the Higher Education Funding Council for England; and Universities UK. From 2008-9, the Awards will be more formally 'owned' by these and other sector bodies, with a steering group chaired by HEEPI, and with administration undertaken by EAUC. The Awards have also received generous support since their inception from the Learning and Skills Council (LSC) and The Energy Consortium (TEC).

The Judging Panel

Nicole Ashdown Brown, Environment Agency
Adam Cade, Studentforce for Sustainability
Thomas Coates, Learning and Skills Council (LSC)
Roy Cook, College and University Business Officers (CUBO)
Ann Cousins, Environmental Association for Universities and Colleges (EAUC)
Chris Cowburn, Higher Education Funding Council for Wales (HEFCW)
Catherine Dishington, National Union of Students Services Limited (NUSSL)
Kevin Doyle, The Energy Consortium (Education) (TEC)
Andrew Farrell, British Universities Finance Directors' Group (BUFDG)
Dr Mike Field, Association of Colleges (AoC)
James Fisher, BRE
Jane Gawthorpe, Higher Education Academy (HEA)
Mary Kelly, Learning and Skills Council (LSC)
Terry Knight, Association for Student Residential Accommodation (ASRA)
Patrick Mallon, Business in the Community (BITC)
Catherine Marston, Universities UK (UUK)
Karen McGuire, BRE
Pravin Parmar, Learning and Skills Council (LSC)
Iain Patton, Environmental Association for Universities and Colleges (EAUC)
Joanna Simpson, Higher Education Funding Council for England (HEFCE)
Andrew Smith, Higher Education Funding Council for England (HEFCE)
Dr Stephen Sterling, Higher Education Academy (HEA)
Bob Stiff, Association of University Engineers (AUE)
Roger Taylor, Learning and Skills Council (LSC)
Andrew Thorne, Department for Children, Schools and Families (DCSF)
Jim Whelan, GVA Grimley
Jane Wilkinson, Forum for the Future

About HEEPI

The Higher Education Environmental Performance Improvement (HEEPI) initiative is based at the University of Bradford. It was funded from 2001 to 2007 under HEFCE's Leadership, Governance and Management (LGM) initiative, and its precursors. Its main aim is to support sustainable development, and especially environmental improvement, in the sector through identification and dissemination of best practice; creation and maintenance of networks; development of benchmarking data and processes; and in other ways. HEEPI is now moving forward as a stand alone initiative, with funding from a variety of sources (including project-specific grants from LGM). Three major strands of work at present are project managing (with AUDE) the development of a BREEAM for HE scheme; developing a Sustainable Laboratories initiative; and developing guidance materials on Sustainable ICT. Since its inception HEEPI has:

- Run almost 70 events - with almost 3000 delegates - on topics such as benchmarking energy and water consumption; intelligent buildings; energy efficient data centres and laboratories; new ways of working; sustainable computing and innovative financing;
- Prepared many case studies, guidance documents, and tools, most recently on sustainable ICT and high performance buildings;
- Created knowledge transfer to and from North America - e.g, a partnership with the US Labs21 initiative which has introduced US best practice to the UK, and publicised the achievements of UK higher education at their US conference; publicising the work of the Harvard Green Campus Initiative in the UK and thereby assisting with the development of the HEFCE/Salix Trust Revolving Green Fund, which is modelled on it;
- Conducted a strategic review of sustainable ICT in UK further and higher education for the Joint Information Services Committee (JISC);
- Developed for general use a low-cost on-line survey of university transport impacts.

For more information visit www.heepi.org.uk, www.labs21.org.uk or www.susteit.org.uk or contact the HEEPI Co-Directors, Professor Peter James and Dr. Peter Hopkinson via info@heepi.org.uk or at:

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Colleges and Smaller Institutions

WINNER

Lancaster and Morecambe College Inspires Holistic Change

If all colleges and universities followed the excellent sustainability example set by Lancaster and Morecambe, the cumulative effects could be immense.

After just two years, the college's sustainability project has produced measurable results and Principal, David Wood, believes "the influence on the college's culture has been profoundly deep rooted and beneficial." Its policies and action plan stress that everyone on campus has responsibility for sustainability, and new staff have a commitment to sustainable practice written into their job description.

Within a relatively short time, the college has:

- Developed an ethical procurement policy that considers whole life costs and achieved Fairtrade status
- Launched an energy policy backed up by housekeeping initiatives
- Launched NCFE qualifications that explore sustainability.

Paper recycling now takes place across the college, and David Wood says that "In a fairly short space of time our recycling and waste initiatives have saved over £5,000 and 995m³ of waste material (equivalent to 5.9 classrooms full of waste) from landfill." Catering supplies are sourced locally to reduce food miles. A biodiversity survey has also been undertaken, leading to plans for nest boxes and a wild flower patch.



Students and staff planting wild flower seeds as part of the biodiversity project

The college aims to cut car journeys by at least 18% in three years and has held events such as 'In College Without my Car' day and Bike Week to promote cycling. It was keen to initiate change from the bottom up and this has led to considerable changes in staff behaviour such as involvement in recycling and more emphasis on sustainability in lectures.

A new procurement policy puts emphasis on ethical and sustainable sources and includes sustainability as a key savings measure. Savings identified over just six months amounted to £89,000, including £64,000 from group purchasing contracts which highlight sustainability as a key selection criterion.

The project is very inclusive and there has been significant student involvement in a variety of events including Fairtrade Fortnight and a sustainable enterprise day. The opening of the college theatre as a community venue has also proved successful and in 2006/07, it attracted over 1,000 visitors.

In 2007, the college's sustainability story was highlighted at the AOC National Conference and its strategy was distributed to other colleges so that they can replicate its success.

The judges said...

Lancaster and Morecambe College has demonstrated a very inclusive, values-driven, and wide-ranging approach to sustainability. It has been led impressively and is building considerable momentum. Its food sourcing demonstrates how behaviour and thinking has changed, as does the inclusion of sustainability into job descriptions, which embeds it for the long term. The high level of community involvement is also noteworthy.

Colleges and Smaller Institutions

HIGHLY COMMENDED

John Wheatley College - Building on its Sustainability Ideals

The Glasgow-based college's new £14 million East End Campus has been widely recognised as a 'state of the art' example of sustainable construction, achieving high energy efficiency and incorporating a range of green technologies.

These include a bio-mass boiler, air sourced heat pumps, photovoltaic cells, solar panels and aerated water taps. The campus uses a rainwater recycling system to provide all non-drinking water, and boasts natural ventilation, motion controlled lighting and Scandinavian levels of insulation.

It has won a Design Award for Sustainability from the Glasgow Institute of Architects, and an Excellent rating under the Building Research Establishment Environmental Assessment Method (BREEAM) scheme.

Energy consumption at East End is markedly less than at the college's other traditionally-built campus, Easterhouse, which opened in 2001. Last year, Easterhouse used 251.94 kWh/m², with an energy cost of £11.60 per m². The East End campus used only 130.67 kWh/m², with an energy cost of £7.21 per m².

Assistant Principal, Alan Sherry, believes: "Our new campus is a manifestation of the sustainable development philosophy we are trying to integrate into all of our activities. We wanted to create a building which not only reduces our carbon footprint, but does so in a very visible way so that it influences attitudes, and underpins our aim of a greater sustainability element in courses."

John Wheatley has established a Sustainable Development Committee to drive further progress. It also has a specific sustainability section in its annual accounts, and as a result is now leading a working group into sustainable accounting reporting on behalf of Scotland's colleges.

The learner induction programme has been revised to place greater emphasis on sustainable development. The college has developed, in association with Stow College, two new Scottish Qualification Authority National Qualifications Units to support investigation of local environmental issues. These will be included in a number of full-time courses.

According to Alan Sherry, the new induction programme has proved crucial in creating student "buy-in" to the college's environmental philosophy. "We have already seen a substantial increase in recycling, and student involvement in biodiversity projects. By exposing students, staff and the public to more eco-friendly practices, we're preparing them for the practicalities of living and working in a low carbon environment."



Rooftop solar panels provide energy

The judges said...

This holistic and imaginative approach to sustainable development is most impressive, and is influencing not only John Wheatley College, but also the sector, e.g. in sustainability accounting. The college's achievements are exemplified by a truly excellent green building, which is showcasing many innovative technologies, and has demonstrably achieved a step change in energy efficiency.

Colleges and Smaller Institutions

HIGHLY COMMENDED

University of Cumbria - A Blend of Birds and Biofuel!

An innovative project at the new university is aiming for a hat-trick - by reducing carbon emissions, achieving financial savings and benefiting conservation. Its dairy farm estate has been transformed into a mosaic of habitats incorporating the growth of biofuel crops which it hopes will help to fuel university vehicles.

Over the past 30 years, the UK has seen major losses of farmland birds due to intensified farming and concern is growing over the potential loss of habitats through the growth in biofuel crops.

The Cumbria initiative incorporates biofuel crops into an integrated land management programme which provides for wildlife while maintaining a commercially viable farming estate. Garry Sharples, the university's Health, Safety and Environment Advisor, says: "The programme has already benefited priority species like the Yellowhammer, Tree Sparrow and Skylark. New hedgerows, spring sown crops and a wetland habitat have helped to increase their number."

Measures have included:

- Wildlife corridors to join habitat types across the estate
- The planting of wild bird seed cover crops
- Stubble (from both food and biofuel crops) left to over-winter to encourage the over wintering of key bird species
- Restoration of 141 metres of stonewall.

According to Garry Sharples: "One hectare of oil seed rape produces approximately 1,000 litres of oil. By replacing the 8,000 litres of diesel used in tractors for teaching, we will save around 24 tonnes of carbon. We also hope to use biofuel for university fleet cars - in 2006/7, they emitted 175 tonnes of CO₂ and with current fuel prices, the cash savings would be significant."

The rural estate has created an outstanding educational resource, providing a "living" classroom for practical projects and, with conflicting arguments about biofuels and their effect on habitats, it offers an excellent opportunity for academic research. With government departments using indicators such as farmland birds to gauge environmental sustainability, ornithological skills are in demand and the university hopes to make inroads in providing specialist staff and student support.

The university is also investigating replacing heating oil with biofuel at its Newton Rigg Campus, which uses between 250,000 and 300,000 litres of oil per annum.

"Public bodies now have a duty to manage biodiversity. Figures suggest that the land within further and higher education campuses across the UK amounts to an area around the size of the Isle of Wight - so there is significant scope for growing biofuels to power fleet vehicles or provide space heating," says Garry Sharples.



Oilseed rape stubble is a rich food source for priority bird species

The judges said...

The University of Cumbria's innovative approach to biodiversity demonstrates how much can be done in an often neglected area of sustainable development. It also provides impressive evidence of the potential to link actions to mainstream activities, and especially the curriculum.

Continuous Improvement (Whole Institution)

WINNER

University of Gloucestershire - Sustainability is in its DNA!

The University of Gloucestershire - the first University in England to achieve environmental management system (EMS) standard ISO 14001 across a range of activities including curriculum - has now been acknowledged for placing sustainability at the top of its agenda.

Its holistic approach recognises that sustainable higher education involves progress in every area, from research and teaching to the detailed operation of its estate. University Resources Director, Mike Jesnick, says: "Sustainability is not a concept that can be accomplished simply by developing a new course or introducing a waste strategy. It requires an institution-wide and long term commitment."

Gloucestershire includes sustainability in its strategic plan and has set up a sustainable development committee to advise the executive. It has a wide-ranging environmental management system.

Vice Chancellor, Professor Patricia Broadfoot, hosts sustainability seminars which are open to all staff and has successfully lobbied Universities UK to set up a sustainability taskforce. The University has appointed a Chair in Sustainability, established the International Research Institute in Sustainability (IRIS) and published "Greener by Degrees" to demonstrate the relevance of education for sustainable development across all academic disciplines.

Gloucestershire has been chosen to lead the newly established United Nations University (UNU) Regional Centre of Expertise in Sustainability, more commonly referred to as UNU RCE Severn. Its Estates Strategy takes account of its impact on the environment and it is making a contribution to sustainability in the community. It has worked with British Waterways and the Waterways Trust in the restoration of Cotswold Canals and leads the Gloucestershire Green Business Club.

Locally, it has carried out environmental research in ecology, hydrology, community impact and water resource management and has helped 16 local businesses to save a total of £4.5 million through a programme of environmental support.



Mike Jesnick highlights the importance of formal programmes in "getting sustainability into our DNA. Some of our biggest environmental savings last year resulted from the Carbon Trust's Carbon Management Programme - the results were remarkable.

"Our EMS also makes us review, and identify ways of improving, all activities - from the management of grounds and facilities to the activities of different schools, the content of the curriculum and mode of delivery."

**Professor Daniella Tilbury, Chair in Sustainability,
Director of the University's Sustainability Team**

The judges said...

The University of Gloucestershire has a long track record in many specific areas, and has more recently demonstrated an impressive ability to join them into a holistic approach. This is demonstrated at a strategic level by the committed leadership of successive vice-chancellors. It is also evident in the publication of "Greener by Degrees", an eclectic demonstration of the breadth and depth of sustainability issues in the university's courses, and in the strong community and business partnerships which have been formed.

Continuous Improvement (Whole Institution)

Gloucestershire's Results In Detail

The University of Gloucestershire is unusual in publishing an environmental report, most recently for 2006-7.

The content is based on official government guidelines and the report showed that the university improved its environmental footprint through:

- Reductions in carbon emissions: Careful target setting, monitoring and innovations in utilities, waste disposal and transport, have brought reductions in the university's carbon footprint. In 2006-7, CO₂ emissions reduced by 22.6%, with overall energy consumption reducing by 13.8%. This is based on direct emissions from natural gas and oil of 1,688 tonnes of CO₂ and indirect emissions of 68 tonnes.
- Above average performance in energy and water consumption - with non residential consumption per FTE student of 1,815 kWh of energy, and 4.2m³ of water, compared to the sector median of 2,634 kWh and 7.2m³ respectively (based on Estate Management Statistics).
- Reduction in absolute water consumption from 39,612m³ to 37,987m³ (4.1%).
- Reduction in waste of 14.6% to 626 tonnes, and the amount going to landfill cut by 18.6% (516 tonnes).
- Reductions in car use: The transport strategy saw a substantial increase in car parking charges in 2006 and additional routes were added to free travel for staff and students on the public transport network in Gloucestershire operated by Stagecoach and other local bus companies.

Gloucestershire has also:

- Replaced photocopiers and desktop printers with MFDs
- Introduced solar powered 'pay and display' car parking machines
- Achieved 100% use of recycled paper for printing and copying.



Resources director, Mike Jesnick believes: "We were fortunate in that the first report coincided with 'one off' factors, such as achieving some quick wins identified from our work with the Carbon Trust, and temporary closure from flooding. This demonstrates the need to look at trends rather than a single year's figures - which our stakeholders will be able to do through our future environmental reports. If they attract the same interest, and create the same external dialogue as our first report, we'll be very pleased."

Mike Jesnick

The judges said...

Setting targets and tracking progress is a key aspect of continuous improvement and the University of Gloucestershire is not only doing this, but also making the results public through its environmental report. This is still relatively rare in the sector, but the University's experience shows that it can be both a valuable way of communicating with stakeholders, and a way of creating a momentum for change by putting its reputation very publicly on the line.

Continuous Improvement (Projects)

WINNER

Sheffield Hallam University says 'Get on your bike!'



Marie May with a solar powered bike

Less than 450 parking spaces for a university of 32,000 staff and students might sound like a recipe for disaster. But thanks to imaginative solutions and a determination to succeed, the reality is completely different at Sheffield Hallam.

It has totally phased out student parking on its three campuses and even staff need approval for a parking permit. Its vision of replacing car travel with environmentally friendly options has changed the face of the university, cut pollution and eased traffic congestion in the city.

Of course, it didn't achieve this overnight - the programme started several years ago and depends on a variety of schemes. These include:

- New bus routes linking campuses and student accommodation
- Discounted bus travel for staff and students
- Siting student residences close to campus to avoid car travel
- Telephone and video conferencing for staff
- An electronic travel guide to help people plan their journeys
- A hire car and taxi scheme for essential business travel
- Flexible working for staff to cut rush hour demand on public transport.

Staff can claim 20p per mile when they use a bike for business travel and power-assisted bikes (which use renewable energy) are being trialled. The university has avoided the problem of thousands of students arriving at the same time and swamping public transport by staggering student intake and starting courses throughout the year.

It has worked closely with a variety of partners including travel providers, the city council and the police, as well as users themselves to ensure that its travel options are robust. And according to Community, Sustainability and Residential Development Manager, Marie May, "using a private vehicle is now very rarely the only option.

"We offer a comprehensive range of travel alternatives and, in addition to the environmental benefits, the local community enjoys fewer parking problems while staff and students get health benefits from walking or cycling. We have worked with community groups and the local authority to develop various initiatives including residents' parking schemes to avoid problems caused by students parking on streets close to our site.

"Obviously, we do still get occasional problems but we have designated staff to deal with any complaints and we have constant campaigns to reinforce the message."

The judges said...

Sheffield Hallam University has received past Green Gowns recognition for its innovative courses and energy and water initiatives, and this is now supplemented by its imaginative and persistent approach to minimising car travel. A dramatic reduction in car parking spaces has been achieved through a comprehensive plan to minimise demand, and encourage alternatives, which has succeeded despite some setbacks. Effective partnering with, and creating benefit for, local communities has been an important part of the process.

Continuous Improvement (Projects)

HIGHLY COMMENDED

University of Birmingham's Green Machine is Driving Sustainability

Four years ago, the university's recycling rate for waste was nil - but things are very different now, thanks to a range of innovative solutions initiated by the University's Hospitality and Accommodation Services (HAS).

At the heart of these is the university's Green Machine, an electric vehicle that both collects recyclables, and delivers an important environmental message. The university's Sustainability & Environmental Advisor, Trevor Shields, says the combination of the Green Machine and its regular driver, waste management coordinator, Terry Walls, has proved a real winner.

"The vehicle is charged from our CHP system, which results in a relatively small carbon footprint and it provides a constant reminder of the recycling message. Its distinctiveness - combined with Terry's outgoing personality - gives a quirky, human feel to what can sometimes be seen as a worthy but dull topic."



Terry and the Green Machine are helping to drive forward Sustainability

The impacts are reflected in recycling figures. In 2006-07, almost half of Birmingham's 1400 tonnes of waste was recycled - up from under 10% in 2005. Around 80 tonnes of office paper was recycled (up from just 15 tonnes in 2005), cardboard recycling increased from just 5.8 tonnes to 97 tonnes and glass from 7.3 tonnes to 57 tonnes.

Contributing factors include a new collection contract, which charges on weight collected and a waste reduction and recycling group. This is raising awareness, developing practical measures, and identifying "green" practices for supplier agreements.

The measures taken include:

- Shredded office grade paper being used in tissue manufacture
- Waste cardboard going to the packaging industry and glass being re-processed
- Reuse and recycling of redundant IT equipment (WEEE accredited)
- A 'green' goodie bag for freshers to encourage recycling
- A children's hospice outlet, with some stock from clothing banks in student villages
- Working with Birmingham City Council on a recycling service for student villages.

More recently, initiatives have included trialling an accelerated composter, a waste advice helpline and a pilot scheme to reuse items left in student accommodation at the end of the year.

According to Peter Larkin, Policy and Environmental Services Manager, HAS, the key lessons Birmingham has learned are that "you need to have an overall strategy and a committed approach, to involve all stakeholders, and to make things fun.

"It is also vital to have accurate weights for waste/resource streams for planning and budgeting. These figures help to show people their environmental impact, and provide a benchmark for year on year improvements."

The judges said...

The University of Birmingham's recycling initiatives have demonstrated impressive progress over a few years. The scheme demonstrates the importance of a down to earth approach, centred on individuals, both in the important role played by cleaning staff, and in the high profile and quirkiness of Terry and his "Green Machine".

Courses

WINNER

Bedford College - Creating an Environmentally Aware Workforce

National targets for renewable energy and green construction require many new skills and Bedford College is leading the way. It is developing the vital skills needed, both through specialised courses and the modification of mainstream subjects such as plumbing.

It has already launched two foundation degrees - in Sustainable Construction and Building Services & Sustainability - and certified courses in:

- Photovoltaic systems
- Developing environmental awareness
- Energy utilisation and efficiency
- Sustainable development
- Digital home technology integration
- Solar thermal systems.

Other courses under development include biomass technology, ground and air source heat pumps, oil fired systems (with a focus on biofuels), and rainwater harvesting. But the college is also making a much wider contribution.

Esin Esat, Director for Sustainability, explains: "We have put a lot of work into incorporating the environment into mainstream provision. The focus on sustainability in teaching and learning is also helping to change the attitudes and lifestyles of students and staff, and it has become a key focus in our operations and future plans." At Bedford, many full time learners can incorporate environmental topics into their studies. For example, solar power training is offered to plumbing students while motor vehicle students learn about biofuels and electric vehicles.

The college is a Centre of Vocational Excellence (CoVE) in Skills for Energy, in partnership with Lowestoft College. It works closely with industry to deliver renewable energy training, especially to SMEs, and has also supported many specialised training providers in setting up their own renewable energy courses.

Bedford is also involved in national initiatives to incorporate sustainability into workforce development and staff have delivered presentations on Workforce Development and Sustainability at seminars and conferences. Last year, it organised a Low Carbon Future event aimed at architects, planners, developers and employers.



Esin Esat believes: "It is vital that the UK develops an environmentally aware workforce. Between them, the construction sector and transport are responsible for 75% of the UK's total carbon emissions so we need to take every opportunity to incorporate environmental awareness into teaching and learning practices.

"Demand for energy and sustainability training is increasing and the FE sector has a crucial role to play. By sharing good practice, Bedford College is helping the sustainability and environmental awareness agenda to gain momentum across the UK."

Learners from local schools observe the solar thermal training facilities

The judges said...

We were particularly impressed by the range and growing list of provision; the strong practical impact of the courses; the inclusivity of provision (the courses are aimed at a wide variety of people, rather than being a more exclusive type of academic course); the links with other courses (such as motor vehicles and plumbing); and the outward-looking focus of the college (e.g. the Low Carbon event).

Courses

HIGHLY COMMENDED

Sustainability is a Vocation at Somerset College of Arts and Technology

Somerset College is a Centre of Vocational Excellence (CoVE) in Construction Crafts, Professions and Sustainability. The status reflects its long track record in this area, which has culminated in the construction of the inspirational Genesis Centre (winner of this year's Sustainable Construction category). This provides a venue for specialist sustainability events, and a wealth of practical examples for learners. Somerset's portfolio includes:

- Accredited courses in many areas of sustainable construction
- Short courses centred around sustainability, including strategies for zero carbon construction, sustainable water management in construction, solar gain and micro renewables and resource efficient construction
- Activities, curriculum packages and events to schools and higher level education to promote sustainability - such as a Construction Week, where pupils were asked to design a Sustainable School
- Bespoke offsite training packages for employers
- High level Continuing Professional Development programmes for the construction industry
- A one-stop shop for industry on sustainable construction techniques, training, product demonstrations and advice.

Many of its programmes are ahead of funded qualifications, and therefore delivered at full cost.

Each year the college organises a Young Environmentalist competition involving primary and secondary schools and its Sustainable Education Facilitator, Yvonne Mackeson, has created learning materials for schools that link into the national curriculum.

Despite its success, the college sees new challenges ahead. "We're now focusing on reaching the less-enlightened small construction companies, and also SMEs and micro-sized firms, because they form the backbone of the construction industry," explains former Genesis Project Director, Ian Moore.



"The Genesis Centre itself is a great help with this, because it provides a practical demonstration that traditional skills and materials are essential to green construction. Its importance as a teaching resource can't be overstated.

"We also want to ensure that our learners get a consistent message from all areas of the college's operation so every one of our courses is now being given a 'Genesis Badge' showing its sustainability star rating."

Ian Moore and a year 10 student in Construction Week

The judges said...

Somerset College provides an excellent example of an institution helping to develop regional and national skills for sustainability. Its inclusive and outward facing courses, the strength of links with a wide range of stakeholders, its continuous improvement and innovation, and the construction of the Genesis Centre as a physical statement of its learning goals, are all most impressive.

Courses

HIGHLY COMMENDED

University of Gloucestershire Puts Sustainability in the Hot Seat

Students in a number of disciplines now take a compulsory first year module in Skills for Sustainability which has been designed to be more interactive, and practical, than predecessor courses on the topic.

Unusual elements include a 'Question Time' style Q&A with an expert panel, analysis of local sustainability projects, and a 'green' version of TV's Dragons' Den. Students develop a sustainable business idea and must convince judges from the university and business that it is viable. Successful projects have included:

- The 2007 winner, Unicycle, an online auction site where students and staff can sell unwanted goods - thus extending their useful life and (through a levy on the sale price) contributing to new initiatives
- The runner up project last year which focused on water management at the university
- A scheme for the university to produce its own cider from sustainable orchards.

According to course co-ordinator, Dr David Turner: "Students say the module has led them to recycle, use the car less, and even grow some of their own food. They're also spreading the word to family and friends, and some have even taken the message into work and challenged business activities as a result."

The course itself has changed in response to this awareness. Students questioned the environmental logic of transporting large numbers of them to visit sustainability projects so people from the project are now being brought onto campus instead.

The changes in student awareness are chronicled in learner portfolios. One community development student says: "I have become more aware of what I do as a person to be sustainable. I try and recycle everything I can and I promote this to my friends." Another student reported that he had talked to his father about using more sustainable heating sources in the buildings that he designs and builds. This led to installation of lower-emission heating in a local village hall and his father's firm now uses more sustainable wood-frame structures in buildings.

Dr. Turner, who has written research papers which provide both theoretical and practical guidance on the benefits of this model, believes the course shows that a "problem-solving approach, where students deal with real issues, can greatly increase student engagement, and lead to much deeper learning. We have also had quite a bit of media coverage for initiatives. This provides an opportunity to show that students are keen to make a difference, not just to the university but also in the wider community."

"The change in delivery has been completed within existing resources and as such is a zero-cost win-win change. Hopefully, some student solutions will help the university to reduce costs when implemented."



The winners of the Green Dragons' Den 2007

The judges said...

The University of Gloucestershire has learnt from more conventional approaches to teaching sustainability and, as a result, developed an engaging and effective approach which brings the best out of students. It has also benefited through the generation of good ideas, and favourable external publicity. The central idea, Dragons' Den, is one which could easily be adopted in other institutions.

Courses

HIGHLY COMMENDED

University of Manchester Students Tackle Complex Environmental Problems

Undergraduates at Manchester have been grappling with real world issues such as organisational change, regulation and social responsibility as part of a new sustainability module.

Traditional lectures were replaced by learning sessions in which students were challenged with the 'wicked problems' they are likely to face in their careers. One exercise surrounded an earthquake which had left 3 million people homeless. Students had to develop a strategy for transitional housing, schools and clinics taking sustainability issues into account (e.g. by using traditional construction materials and methods in the area). Others included:

- Looking at sustainable development issues for a tyre manufacturer
- The effects of new sustainability legislation [eg WEEE] on small business.

The course, offered to those studying engineering and science, was over-subscribed and has been a big hit with those able to study on it. One student described it as "the most enjoyable course" he had done, while another praised it for the opportunity to work on topics outside the normal scope of his degree.

The module has 10 credits, and received support of £35,000 from the Royal Academy of Engineering. It was led by post-doctoral research associates, and the challenges were designed by an inter-disciplinary team of academics.

According to Rosemary Tomkinson, Head of Teaching Support and Development in the Faculty of Engineering and Physical Sciences: "Everyone has benefited from the exercise. Learners have a greater awareness of sustainability issues and change processes, have an enhanced capability to make a difference when they leave, and have increased employability through development of professional skills and team working. The post docs developed facilitation, networking and problem-based teaching skills, whilst academics gained new insights by interacting with students from different disciplines to their own."



The project has provoked worldwide interest and its findings have so far been presented at 11 academic conferences and featured in two books. It is hoped the programme will become self sustaining, with staff costs offset against student fees and a unit for postgraduate students is now being developed.

"Once graduates enter their professional lives, their everyday actions greatly influence the environmental and social impacts that their organisation has on the world. We wanted to give students the opportunity to develop their own views before they become entrenched in a particular corporate or professional culture," says Rosemary Tomkinson. "If they're more challenging and thoughtful as a result, that's good news for the wider community and the global environment."

Confronting wicked problems at Manchester

The judges said...

The University of Manchester has developed an innovative and challenging approach to learning about sustainability, which should be very transferable. It has a strong multi-disciplinary approach to delivery and management, makes good use of problem-based learning, and the under-utilised resource of Post-Doctoral Research Fellows, and has good evaluation and utilisation of outcomes.

Energy and Water Efficiency

WINNER

University of Dundee Proves You Can Get Something for Nothing

Combined heat and power (CHP) is already producing electricity and hot water in many universities and offers both carbon and financial benefits.

The University of Dundee has now created an additional benefit, by using the 'waste' output of low grade heat from its own CHP plant to heat its new Heathfield teaching block. (The building also gets 80% of its electricity from CHP, saving an estimated £13,000 a year compared with mains supply).

University Energy Manager, Derek Mitchell explains: "Previously, excess heat from the CHP plant was just dumped to atmosphere but it is now supplying between 60-65% free heat for the new building, serving air handling units, fan coil heaters, underfloor heating, radiators and domestic hot water. In addition, we're now saving around 157 tonnes of CO₂ a year compared with a standard gas heating installation."

The scheme had additional capital costs of around £100,000 and originally, the payback period was estimated at around five years. However, Derek Mitchell notes "payback is likely to be much shorter because energy prices have almost doubled since we began the project."

All external infrastructure and plant work associated with the primary Very Low Temperature Hot Water supply was carried out in-house. Internal design of the building was carried out by consultants and included energy efficiency measures such as fixed window shading, heat recovery on air handling units, lighting controls and passive infra-red CO₂ air quality monitoring in four large lecture theatres.

Most rooms have natural ventilation but some lecture theatres and IT suites have mechanical ventilation and air conditioning which is controlled through CO₂ level sensors, allowing it to be reduced during low occupancy.

The project offsets the use of less efficient lecture theatres on campus. It is also helping the university to meet its targets for reductions in energy use, and has improved its Combined Heat and Power Quality Assurance index.

Derek Mitchell believes the results will encourage investment in other carbon and energy reduction projects. "It has also created great interest from other universities, and I am sure that many will be taking advantage of this low cost source of energy in future."



Aerial view of New Teaching Block supplied with 'Free Heat from CHP'

The judges said...

Rising energy and water prices, and more stringent regulation of carbon emissions, create a need for increased efficiency. Combined heat and power (CHP) is a good means of achieving this, but many installations are unable to utilise all the heat produced. The University of Dundee's innovative use of previously wasted warm water to provide "free heat" for its new teaching block demonstrates the opportunities to increase CHP efficiencies even more, within a reasonable payback period. The in-house design, fit-out and commissioning of the scheme are also noteworthy.

Energy and Water Efficiency

HIGHLY COMMENDED

Swansea Metropolitan University - A Small Project Creates a Large Legacy

A 100 day energy campaign proved to be a real winner for Swansea Metropolitan and is an easy example for others to follow.

The campaign ran during peak energy usage months - from November to March - and culminated in an 'Energy Monday' during the university's Environment Week. Throughout the campaign, staff received a weekly email from the university's energy consultant (a member of the academic staff) on differing issues.

Staff and students were also asked to nominate Environment Champions, who received prizes and certificates for their efforts to change behaviour amongst their colleagues. One particularly effective idea developed by caretaking and cleaning staff was, "You've been carbonned!" calling cards, which were left in offices where lights or equipment hadn't been switched off.

The effects of the campaign were apparent in the University's 2006/7 performance. An internal audit found a saving of £42,699, and 399 tonnes of CO₂, compared to the previous year. The Estates Management Statistics also show a fall of 8% in CO₂ kg per m² - to 46 kg per m² - despite an increase in students. This compares well with the national average, as does the energy consumption figure of 162 kW/h per m², which is comparably lower than the UK average of 254 kW/h per m².

The university's Environment Manager, Elizabeth May says: "It's difficult to calculate how much of these savings were related to the campaign, but there's no doubt that it had a considerable impact. It also highlighted the university's concerns about environmental sustainability, and increased the awareness and receptiveness of senior managers and staff."

Swansea Metropolitan has since replicated the exercise in winter 2007-8. Elizabeth May notes that "the success of the previous campaign made it much easier to get buy in and enthusiasm from key stakeholders, such as Estates staff. We've also made improvements, such as tweaking our building management systems."



Vice-Chancellor Professor David Warner (right), Elizabeth May (left) and energy champions

The university is now taking the learning from the project into an innovative, HEFCW-funded, multi-institutional energy and environmental improvement initiative, with Swansea University and Trinity College, Carmarthen. Swansea Metropolitan is also planning to adopt the same approach for short campaigns on waste reduction and recycling.

Elizabeth May says: "One of the best things about this campaign is that it doesn't take a lot of time, and gives fairly quick feedback so that people can see that it's worthwhile putting in the effort and are more inclined to support future campaigns. It's a simple idea that is easily transferable to other universities and colleges."

The judges said...

Capital initiatives for energy efficiency need to be supplemented by awareness campaigns, such as the exemplary one at Swansea Metropolitan University. This was well timed for the period of peak demand, used clever marketing devices and was impressively inclusive, with an appeal to all sections of the campus.

Residences

WINNER

University of Manchester - Where the Living is Greener

Student accommodation can easily be overlooked when it comes to environmental action, but between 2005 and 2007 Manchester's residences:

- Cut energy use by 25% and CO₂ emissions by almost 30%
- Reduced energy bills by over 30%
- Increased glass recycling by 30%
- Recycled more than 22 tonnes of cardboard.

Former Operations Manager, Debra Lumsden, believes two key features of the work have been the recruiting of student environmental champions - 200 of them last year - and external support from the charity Global Action Plan.



Debra and Joe with Green Gown Award

The champions have spread the environmental message through meetings, door-knocking, posters and other means. A Switch Off campaign resulted in the percentage of lights left on overnight dropping from more than 90% to 11% at one residence, and from 75% to 27% at another.

The champions are volunteers who receive a United Nations Environmental Champion Certificate to recognise their contribution. They have also gained good publicity and have been featured on Channel M local news. Students' Union Activities Officer, Emily Randall, says: "Putting green issues onto the agenda is in everyone's interest and this project has been a great step for Manchester. We now have a growing community of students who are taking action and their efforts are having a real impact."

The university has supported the champions by:

- Publicising their work - for example through student induction meetings; by streaming environmental information when students are setting up internet connections, and through newsletters
- Ensuring that suppliers delivering to student residences remove all packaging, and that suppliers of white goods remove old appliances
- Setting up new recycling centres for plastic, glass, paper, cans and newspapers/magazines
- Organising move-out charity collections at the end of each term.

The university has also established a scheme to collect unwanted TVs and last year, over 100 were donated to a local prison for refurbishment. This both creates a second life for them - so that fewer new ones need to be built - and helps inmates to develop their repair skills.

According to Domestic Services Manager, Joe Anderson: "The financial benefits from the scheme help us to keep down student rents, and invest in infrastructure. For example, the reduction in landfill fees has more than covered the cost of the new recycling centres. Perhaps most importantly, we've raised awareness amongst staff and student residents and they carry the message into the rest of campus, and their lives outside it."

The judges said...

Student engagement is crucial in almost all aspects of campus sustainability but nowhere more so than in residences. The University of Manchester has fostered an impressively high level of participation and commitment, which is clearly paying off in both environmental and financial terms. The all-encompassing nature of the initiative, and the sustained collaboration with an external charity are especially noteworthy and provide a model for replicability in other institutions.

Social Responsibility

WINNER

Accessorising Sustainability, African Style, at London College of Fashion

This Shared Talent project has involved London College of Fashion (LCF) fashion students working with South African crafters to produce a range of striking fashion accessories, such as jewellery and handbags.

The items are made from locally sourced and environmentally sustainable materials like reused telephone wire, which gives them a clear design identity and sets them apart from the mass-market offer.



Shared Talent celebrates both people and product

Credit: Gavin Fernandes

Dilys Williams, Director of Sustainability at LCF - and founder and champion of the project - says the range proved a huge hit at South Africa Fashion Week, and the Ethical Fashion Show in Paris and London. "Their combination of South African craftsmanship and strong European design has also led High Street brand Gola to stock them."

The project involved collaboration between LCF and LISOF Design College in Johannesburg. Students from six LCF undergraduate courses were involved, and LISOF facilitated contact with crafters. To maximise social benefits, the crafters selected live in an extremely poor, and violent, township.

Many are single parents whose families have been affected by HIV and AIDS. The hope - which is now being realised - was that the crafters could improve their lives and contribute to community development by gaining much needed income from the European market.

To increase the chances of success, and to enhance student learning about the 'real world' of design, the work had to be carried out to very tight deadlines and working practices had to be ethical and environmentally sound.

Knowledge from the project is being used to develop an MA course and a new elective programme open to all BA (Hons) students and LCF is also planning a new partnership project with inmates and staff of women's prisons.

Lessons learned from Shared Talent are communicated through lectures and debates and Dilys herself is bringing the ideas into the mainstream through a new Centre for Sustainable Fashion.

According to Dilys Williams: "The project is helping to ensure that issues of sustainability, and socially responsible design and production, are embedded not only into our curriculum, but also into the work of the students post-graduation. For example, one student has worked with a Nepali cooperative to produce designs using locally sourced materials. We hope that the effects will continue to ripple out, and have an influence on the whole industry."

The judges said...

This imaginative and inspirational scheme is truly holistic, with economic, environmental, political and social aspects. It is successful on many scales, from individual homes in South Africa, to influencing a whole industry by demonstrating that ethical design and sourcing from social enterprises can make commercial sense, and by influencing the next generation of designers. It also provides a model of successful partnership working, both across international boundaries and between commercial organisations, NGOs and educational bodies.

Social Responsibility

HIGHLY COMMENDED

University of Bedfordshire - Where Students Offer Valuable Lessons

More than 70 students at Bedfordshire benefited others and themselves in 2007 through an innovative mentoring scheme for local schoolchildren.

Pupils aged from 5 to 16 were put forward by teachers from five local schools and received support and guidance on a range of issues such as under-achievement, social isolation, dealing with bereavement and bullying. In some cases, the process involved matching Polish and Lithuanian-speaking university students with newcomers from those countries.

The scheme, established in 2003, is run on a budget of only £2,000 per year. Mentors commit to one hour a week from October to May and receive out of pocket expenses for their involvement. They receive 10 hours training and the university carries out reference and CRB checks. Ongoing training and support is available and this year, a system of 'lead mentors' has been introduced which reduces the amount of staff time needed.

The scheme is also leading to new opportunities. The university is hoping to get student volunteers translating at school meetings when language is an issue. It is also looking at in-house developments, such as university staff mentoring students; UK students mentoring international students, and second and third year students mentoring freshers.

Student, Ciaran O'Brien, who mentored two 12-year-old boys, says: "Mentoring is so rewarding. Recognising the help and support that you are giving a young person gives you a great feeling, but seeing the effect you have on them as they grow and benefit from the mentoring is what I enjoyed the most."

Bedfordshire has now distilled its experience into a training package and hopes to use this to disseminate its experience to other institutions.

Community Projects Co-ordinator, Andrea Thorogood, describes the project as "a win-win situation for students, children and the university. Pupils benefit from one-to-one attention, a positive role model, academic assistance, or just a sympathetic ear and it can help to inspire them to consider higher education themselves.

"Our students also get a great deal from it - as their very positive feedback shows. Their confidence grows and they learn a lot of transferable skills which increases their employment chances."

"If they're freshers, involvement can also help them to settle, make friends and get to know the area."



Bedfordshire mentoring session

The judges said...

The University of Bedfordshire has created an imaginative, and highly cost-effective, scheme which is making an effective contribution to individuals and disadvantaged groups, in a challenging area of work. It is very well managed, with a thoroughness which ensures that mentors are well prepared for their potentially difficult tasks. The personal benefits they gain, such as useful skills for employment, are also impressive. The project provides an easily transferable model of how universities can 'make a difference' in their local areas.

Student Initiatives

WINNER

'SLAGs' Live More Sustainably in Durham

A cost-neutral sustainable living project run by students at Durham University has proved hugely successful in reducing energy and waste - as well as changing attitudes. The Sustainable Living Action Group brings together elected student environment officers (referred to as SLAGs!) from across the university's 16 colleges.

Set up in 2006, SLAG has already produced tangible results and according to group co-ordinator, Toby Walton, it succeeds because it is student-driven. "Students know best how to get the attention of other students and we have used a variety of novel approaches to raise awareness of sustainability." Examples of this are a poster campaign which equated the amount of water used by one college to more than 60 million pints of beer; a naked photoshoot to promote recycling and the building of a rubbish "mountain" outside Durham Cathedral.

Anthony Crowther, Student Union Environment Officer in 2007-08, believes: "SLAG is an innovative part of environmental management. Until recently, the human factor in sustainability was largely ignored and SLAG addresses that."

An end of year Green Move Out scheme reduced waste in some colleges by 33% and SLAG believes it has increased recycling in colleges from around 8% to 28%, although detailed figures are not available.

The group has also formed partnerships with local environmental organisations and taken part in a range of projects. These include a student allotment, a Green Schools Project where volunteers educate youngsters about sustainability and a city campaign aimed at eliminating plastic carrier bags.

The group has had input into the university's environmental policies and has campaigned for the university to reduce its carbon emissions. The university has established a carbon management group and has worked with Durham City Council to introduce plastic recycling. Inspired by SLAG, several academic departments have now formed their own departmental Green Groups to assess their environmental impact.

Toby, a recent graduate of Durham, has just completed a year as SLAG's full-time co-ordinator. He took over from the scheme's founder, Antje Danielson, an academic who used her experience from developing a similar scheme for the Harvard Green Campus Initiative.

"The programme costs around £20,000 per year, including the co-ordinator, but it saves the university about £33,500 in reduced electricity costs and around £14,400 in waste costs," says Toby. "We have a bank of web-based resources and students across the UK are welcome to use our blueprint and database to set up similar programmes."



Members of SLAG construct a rubbish mountain in front of Durham Cathedral

The judges said...

The Durham scheme demonstrates both the value of student initiatives in raising awareness and mobilising energy, and the way in which best practice can be transferred between universities. The SLAGs have achieved measurable improvement, and have influenced both individuals and the institution through the strong partnerships they have built. The programme has also been impressively professional in its branding and marketing.

Student Initiatives

HIGHLY COMMENDED

Investing in Sustainability at St Andrews

The University of St Andrews is not just paying lip service to sustainability - it is putting its money where its mouth is because of student action. In 2003, One World, a society within the Students Association, began an ethical investment campaign. Its short term target was the Association's own £1 million fund - which was achieved through a resolution with the highest turnout in its history. The next stage was persuading the university to do the same with its £36 million endowment fund.

Campaigners engaged not only with students, staff and alumni, but also the community, through a town centre demonstration. The university responded by setting up a working group involving university finance staff and students and this led to a new Sustainable and Socially Responsible Investment Policy. As a result, the university specifically avoids investment in two areas - the arms industry and companies involved in animal testing for cosmetics. It also favours investment in certain areas, such as green energy.

Sustainable development student, Harry Giles, who helped to co-ordinate the campaign for three years, says: "Obviously we are delighted with the results. It has been a long haul but St Andrews not only has the most comprehensive Ethical Investment policy of any university in the UK, but also the greatest student involvement. We're involved in selecting the fund managers who will implement the policy, and are also represented on the committee which monitors the policy's effectiveness, and ensures that it's achieving its aims." He believes that the campaign has:

- Proved the financial case for ethical investment
- Increased awareness amongst students and staff, with many moving their own money to more ethical accounts
- Demonstrated customer power
- Promoted, and helped to implement, the university's sustainability goals.

Students have also set up a website (www.ei.wikia.com), to disseminate experience to, and provide useful information for, other student groups and organisations. It includes resources, news from other universities and campaign literature.

Roddy Yarr, St Andrews Environment and Energy Manager, feels that the campaign educated students in "the often overlooked link between what institutions might like to promote - and what they unintentionally promote through their investments. The major costs were in professional research and staff time. Other universities can now make use of that research, so it should cost them considerably less in both time and money."



200 students march through St Andrews

The judges said...

The University of St Andrews' pioneering initiative on ethical investment has combined a passion for sustainability with hard-nosed financial argument, and demonstrated an impressive level of organisation and staying power. It is a model of how student actions can change not only their own institution, but the sector as a whole.

Sustainable Construction

WINNER

Somerset College's Genesis Centre is Naturally Inspiring

Somerset College of Arts and Technology has built a concrete-free example of how traditional building techniques and materials can serve 21st century needs.

Principal, Rachel Davies, says: "We are delighted to have a building that showcases state of the art green construction. It highlights the potential for greater use of local, recycled and renewable materials, and thereby acts as a catalyst for changing construction practices."

The building has a number of pavilions, each built from a different natural material including straw, rammed earth, cob and fired clay honeycomb blocks. These are now being monitored for performance and will be measured against industry standards - and each other.

The Centre has:

- A "living" green roof and a rubble roof (incorporating rubble from construction)
- External cladding of locally sourced red cedar (which doesn't need preservatives)
- Natural insulation - including recycled cotton denim and newspapers
- Carpets made from recycled material
- Sustainable urban drainage.

One particularly successful feature is lime mortar. This generates far less CO₂ emissions in production than conventional mortar, and is also hygroscopic, so it absorbs moisture and benefits internal humidity in summer.

Heating comes from a biomass boiler, with 20% of the fuel coming from waste generated in the college's own workshops. This, along with photovoltaics (which provide over half of the building's electricity needs) and solar hot water, is saving more than 20,000 kg of CO₂ per year compared with conventional alternatives.

Waterless urinals, low flush toilets and aerated taps also reduce water use - and the toilets feature worktops which look like expensive granite but are actually made from recycled yoghurt pots.



The Genesis Centre

Former Genesis Project Director, Ian Moore, believes the building has "a real feel-good factor for those who work or study in it. The high thermal mass means it doesn't react quickly to temperature changes so people aren't uncomfortable in hot weather. The acoustics in the lecture theatre are also excellent - we made use of straw which contains sound so noise doesn't travel into adjoining areas.

"It's a unique building which has won many awards, inspires its many visitors, and has had a profound impact on the wider work of the college."

The judges said...

The pressures for 'greener' construction are growing. Effective responses by the sector require both inspirational and visionary approaches to individual buildings, and the embedding of sustainability processes into ongoing programmes. Somerset College's Genesis Centre illustrates the first of these. It exhibits a holistic approach, and demonstrates the use of a variety of sustainable construction methods and materials. Its use in the curriculum, and for business and community engagement, is also impressive.

Sustainable Construction

HIGHLY COMMENDED

University of Surrey - Refurbishment Saves Energy, Inconvenience and Cost

Like many universities, Surrey has 1960s and 1970s buildings which were becoming ever more tired and expensive to run. The choice was whether to demolish and rebuild, or to refurbish. This involved examining the soundness of the structures, and then calculating the financial and environmental costs and benefits of refurbishment.

Derry Caleb, Director of Estates and Facilities Management, explains: "Our analysis showed that refurbishment could have a lower capital cost in multiple phases with lower impact than new build, while delivering similar levels of energy efficiency and running costs. It was also clear that there would be much less environmental impact and our previous experience of remodelling had proved that we could carry out much of the work on a floor-by-floor basis while the buildings were in use. Crucially, this avoided the expense, inconvenience and impact of new build."

Surrey renewed the infrastructure, and made weather-tight, over 45,000 m² of space between 1997 and 2008. A large proportion of its buildings were remodelled and upgraded. The work included:

- Replacing 14,000 m² of single glazing with double glazed, insulated panels
- Installing heat recovery within the ventilation plant
- New centralised chilled water cooling systems
- Installing lighting controls and more energy efficient fittings.

This has reduced heat loss by 60% (thereby creating greater user comfort), annual energy consumption by around 8,000,000 kWh, and annual building-related CO₂ emissions by over 2,000 tonnes.

Rebuild would have involved decanting of staff into temporary accommodation in disparate locations, whereas remodelling took much less time and allowed co-location of activities. Major projects were compressed into 3-4 month periods each year, with minimal disruption. The university also avoided the environmental impact of demolition - not to mention the general noise, dust and extra vehicles that would have been on site.

According to Jonathan Richards, Deputy Director of Projects: "We have shown that 1960s buildings are worth investing in. When upgraded, they can perform as well as most new buildings and, from the user's perspective, the internal environment is no different to that of a new building. They also show that structural decisions which allow easy remodelling, such as generous floor to ceiling heights, good service routes and cost effective structural modules, can be of great environmental benefit because they make refurbishment easier."



Senate House - the first of 10 academic buildings to be upgraded

The judges said...

Many UK university buildings date from the 1960s and 1970s, and are now requiring decisions about refurbishment or replacement. The University of Surrey's experiences are therefore very transferable. They show that renewal can be carried out sustainably, not only in terms of minimising energy and CO₂ consumption, but also by capturing the huge environmental benefits of more effective space management. The management of its ambitious programme, and its phasing to minimise occupier disruption, is also impressive.



Colleges and Smaller Institutions

Continuous Improvement

Courses

Energy & Water Efficiency

Residences

Social Responsibility

Student Initiatives

Sustainable Construction

"We want to make sustainable development a central part of our strategy for the future development of the HE sector. We still consider our vision set out in 2005 to be valid, namely that: within the next 10 years, the HE sector in this country will be recognised as a major contributor to society's efforts to achieve sustainability - through the skills and knowledge that its graduates learn and put into practice, and through its own strategies and operations."

Higher Education Funding Council for England, 2008