

Working at the water's edge

Exploring water's past, present and future

Urban jungle
Designing a bayside park in Singapore

Our lost rivers
The Walbrook: one of London's hidden waterways

Sweet and salt
The unique relationship between the Dutch and water





The extension of the King Edward Memorial Hospital required an intelligent building with efficient water and energy use



Landscape plays an important role in the building's sustainability credentials

Flowing in the right direction

How two UK practices are working to build projects around water

Water, and how to do deal with it, is the life, death and resurrection of a Post-16 Centre in Melton Mowbray, Leicestershire.

Sustainable Drainage Systems, or SuDS, are not new in concept. In practice, however, the school is blazing trails in some of the latest thinking on sustainability.

Everything about the school, from its orientation and form to the size and location of the car park, was planned and built with water in mind. The 3 ha site surrounding Melton Vale Post-16 Centre is defined by wetlands, grassland and woodlands. Ponds, reed beds and swales carry water from hard surfaces through wetlands to a main basin.

"Water envelopes the school," says David Singleton, whose firm designed the project. "SuDS often works intensively and in isolation, usually little more than a tank buried in the ground. Here, however, it is the landscape – it dovetails with the landscape

framework and defines how the land is used and managed."

Bioswales are very shallow and have carefully graded sloping sides to enable mowing, while pond areas brim with marginal plant species. Rain from roofs and the car park is used to flush lavatories in the school and grey-water recycling levels are linked to the school's ICT system, providing users with digital displays of litres saved.

LIMITATIONS ARE MORE likely to lie with the users than the landscape, which is where Singleton has to don his teacher's hat. "There is often a mismatch between design and what the staff actually do with it," he says. "The school has retained us to further develop outdoor learning and we are starting to make a real difference. That's our secret weapon: we never leave site, which empowers the design."

Singleton, who runs DSA Environment + Design in Nottingham, doesn't underestimate his task. "SuDS must relate to people," he

says. "Engineers tend to regard it as a numbers game; they are more bothered with the five litres of water per second per hectare coming out of a pipe than the site. As landscape architects, we must understand how that school uses the landscape."

He adds: "What's the point of putting up a sign outside the school saying: 'we have saved 800 litres of water', when there is no connection to what happens in a maths or physics class? We can get children into the landscape – measuring, recording, drawing and compiling botanical surveys, experiencing changes in the environment on their doorstep."

This was all driven by legislation. Like most innovation, the construction industry doesn't innovate "unless pushed", he says. The Flood and Water Management Act and the Water Framework Directive will push anyone changing landforms into a more water-friendly arena, which will help SuDS become more prominent. .../



Bermuda had a big problem: the King Edward VII Memorial Hospital. The hulking block is one of the island’s largest institutional buildings and swallows almost a quarter of its potable water and vast amounts of energy.

Landscape architect Peter Wilder likes solving problems, but Bermuda’s regulatory framework threw up few favours for a building that had to be water and energy efficient in virtually all areas of operation. Strict laws prevent importing soils and plants, while much rain runoff is deemed unsuitable for use inside buildings.

“We looked at a raft of different solutions and honed it down to the most critical ones,” he says of the rainwater-harvesting, grey-water reuse and black-water treatment systems he decided the hospital could not be without. On

top is a green roof that reduces reflected light and bulks out the structure.

“The roof has the added benefit of helping to prevent damage to membranes from flying debris during hurricanes,” Wilder says. “All the plants, substrates and soils are being produced on site. Local limestone, for example, is used for green-roof substrates and existing plants are being recycled – lifted, stored at a nursery and put back on completion.”

Everything dug up and carted off the site during construction, he insists, is being recovered and reused. Neat design touches, such as a patient garden on the second floor offering views of the coast, new shelter zones and indigenous maritime plants, will be complemented by even more creative thinking in the science of sustainability. All the liquid from the black-water system, for example,

will be treated and used for irrigating plants when the project, which is in the middle of the building process, is finished in a few months. Biosolids from the sewage also undergo treatment before being used by gardening staff tending a nearby botanical garden.

“**WORK IN BERMUDA** is driven by its geography and the need for self sufficiency on an island,” says Wilder, whose company, Wilder Associates, is working on water-focused landscape design in nine countries, including China and Chile. “It can form a template and exemplar on self sufficiency and reuse.”

But regulatory frameworks, which are tough in Bermuda, can throw up opportunities for landscape architects. The UK’s Flood and Water Management Act, the provisions of which came into force this April, makes developers and designers exhaust all sustainable options before flushing water down the drain.

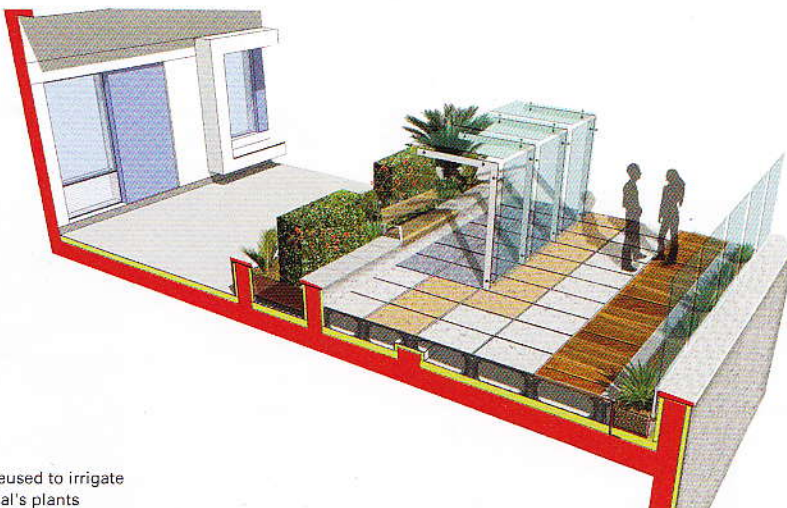
“These include grey-water harvesting, attenuation, infiltration and storm-water wetlands,” Wilder says. “Yet some people are

STRICT BERMUDAN LAWS PREVENT IMPORTING SOILS AND PLANTS

looking at the quandary between supply and resources in terms of conflict when it could be an opportunity.” A combination of legislation and newly available data – the British Geological Survey launched the first ever SuDS map for the UK this year – throw up big scope for bypassing piped infrastructure.

“This is a crucial step in completing the water loop in landscape that does away with flushing it down the storm-water sewer,” he continues. “It’s shaking the mindset that a pipe is the best option for getting rid of rain water and exploring new options that don’t reduce it to a waste product.

“This is a key moment in law and industry: for the first time we are recognising water for what it is – not a waste product but a valuable commodity that must be conserved.” ●



Water is reused to irrigate the hospital’s plants