

Landscape

The Journal of the **Landscape Institute**

Spring 2015



Greenwich's landscape for learning

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With its variety of roof gardens and its splendid urban position, the new building for Greenwich University is not only a superb piece of design but also a valuable learning resource for landscape students.

BY RUTH SLAVID

A landscape for learning



- 1 – The living roofs started as a planning requirement but have evolved into much more.
- 2 – The university sits at the heart of historic Greenwich.
- 3 – Architect Heneghan Peng has broken up the facade to reduce the monumental quality of the building in a domestic environment.

- 4 – There are numerous views out to the green roofs from inside the building.
- 5 – Photovoltaic panels on a roof.
- 6 – Landscape students have access to all the roofs.

All this should be enough for an institution to feel that it has rich resources, but students in Greenwich can enjoy much more. They are on the high street of one of London’s top tourism destinations but within reach of challenging areas of east London urban deprivation while looking out towards the financial powerhouse of Canary Wharf. At the same time they have Greenwich Park, one of the Royal Parks, on their doorstep.

Designed by Irish architect Heneghan Peng, the building seems so comfortable in its city-centre position that it is easy to forget how unusual this is for new academic institutions – how much simpler it is to banish them to campuses where they can grow and sprawl, and not connect to anything much. And building in Greenwich is not easy, not least because it is a World Heritage Site. In addition, while the site is commercial at the front, it is residential at the back, with an appealing mishmash of Victorian homes complete with back extensions, rickety stairs and pocket-handkerchief gardens that are often charmingly ramshackle.



AT THE FORMAL OPENING OF Greenwich University’s new building in the heart of the town, an impressive occasion addressed by former foreign secretary William Hague and a brace of baronesses, the vice chancellor announced that applications from potential students had gone up by 15 per cent. Since attracting students is a prime desire of universities, this can be seen as a tangible return on investment.

For landscape professionals the building is exciting on two counts. Firstly, as a building it makes imaginative and vital use of green roofs. And secondly, one of the two departments to occupy the building is the department of architecture and landscape, so landscape students benefit from the magnificent new teaching facilities. The two benefits are linked by the fact that the green roofs are not simply satisfying a planning requirement or providing an ecological or leisure benefit. They do all these things, but they are also an educational resource. Providing a variety of habitats, they will be used both for practical teaching and for research. While not all aspects are fully operational yet, the plan is to study a wide range of topics, including urban farming, algae and aquaponics.

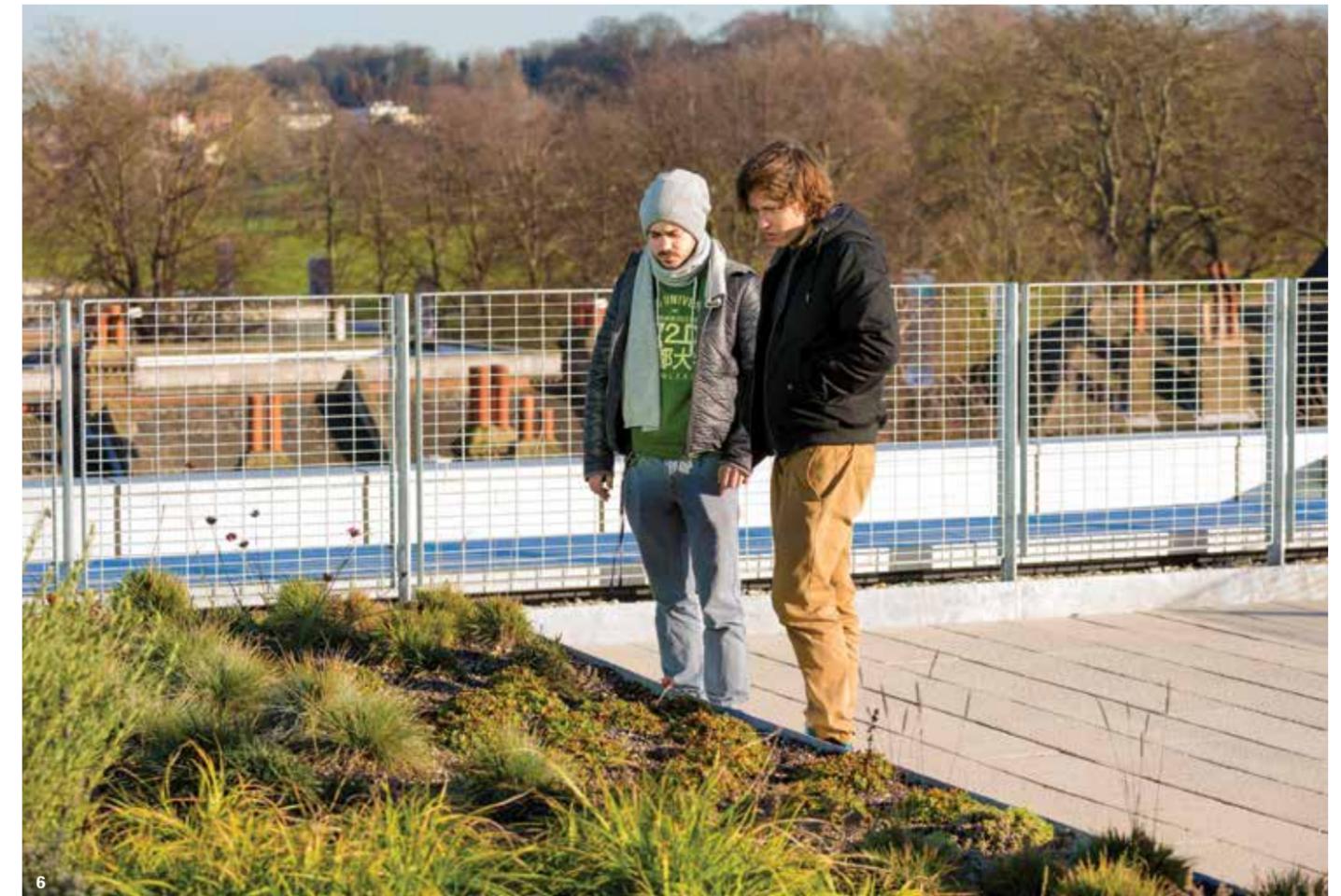


Image ©: 1 – Andrew Porter 2, 3 – Hufton + Crow

Image ©: 4, 5, 6 – Andrew Porter



It is a great contrast with the previous location of the departments in Eltham, in a complex that had grown by accretion and become increasingly unsatisfactory. The university had at least one false start before fixing on the Greenwich site, made available and affordable by the start of the recession. Not surprisingly, local residents were not enthused by the idea of a large educational building nudging their boundaries. Heneghan Peng has dealt with this cleverly by breaking the building into a number of 'fingers' and stepping it at the back, while still keeping large flexible spaces at the heart of the building. It fronts the high street with a series of 'shop fronts': the main entrance, the café (sadly a Starbucks), a gallery and a legal advice centre. This approach has two benefits. It brings light into the heart of the building through a series of courtyards, and it allows the building a monumental quality that still respects the tight urban grain.

Stepping the building has allowed the construction of a total of 14 green roofs on a number of levels, a way of putting back some of the greenery that was previously on the site. The initial design by Heneghan Peng showed these all as sedum roofs but as the design evolved they became working roofs. There are three principal research roofs, at the lowest roof level, with access only to landscape students. One of these is designed as a flower meadow, a second includes a pond for a wetland effect, and a third includes the 'algaeponics', a futuristic looking structure in which different algae cultures are grown. For example, in the autumn, a strain taken from the Thames was used. There will be great interest to see if it can regenerate itself, particularly as it is salt-tolerant. One potential use for the material produced is as fertiliser.



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- 7 – Every roof has a different purpose and planting style.
- 8 – Section through the building
- 9 – Second floor plan, showing the variety of green roofs at this level.

Image ©: 7 – Andrew Porter, 8, 9 – heneghan peng architects



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There are soils of different alkalinities to see how plants do in different environments. There are areas for growing food crops (I was allowed to leave with one of the last of the season's chillies), there will be a beehive and there are vines growing with Chardonnay grapes, so eventually the university should be able to bottle its own wine.

At higher levels, the roofs are open to all users of the building. There are areas of paving as well as planting, and on some of the roofs there are solar panels as well.

Some of the roofs are deeply planted, and the design of the building had to accommodate and be able to support the considerable weight of soil. Because of the design of the building as a series of 'fingers', the gardens are set between structural beams, providing the requisite depth of soil. Perhaps the boldest move is the inclusion of two bodies of water, since having standing water on a roof usually terrifies designers because of the potential for leaks. David Allen of the landscape architect for the project, Allen Scott Landscape Design, said, 'Effectively the ponds are double-lined. There is one waterproofing system for the roof itself, and another for the ponds.'



10 – This roof garden with a paved area is intended mainly for recreation.

11 – There is a pond and boggy area on one of the teaching roofs.

12 – One of the two glasshouses at the rear of the building, adjoining the living roofs.

Feature



In addition to the green roofs, there are two glass houses at the same level as the research roofs. One will be used for growing plants that will go on the roofs, but the other is more specialist. It will be devoted to aquaponics, one of the principal research topics for the university.

‘Aquaponics’ is a hybrid word, melded from ‘aquaculture’, the growth of fish, and ‘hydroponics’, the process of growing plants without soil. Aquaponics involves the raising of fish and then the use of the effluent that they produce as a nutrient for growing plants hydroponically.

‘The beauty is,’ explained Dr Benz Kotzen, who teaches at the university and is an expert in the subject, ‘that the fish need water and oxygen, and so do the hydroponics. Ammonia from the fish effluent and from their gills is transformed naturally into nitrite and then into nitrates which are what the plants live off.’

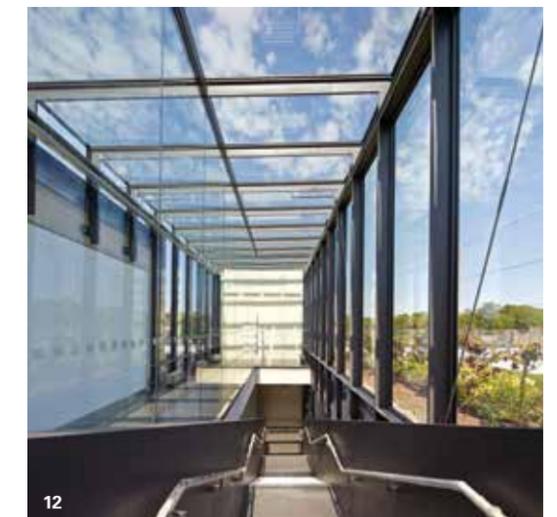
Benz chairs the European COST programme into aquaponics research (COST stands for European Cooperation in Science and Technology) and Greenwich will be one of the centres of research. It will look at combinations of different fish and crops to see if an approach that is known to be economic in resources can be commercially viable. ‘The main driver we are looking at is urban agriculture,’ he said. ‘The beauty with aquaponics is that you can put it anywhere that has light. People could be growing food for themselves, or urban vegetables.’

Aquaponics is, like hydroponics, far less water-hungry than conventional agriculture, requiring only around a tenth of the water. This chimes with another of Benz’s interests, in the landscape of arid countries. ‘A lot of people leave areas like the Sahel,’ he says, ‘because of the effects of climate change. If we can provide systems where the materials are readily available they could grow fresh fish and vegetables.’

Although a variety of fish can be raised in an aquaponics system, including Koi carp, Arctic char and barramundi, the first to be tried at Greenwich will be tilapia, an African lake fish. ‘It is very tolerant and doesn’t mind a little salinity,’ Benz said. As a result, he is looking at using water from the Thames, which is partly saline at Greenwich. It then may be possible to grow samphire, a popular and expensive sea vegetable. Another option may be specialist Asian vegetables, such as water spinach.

The university could have built the aquaponics facility itself, as Benz puts it ‘from IKEA’, but chose to go with American specialist Nelson & Pade. In a building that is special in so many ways, the aquaponics facility is perhaps the most special of all.

‘Landscape architecture is seen as a discipline that can have an impact on our cities. We are going for an increase in the quality and ambition of our students.’





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A building for learning

The architecture of the new university building in Stockwell Street has been rightly praised, but spend a little time there and you find yourself thinking not about the intelligent spatial planning or the quality of the concrete finishes but about what a great place it feels for learning.

A certain amount of this is evident even to the public gaze. There is a small gallery showcasing imaginative work done at the university fronting the street. Still within the public area is a larger gallery and there is also a large window looking into the model shop. But it is once you pass through the security barriers and up the straight staircase leading to the first floor that the excitement really starts.

There is a large open space that can be divided by relocatable barriers to create space for crits or project working. It is not immediately clear which groups are architects and which are landscape architects, and that is entirely intentional. At all levels they do some work together, with teaching staff from one discipline also teaching the other. So, for example, 3D modelling and GIS systems are taught in a cross-disciplinary way, as are some theory classes, with some teachers coming from one discipline and some from the others.

There is also some joint project work. For instance, this academic year students have been working on a project called ‘East of Eden’, looking at the potential and problems of the areas to the east of the tourist honeypot that is Greenwich, exploring for example Thamesmead and finding ways to bridge the faultline that runs through its centre. Some might fear that, given the higher public profile of architecture, landscape might remain in its shadow. But although the numbers are smaller, with a total of only around 50 undergraduates, landscape is certainly not seen as a subsidiary discipline. Indeed Neil Spiller, professor of architecture and digital theory, says, ‘Architecture is a subset of landscape. It is abundantly clear as we move forward that we need to green our cities.’ Spiller arrived at the university in 2010 when the design team for the new building had already been appointed, but he saw the potential for bringing disciplines together. As part of a larger restructuring, he put architecture and landscape into one department. ‘The students were not even seeing each other,’ he said.

13 – Small groups can gather for study on the main first-floor teaching area.
14 – Teaching taking place on a roof.



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15 – A crit in progress.
16 – Ed Wall: ‘I couldn’t imagine a better location’.

Ed Wall, the academic leader in landscape, said, ‘When we interview students, there is an increase in awareness of landscape as being important in the built environment. There is a huge interest in cross fertilisation. The discipline has a chance to elevate itself through the environmental and social agenda.’ And this means, he said, that now landscape architects have to be able to compete not just with each other but also with architects, with urban designers and with other designers. He added, ‘Landscape architecture is seen as a discipline that can have an impact on our cities. We are going for an increase in the quality and ambition of our students.’

The Stockwell Street building contains seminar rooms, the library for the entire university and also a lecture theatre, now named after previous vice-chancellor Baroness Blackstone. But the greatest teaching resource of all is on the roofs. Whereas previously all the horticultural teaching was run with the university’s partner college, now the students can use the roofs for plant identification as well as for experiments. And they are in easy reach of both Greenwich Park and the Olympic Park. ‘Every week students go either to the parks or on the roofs,’ Ed Wall said.

The importance of the facility is highlighted by the fact that the University received a special BREEAM innovation award for its roofs. But even more telling is Ed Wall’s comment. ‘I couldn’t imagine a better location in London for a landscape school,’ he said. ●



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Image ©: 13, 14 – Andrew Porter

Image ©: 15 – Andrew Porter 16 – Paul Grover courtesy of Keeble Brown