

S-Lab conference 2017

Building design and spatial costing

Sheppard Robson, the architects behind our Life Sciences Building discussed the importance of designing science buildings that maximise space, are resource efficient, flexible and enhance collaborative research. Buildings are increasingly constructed with the concept of open spaces, lots of bookable and non-bookable meeting areas, and perhaps most importantly, where there is a lack of personal ownership. The architects have observed a generational shift in the way researchers are working. Traditionally academics measure their value to a University in terms of the square footage of their office. But in offices, interaction with colleagues is often minimal and upon prior appointment only. Expectations and wishes are slowly changing, towards an open, flexible culture that breeds creativity, collaboration and productivity.



We visited the [University of Nottingham's GSK Chemistry Building](#) a few months ago and it's a great example of how we can build STEM buildings to be sustainable, it's also the only building in the world that has achieved both [LEED Platinum](#) and [BREEAM](#) Outstanding certifications (the leading environmental assessments of buildings). For more on lab design see the [Whole Building Design Guide](#).

In another session, Dr. David Canter from the University of Michigan had some progressive ideas about how to manage our lab spaces. He is the Executive Director of [Michigan University's North Campus Research Complex \(NCRC\)](#) which the University purchased from the biopharmaceutical company, Pfizer, in 2008. He's developed the empty 2.1m sq ft complex to a buzzing hub of innovation and research for the University, that now houses over 2,200 staff and 600 students. He has achieved this by implementing a forward-thinking approach in outsourcing a lot of maintenance and management services, leasing rather than owning assets such as equipment and furniture, building strong ties with the private business sector, and creating a space that multiple research departments now interact in, that wouldn't have prior. This has both enabled and driven cutting-edge research, whilst keeping costs sustainable so that growth and outputs can continue.

New equipment and technologies

We couldn't go to a conference on sustainable labs and not hear a talk about fume cupboards. [Halton](#), who are coincidentally the company who provided the environmental control (temperature, pressure, air handling) for the new science incubator in Bristol, [Unit DX](#), are developing novel fume cupboard technologies that could drastically reduce energy consumption by up to 80%. As you may already know, fume cupboards are the most energy-intensive of common lab kit (>£3000/yr), so this could help labs significantly decrease their costs and carbon footprint. We aim to partner up with Halton to help provide a test bed for field trials, and accelerate this technological development.

The Creator of [Open Iris](#) spoke about their software that provides a free platform for resource sharing within labs and core facilities (which is also a grant condition for [RCUK](#) and in the Research Excellence Framework (REF)). It also allows for booking and billing, servicing alerts and multiple statistics. We aim to implement something similar at Bristol, however it also involves a change in culture, towards the aforementioned 'lack of ownership'.

What's everyone else doing?

We also caught up on some 'Sustainable Labs' programmes at other universities: Strathclyde, Reading and Chicago. It's interesting to compare the different institutional approaches and successes, as all three institutions take a different route to sustainability in labs. The University of Strathclyde is one of four UK universities (soon to be six as Oxford and Birmingham are recruiting) to have a full-time role dedicated to Sustainable Labs. As a result, they are combining energy reduction projects such as fume cupboard upgrades, with a behaviour change scheme in the form of the Green Impact Labs Awards.

The University of Reading doesn't have a Sustainable Labs Initiative as such, but they have identified the vast financial efficiencies and consequently carbon emission reductions, to be gained from investing in lab sustainability. They've made savings of £315,000/yr with a three-year payback, by upgrading all their fume cupboards across campus. This is something we've made a start on and will continue to work through all our STEM School's.

The University of Chicago took a more grassroots approach to their Green Lab Scheme. The programme was set up by a PhD student who got fed-up with the inefficient ways people were running their labs. The lack of institutional approach meant gaining buy-in from academics and gaining momentum through a 'bottom-up' initiative. They now have multiple labs engaged in an awards scheme, as well as many smaller sustainability initiatives in several departments.

I came away with the opinion that to have a 'strong and stable' Sustainable Labs Initiative, one needs financial investment in energy, water and waste projects, an institutional approach with regards to policy, inter-departmental collaboration (Estates, Procurement, academic Schools), and finally but crucially, we need lab users to engage.

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