
WHITE PAPER

MANAGING THE DELIVERY OF ESTATES



“Our ability to deliver combined with our strategic approach and the strength of my client relationships has allowed me to develop a firm understanding of Oxford University’s estates requirements. We have delivered six projects over the last five years.”

TERRY SPRAGGETT

WRITTEN BY TERRY SPRAGGETT

Construction Director, Mace Plus, part of Mace Group

It’s not only students who feel the pressure of deadlines – estates directors know that if a project isn’t delivered on time, the penalties can be severe. That’s just one of the challenges facing those responsible for managing the renewal of a university estate, both enduring and new. They also have to engage with the many stakeholders throughout the institution and outside, meet the technical demands of the latest standards for sustainable buildings, and achieve more with a dwindling stream of funding. This means that driving greater efficiencies within new and existing buildings is a top priority, on two key areas – the use of space within buildings, and the amount of energy used to heat and cool them. Though universities in the UK enjoy considerably greater freedom from central government control than their counterparts in Europe and the US, they will have to demonstrate improvements on these priorities to ensure their funding.



English universities in particular are already under pressure to make savings, with a funding cut of £32.5m in 2010/11, which will inevitably hit capital programmes. In December's pre-budget report Chancellor Alistair Darling said the government would seek £600m in efficiency savings from the higher education sector by 2013. A change of government offers little hope – the Conservative party is threatening even greater public sector cuts.

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This pressure on funding means that meeting completion dates is even more critical – particularly on student accommodation projects, according to Peter Kerr, Director of estates for Heriot-Watt University in Edinburgh and past chair of the Association of University Directors of Estates. “If you don't have student residences available at start of the university year, the students will go off and find private accommodation,” he says. “They may have to sign long-term contracts, so if accommodation is completed two months into the year, you might find you can't let it.”

Another key challenge is meeting increasingly tough targets on energy efficiency, carbon outputs and water use. This is furthest advanced in England, where the Higher Education Funding Council (HEFCE) now expects buildings to achieve the highest levels of the new BREEAM higher education standard and is considering cutting funding by 40% to universities that fail. This is particularly relevant to laboratories, which have very high energy demands – one of the most difficult things to reduce. “Achieving good environmental standards is achievable with some building types, but very difficult with areas like research labs,” says Peter Kerr. “The requirements of items

such as fume cupboards mean that you're permanently ventilating the building.”

It is no longer enough for a building to be designed to achieve a BREEAM rating; the finished product must pass a post-occupancy evaluation too. This puts the impetus on contractors to meet the highest standards in both the delivery of a building, and the construction process itself. Nevertheless, it can be done, as Mace Plus is proving at Oxford University's Molecular Pathology Institute, which is aiming to achieve a BREEAM excellent rating when it is completed later this year. Not only does the £22m building include three floors of state-of-the-art laboratories, but a very power-hungry data centre in the basement as well.

“The key,” says Mace Plus design director Chris Lorraine, “is early engagement with the design team and the end user. Right at the start, we review the materials that are being used to reduce the environmental impact, and ensure that the construction process is planned and monitored to reduce things like energy and water use, waste, and transport to and from site.”

In fact, engaging with the whole project team is something that Stephen Henley, operations director at Mace Plus, believes is crucial to the success of any aspect of a project. “Universities have multiple stakeholders, so you have to understand who your client is and that you're meeting all of their requirements – while making sure the scope doesn't increase so it becomes unaffordable.”

This recognition of stakeholder needs is perhaps the greatest challenge on a university project. “Communication is a big, big issue,” says Peter Kerr. “It's not just the physical things we have to do, we have a communication plan that runs in parallel with the works to keep staff and students engaged in the whole experience. It's all too easy to start with a brief that asks for one thing, and as the design is developed and changed to address each constraint, you could find someone isn't aware of these

changes – they're expecting a lecture theatre that seats 100 and they only get 80.”

Henley says this is why Mace Plus always holds a day-long “anchor workshop” with the design team and client. “We ask them to explain the whole brief to us, so from day one, we understand what they're looking for. It's very much two-way. Then we hold a three-day workshop with all the specialist contractors to explain it to them so they understand how they need to work with each other before any work is done on site.”

That first engagement is crucial, but so is the handover at the end. “We always allow enough time to close out the building, so there are zero defects and it's fully commissioned and tested. If it's an academic building, we give them time to bring in furniture and books and fit out the internal spaces too before teaching starts – that can take six weeks. We make sure that's planned in right from the very beginning so everyone's clear on how much time the client needs.” He adds that Mace Plus will also arrange safe early access if time is particularly constrained: “We work collaboratively; we're not overly contractual. We understand their needs aren't always simple or black and white. Open communication is important – that way we can make sure we meet all their needs and give them value for money.”



TALKING POINTS

- ★ Can power-hungry buildings like laboratories meet BREEAM higher education standards?
- ★ How can the construction process be managed to save energy, water and waste?
- ★ What's the best way to engage with stakeholders throughout the university and outside?
- ★ What extra demands should be factored into the construction programme?

WHITE PAPER

OPINION



JOHN TONKISS
Chief Operating Officer,
Unite



The market for student accommodation has evolved at a rapid pace. We've seen a decade of continuing growth in UK student numbers, and an even faster rate of growth in international students. They've become a very important part of our education sector and will be even more so in the future.

Universities will need to tighten their belts as government-funding cuts start to exert real pressure. They want to continue to offer a range of courses and not cut back on student numbers, and they need to attract international students who pay full fees. They're thinking about how they can make the biggest efficiencies.

Accommodation is probably the second or third item on a student's list. Attitudes have changed really quite quickly since the introduction of higher fees. Students are paying a lot for their accommodation and their education, and their service expectations have grown. They want to be treated as customers.

When I look at older student accommodation and what we're building now, it's chalk and cheese. In the 1980s, you had large cluster flats with 20 bedrooms sharing a kitchen at a sardine-like density. Density is still important now, but we have a bigger range of products, from studios and micro-flats, to cluster flats with five

bedrooms, all en-suite. The finishes are superb. There's 24/7 security, access control and CCTV – all part of modern living. The quality of accommodation could be a strategic advantage for them, and a real plus for international students.

There's a whole expertise and understanding around how to build and deliver student accommodation. It's like anything – you don't know what you don't know. They're relatively low tech but high volume. When you start to build a building like this, you've got 100's bathroom suites to install. You need to understand the sequencing and the programme. From a construction perspective the projects are quite simple. The devil is in the logistics, the planning and the supply chain. And they can't be late – there's no fallback option if you're building 700 beds and you miss September.

CASE STUDY

OXFORD UNIVERSITY



Over the last five years, Mace Plus has worked with Oxford University on projects worth £100m, presenting many complex technical challenges. At the Classical and Byzantine Studies Centre, completed in 2006, the contractor refurbished an existing Grade II listed building, integrated a naturally ventilated three-storey extension, and excavated a new basement – all on a site constrained by a monastery and the Ashmolean museum. A year later, Mace Plus demolished two 1960s buildings at the Old Road Campus and built a £43m state of the art research facility. The technical challenges of the project meant negotiation and team working were very important. For example, Mace Plus delayed the agreement of the lump sum fee to reduce the risk provisions and give better value for the client. “It was a challenging budget and programme,” says Mike Wigg, head of projects at Oxford University’s Estates Directorate. “We achieved both by working together as a team and with good humour, within a totally non-contractual culture.”

The relationship is ongoing, with two projects currently on site and due to complete this year. The team is aiming for an excellent BREEAM rating at the Oxford

Molecular Pathology Institute, a project which also involves relocating a power substation, diverting a district heating main and decontaminating the old building of asbestos prior to demolition.

Though labs consume great quantities of energy, Mace Plus design director Chris Lorraine says there are ways to compensate: “Achieving BREEAM is all about getting in early with the design team and working the sustainability strategy in at the start. Research facilities tend to use a lot of refrigeration for storing samples, so you have to mitigate that by recovering as much heat as possible.”

Also challenging is the construction of a new book depository in the heart of Oxford, a precursor to the development of the New Bodleian Library, which will house 8.5 million of the rarest and most valuable books in the world, and 1.5 million maps. The building envelope will be able to withstand fire for four hours, and there will be sprinklers on four levels throughout the shelving, which stacks up to 31 levels on 28 aisles, each up to 60 metres long. The air conditioning, integrated into the shelving, will have to maintain a constant temperature and humidity.

