
HOARE LEA & SCIENCE AND RESEARCH

HOARE LEA

Pioneering work made possible. Cutting-edge flexible facilities.

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Cover photo: LTB

“Science and research is advancing faster than ever. It’s vital that buildings enable increased flexibility, better collaboration, and the precise environments needed to support this rapid development.”

ANDREW SOMERVILLE
HEAD OF SCIENCE & RESEARCH

BEECROFT BUILDING,
UNIVERSITY OF OXFORD

Photo: Jack Hobhouse

Championing excellence at every stage.

Andrew Somerville, Head of Science & Research.

Science never stands still and neither do we. The leading minds of the world need engineering solutions worthy of their work. With experience delivering some of the sector's most advanced and innovative facilities, we combine flexible solutions with the rigorous standards required of these high-functioning buildings.

We use our expert knowledge to challenge each brief in order to understand and establish the best solutions. From research laboratories and containment suites to clean rooms and commercial pre-production facilities, the result is always a cutting-edge facility that attracts the brightest minds from across the globe.

Our approach.

- We understand the 'language' used by research professionals, which allows us to establish exact requirements and enable a smooth process.
- We recognise the need for extensive flexibility and adaptability.
- We use a thorough appreciation of funding pressures and drivers to support project progress.
- We undertake thorough post-completion research that establishes where excessive energy use occurs in laboratories.
- We optimise how well a building performs for its users and reduce energy consumption without compromising safe working / compliance.
- We bring enthusiasm and a love for what we do to every project we work on.

HUMAN-CENTRIC DESIGN

Photo: Morley Von Sternberg

Photo: Jack Hobhouse

Trusted teams for world-leading universities.

Creating spaces for interaction and collaboration is a key driver for innovation in universities. This, coupled with large numbers of stakeholders and the need for highly serviced technical laboratories, means specific approaches to design, briefing, and engagement are needed.

Understanding the needs of funded institutions.

We understand that funded institutions have to follow complex procurement processes, and we tailor our way of working accordingly. It's also imperative that we provide flexible, future-proofed spaces that can demonstrate value for money and enable high levels of innovation.

Photo James Reid

Supporting the commercial drivers for business.

Commercial businesses require agile spaces that can be quickly adapted to meet the evolving needs of the fast-paced, ever-changing science sector. However, it's vital that these flexible spaces are as cost effective as possible and designed in a way that represents and supports each business's unique core values.

Did you know?

ABCAM, a leading life science company, has a brand new global headquarters in the centre of the Cambridge Biomedical Campus. A mix of state-of-the-art laboratory and office spaces, the building is designed to exceed typical design standards and complies with best-practice recommendations that will serve its entire lifespan.

Photo: Hawkins\Brown

Bringing together the brightest minds.
Hoare Lea & UCL.

SCIENCE & RESEARCH TREND – 1
ENABLING COLLABORATION

Achieving more, together.

Collaborative spaces are a valuable tool for any organisation to have, but for a science and research facility they can be transformative – accelerating progress and enhancing the quality of work produced.

As academic and commercial laboratories increasingly come together in translational buildings, we are seeing the need for more collaboration and desk-based workspaces rather than extensive laboratory facilities. From buildings that bring together multi-discipline scientists and researchers, to inner-city, mixed-use, cross-sector hubs... it's vital that collaborative spaces are well thought through.

Accelerated progress for UCL.

University College London's large redevelopment project, located on Gray's Inn Road, will see three separate institutions brought together for the very first time. It will be the central hub of the newly created UK Dementia Research Institute (DRI), house UCL's world-class Institute of Neurology, and include a significant NHS neurology outpatient facility. The aim? For the DRI and the Institute of Neurology to better carry out world-leading research and develop practical treatments.

The collaborative aims of the project are reflected in the design, which sees the ground floor of the building made accessible to the public. Our expertise in the people flow, acoustics, and MEP requirements of such a space is vital to this project; we understand how to balance the highly technical demands of the laboratories with the needs of welcoming and accessible open-plan spaces.

“Combining teaching, training, and research spaces under one roof is a proven method for success.”

THE INSTITUTE OF NEUROLOGY + THE DRI

ARCHITECT: HAWKINS\BROWN

SERVICES: MEP, SUSTAINABILITY, ACOUSTICS, VERTICAL TRANSPORTATION

VALUE: £150 MILLION FOR CONSTRUCTION

STATUS: CONSTRUCTION DUE TO START 2020

The demands of fast pace.
Hoare Lea & The Pirbright Institute.

SCIENCE & RESEARCH TREND – 2
DESIGNING FOR FLEXIBILITY

The value of future-proofed designs.

Flexibility in science and research buildings has always been a big driver for clients. The sector moves so fast that it's vital facilities are designed so they can be cost-effectively adapted to future needs. The spaces and services also need to have enough future-proofed flexibility to keep up with the developments in cutting-edge science and research.

This adaptability should also include the ability to flex the ratio of technical facilities to office space, depending on how a building's user needs evolve. This flexibility, if designed poorly, can be very expensive to provide. It therefore requires an experienced team that knows how to investigate the best solutions and clearly demonstrate the most cost-effective approaches.

Adaptable spaces for the Jenner Institute building.

A partnership between the University of Oxford and The Pirbright Institute, the Jenner Institute building is a unique facility. It's where innovative vaccines against major global diseases are developed by scientists and researchers who investigate illnesses in both human and livestock. Our brief was to design solutions that would allow the Institute to bring together a number of scientific workstreams into one flexible workspace.

Part of the brief was to challenge the norms associated with traditional laboratory environments, so we incorporated a number of innovative design solutions. One example was a modular MEP strategy we crafted for the laboratories that allows for the future expansion and sub-division of the spaces – meeting the requirement for flexibility perfectly. Ultimately, the robust MEP strategy we developed at the outset defined the parameters for the project's detailed design. It ensures a clear access and distribution strategy for the Institute – a simple yet effective approach to adaptability.

THE PIRBRIGHT INSTITUTE: JENNER BUILDING

ARCHITECT: NBBJ ARCHITECTS

SERVICES: MEP, FIRE ENGINEERING, LIGHTING DESIGN, SUSTAINABILITY, VERTICAL TRANSPORTATION

VALUE: £15 MILLION

STATUS: COMPLETE

“The adaptability of these spaces and services will allow for changes in research programmes and group sizes over time.”

NBBJ ARCHITECTS

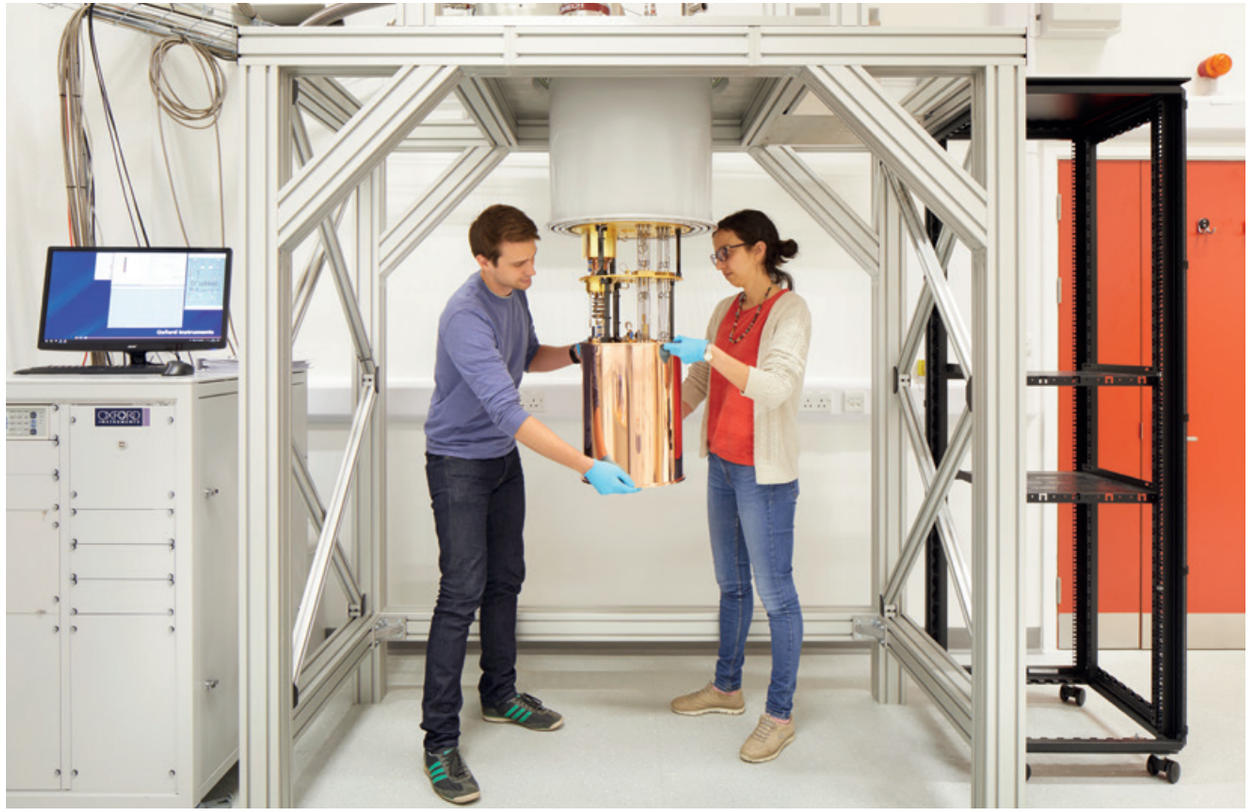

Photo: Jack Hobhouse

Critical controlled spaces.
Hoare Lea & University of Oxford.

SCIENCE & RESEARCH TREND – 3
PRECISION ENVIRONMENTS

The right environment.

For those working on complex experiments or product development, the environment in which they conduct their work sets the parameters for what they can achieve. Global breakthroughs and advancements require world-class facilities. Experimental results or the quality of production can be heavily affected by the smallest change in an environment: whether that's temperature, humidity, sound, light, vibration, or a combination of them all.

Typically, these precision spaces are only small areas within a facility, but their requirements can have a massive influence on the building's form, location, or energy usage. By gaining an in-depth understanding of the usage profile and precision needed at different times, we often find solutions that can reduce running costs or open up more space.

Close control at the pioneering Beecroft Building.

The Beecroft Building is a truly ambitious project, even by the University of Oxford's standards. Created for the Department of Physics, the building will enable the development of the next generation of computers: quantum computers. To facilitate this pioneering technology, strict humidity and temperature control is required, as well as the highest rating for vibration mitigation. Added to this, the client wanted to target BREEAM Excellent, an incredibly ambitious aim for such a facility.

It was integral that our expert teams took even more of a connected approach than usual. We worked closely with the architect, MEP contractor, the University, and – in particular – the structural engineer and vibration consultant. Together, we agreed on strategies that not only achieved the challenging BREEAM Excellent rating, but also meant the building was granted the world's highest level of vibration control... a fitting home for atomic-level experiments.

Photo: Jestico & Whiles

Redefining the value of designers.

Hoare Lea & Cavendish III.

SCIENCE & RESEARCH TREND – 4
INNOVATIVE WAYS OF WORKING

A dual approach to dialogue and decisions.

The success of a project can often be defined by how a team approaches initial discussions and information gathering. A unique and innovative way of working that we've developed for a number of our projects is a dual design approach. Called 'top down, bottom up', it sees two separate teams working in parallel to define the requirements and parameters of a project. The task of the top-down team is to agree the wider site constraints and layout, establishing the building design that best addresses the requirements of all stakeholders. Meanwhile, the bottom-up team defines a set of optimum 'building blocks' for the agreed research typologies with the user groups and design team. These technical, architectural, structural, and cost considerations are then fed into the overall strategies to inform the development of the design. This efficient approach has had an incredibly positive response from the project teams we've worked with.

Pioneering ways of working for the University of Cambridge.

On the site where atoms were split, sub-atomic particles discovered, and DNA unravelled, a brand new state-of-the-art physics facility is being built. Designed for the University of Cambridge, Cavendish III is a no-compromise high-specification building.

Not only is the project technically complex, it's also a large-scale build. Added to this, many of the individual laboratories (which have conflicting requirements) need to be adjacent to each other. Strong collaboration between the design and client teams allowed us to test these opposing constraints thoroughly, and the 'top-down, bottom-up' design approach benefitted the entire process. Face-to-face workshops helped the whole project team better understand the pressures and concerns of all involved. We also created virtual environments to articulate our design ideas to the building's users – bringing the spaces to life for them to boost their understanding and engagement.

ARCHITECT: IBI GROUP

SERVICES: MEP, ACOUSTICS, FIRE ENGINEERING, SECURITY

STATUS: IN CONSTRUCTION

Photo: IBI Group

The new frontier: state-of-the-art satellite testing.

Hoare Lea & RAL Space.

SECTOR DISRUPTION

Exploring new possibilities.

The UK's National Satellite Testing Facility is an incredible project that forms part of the next phase in the UK's expansion into space capability. Designed for RAL Space (part of the Science and Technology Facilities Council), it will include two bespoke facilities. The first is capable of accommodating spacecraft that weigh seven metric tonnes, and will house one of the largest thermal vacuum chambers in the world, along with some of the largest dedicated clean rooms in Europe. These will allow for a range of test environments that replicate the conditions expected during launch and throughout the lifecycle of a spacecraft's operation.

The second facility features a range of laboratory and workshop spaces, where specialist components and instrumentation will be manufactured and tested at high tolerances. We drew on our multi-discipline knowledge to resolve the unique challenges of this complex project and, ultimately, help deliver a pioneering facility for the UK space industry.

Experience makes all the difference.
A reassuring reputation.

Biochemistry Building, University of Oxford.
An industry-recognised building that houses one of Europe's largest biochemistry departments.

Imperial West, Department of Chemistry.
High-specification facilities designed to bring together up to 800 interdisciplinary researchers.

Living Systems Institute, University of Exeter.
A seven-storey building with the first demand-controlled ventilation system in a UK new-build.

Earth Sciences, University of Oxford.
A world-leading earth sciences facility with exemplary in-use energy consumption.

Imperial Centre, Imperial College London.
A new six-storey building on the Hammersmith Campus housing the university's biomedical research.

Modular Buildings, University of Oxford.
A fast-track solution to accommodate the Biological Sciences and Zoology departments.

IBRB, University of Warwick.
The Interdisciplinary Biomedical Research Building allows 30 researcher groups to work together.

Chemical Engineering & Biotechnology building.
'Researcher hub' layout, designed to Cat 2 laboratory containment for the University of Cambridge.

Derriford Research Facility, Plymouth Uni.
A cutting-edge, energy-efficient laboratory facility with an open link to the John Bull building.

GOSH Zayed Centre for Research, London.
UCL and Great Ormond Street's £66 million Centre for Children's Rare Disease Research.

Chemistry Research Laboratory 2, Oxford.
A new state-of-the-art centre for the science precinct at the University of Oxford.

Autolus, Media Works Building, White City.
The conversion of an office into a clinical research facility for the development of cancer cell therapies.

HOARE LEA

Engineers of human experiences.

Hoare Lea is an award-winning engineering consultancy with a creative team of engineers, designers, and technical specialists. We provide innovative solutions to complex engineering and design challenges for buildings.

Irrespective of the scale or complexity of a project, we provide a full range of MEP, environmental, and sustainability services, bringing buildings to life and ensuring that they perform in operation as well as they look.

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