ARCHITECTURE

The Crick Institute unpeeled

Ewen Callaway finds smart design fostering collaboration at London's biology super-lab.

London is having a basement boom. With property at a premium and height restrictions in place across most of the city, well-heeled homeowners in need of an extra bedroom or a bowling alley are burrowing underground. King's Cross, the city's northern transport hub, boasts the cellar of all cellars. Larger than a football pitch and 16 metres deep in places, it holds not a Russian oligarch's subterranean swimming pool, but the biocontainment laboratories and most sensitive scientific equipment of the Francis Crick Institute, London's new biology super-lab (see *Nature* **522,** 406–408; 2015).

The first of the roughly 1,600 scientists and other staff members who will work at the Crick are set to move in later this year; the building will reach capacity by 2021. The Crick replaces three ageing laboratories in and near London. Its public and private funders, including Cancer Research UK and the Wellcome Trust, both in London, hope that it will become a beacon for UK life sciences.

The Crick will boast a public-engagement auditorium.

MATT THOMAS/FRANCIS CRICK INST.

Not long ago the Crick was, far from a beacon, one of London's most expensive holes in the ground, excavated from a plot hemmed in by the British Library, St Pancras International station and attendant railway, and an underground gas main. "We had to go down," explains Robert Partridge, a director at AKT II, the London-based firm in charge of the building's structural engineering. The whole 93,000-square-metre edifice is stabilized and isolated from vibrations by 14-metre-tall, 15-tonne cement and stainless-steel columns (magnetic materials are a no-no around many scientific instruments). Researchers can thank these columns when their electron microscopes remain unaffected by the rumbling of nearby train and tube lines, the bustle of central London and even the movements of the building's workforce (see *Nature* **518,** 464–465; 2015).

The Crick's two-storey steel roof is another marvel of engineering (not to mention design — its undulations resemble an overturned ship with its hull split in two). It houses all the building's heating and ventilation infrastructure, including an air duct large enough to hold one of the capital's red double-decker buses. And it supports one of the biggest solar-panel arrays in London. The building is designed to cut back on energy and water use: for example, energy created as a by-product of powering the building is also used to heat it. And its 'brown roof' of native plants, like a green roof, helps to insulate the building and provides habitats for wildlife.

Like many twenty-first-century labs, the Crick is open-plan. Few walls separate lab benches in each of its four quadrants, and members of different groups work in view of one another, if not shoulder to shoulder. In theory, these spaces should facilitate collaboration and allow flexibility as groups swell, shrink and shift their focus. Whether this works or not is up for debate. In other open labs, I have seen scientists erect their own ad hoc barriers out of lab manuals or pipette racks to achieve a level of privacy.

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This quest for openness and collaboration goes even further at the Crick. Group meeting areas, tea-and-coffee-making facilities and even solitary study desks are located in the centre of each floor. Glass walls and an open atrium make it possible to see colleagues on different floors across the building. Even the cafeteria is intentionally small to foster chance encounters. The Crick is designed to bring researchers together, even if they actually want to get away.

The building's architects, HOK, were also tasked with showing the Crick researchers to the public. Passers-by will be able to see into the building, and those with half an hour to spare are encouraged to pop into the public exhibition and engagement spaces just inside its cathedral-like entrance.

These design elements are a physical manifestation of the institute's mantra, "discovery without boundaries". It will be years before we know whether the institute has achieved goals such as attracting the world's most talented early-career scientists to Britain, or helping to catalyse a robust life-sciences economy. And we will probably never know whether the building's design has had a role in meeting these lofty ambitions. The Crick's success as a lab will rely just as heavily on nuts-and-bolts engineering as it will on the grander and more ambitious elements of its design.

In this regard, the Ray and Maria Stata Center (also known as Building 32) at the Massachusetts Institute of Technology in Cambridge offers a cautionary tale. Opened in 2004 to glowing architectural reviews, and also intended to catalyse interdisciplinary creativity, the Frank Gehry-designed building had a mixed reception from researchers. Some loved the new connections; some longed for a cave in which to concentrate. When the building developed leaks and cracks, the university sued the architects.

When the Crick fully opens later this year, it is possible that the workforce will not pay much attention to the building's behemoth of a basement or its hardworking roof. But somehow, I doubt it — not least because, in a building of engineering marvels named after one of the scientists who parsed the architecture of DNA, structure is likely to be much on their minds. ■

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