University of Oxford

Big Data Institute Innovation Building NDM Research Building **Kennedy Institute** of Rheumatology **Oxford Molecular** Pathology Institute **Old Road Campus Research Building**





Foreword

Make's relationship with University of Oxford began in 2005, when we teamed up with Nightingale Associates to design a new facility for Oxford's world-leading cancer research teams. The result, the Old Road Campus Research Building, is designed to strengthen links between the university's medical research and the clinical treatment available at local hospitals. In the years since, we've delivered another five hubs for this prestigious institution, including its first

BREEAM 'Outstanding' building. With their highspec laboratories and collaborative workspaces, our structures accommodate scientific analysis, education, investment and more. It's been a pleasure working with a range of university representatives during this time and seeing Oxford grow in both form and vision. This book tells the story of each building we've designed for the university, offering a glimpse of the imagination, detail and diligence that have gone into each. Assembling it has been a rewarding experience -a chance to reflect on the journey of our relationship with the university and anticipate its evolution in the years to come.

Ken Shuttleworth Founding Director, Make Architects

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Make Architects



Make is a different kind of architecture practice. Founded by Ken Shuttleworth in 2004, we're an employee-owned firm pursuing a democratic design process that values everyone's input. Today we have more than 150 Makers in London, Hong Kong and Sydney providing architecture, interior and urban design services from concept to completion. Our education portfolio includes higher education facilities, campus masterplans, research institutions, secondary schools and student residences. We design each scheme to respond to its environment, reflect the associated institution's reputation and goals, and provide an inspiring environment for users, whether they're students, teachers, researchers, academics or staff.

We've worked with some of the world's leading institutions to create spaces that stimulate students, advance groundbreaking research and underpin new partnerships. In the past 15 years we've delivered six buildings for University of Oxford as part of an ongoing £117 million campus masterplan. These hubs feature top-quality spaces to work, learn, study and socialise. Their considered design helps drive forward investment and research in one of the world's leading academic institutions.

University Square Stratford, The Gateway Building

Old Road Campus

1 Big Data Institute

2 Innovation Building

3 NDM Research

Building





5 Oxford Molecular Pathology Institute

4 Kennedy Institute

of Rheumatology

6 Old Road Campus . Research Building

Big Data Institute

CAMPUS Old Road

BUILT 2017

UNIVERSITY REPRESENTATIVES Eveline James, Richard Jones, Mike Wigg

CONTRACTOR Mace

DESIGN TEAM

Architect: Make Project manager: CPC Building services: Long and Partners, RES Structural engineer: Peter Brett Associates Cost consultant: Arcadis

MAKE TEAM

Cara Bamford, Sophia Bannert, Alice Cadogan, Martina Contento, Pete Matcham, Joel McAllister, Paul Miles, Mojdeh Moasser, Una Mollin, Justin Nicholls, Thi Pham, Matthew Seabrook, Tia Shaker, Tom Sharp, Ken Shuttleworth, Nicolas Stamford, Tracey Wiles, Ian Wale

The Big Data Institute is an interactive workspace for researchers to analyse complex biomedical information. With its elegant architecture and considered material palette, the RIBA Award-winning building unites the best of the traditional academic environment with the best of today's commercial workplace. Timber ribbons and a dramatic staircase recall the richness of Oxford's historical academic buildings, while white glass and metal accents express its digital and scientific ambitions.





1 Diagrams showing the evolution of the building form. The U-shaped footprint provides a clear front and back, with a central atrium that offers strategic views through to the working areas surrounding it.

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2 Diagram of the underground labyrinth, a fundamental part of the environmental strategy. The BDI is the first UK research building to use a labyrinth beneath the building for cooling, and achieved a BREEAM 'Outstanding' score of 86.5%.

3 The subterranean labyrinth under construction. The mechanism draws in air through the atrium lightwell and uses the thermal mass of the ground to cool it before circulating it to the main rooftop plant room. This air is then distributed via floor plenums and extracted via the atrium using the stack effect.







4 Masterplan model showing the Big Data Institute and the Innovation Building in the wider context of the Old Road Campus. The BDI's tapered prows allow views to and from the adjacent buildings on the campus, create a sense of arrival, and provide much-needed new amenity space on the campus.













5 Lower ground floor plan as built. This space incorporates two seminar rooms with clerestory windows, and a servery with a lightwell and rooflight that provide a glimpse of the new public realm outside. 6 Ground floor plan as built. Each floor has a mix of perimeter cellular offices and generous open-plan spaces interspersed with social and breakout areas for different methods of collaboration and working.



7 Approach from the main road, with formal landscaping. The facade draws on the horizontal cladding of the neighbouring NDM Research Building, with a veil of grey polyester powder-coated aluminium bands and glazing.



8 South-east approach, where the articulation of the building form has enabled the inclusion of several informal planting areas.



- 9 Typical research spaces with a mix of open-plan working areas and cellular offices. A major component of the brief was providing visual connectivity and fostering personal interaction across the building's workspaces.
- 10 (Opposite) Atrium with natural light, feature stair and acoustic timber lining. The feature stair offers visual connectivity, aids circulation and animates the building across all four levels.



11 Main equipment room as seen from the atrium. The opaque white glass wall reveals shadows as people pass behind it.



12 Glimpse of the main equipment room with servers. The BDI processes and stores significant amounts of data on a daily basis, with its server room providing enough computing power for 600 trillion computations per second.





13 View of open-plan working spaces with cellular offices above. The atrium has acoustic timber lining to reduce noise transfer within the open-plan arrangement.

14 View of the servery from the atrium, with internal pedestrian bridges above linking different wings of the building.



15 Lively breakout spaces in use. The building features three different types of breakout space: lively, quiet and silent.

- 16 (Below) Open-plan offices with clear sightlines across the floor.
- 17 (Right) Quiet breakout space in use. The diverse blend of workspaces allows people to meet and interact in different environments.
- 18 (Below right) Silent breakout space on level 1.









19 Informal landscaped area to the north-east, with seating and planting.



20 Approach from south-east. The main roof plan has been located to the west to minimise impact on the campus 'street' and adjacent Old Road.



21 Julian Wild's 'Origin' sculpture at the north-east approach. The stainless steel artwork is the largest public sculpture in Oxford and is inspired by the groundbreaking research undertaken on the Old Road Campus.

Innovation Building

CAMPUS Old Road

BUILT 2018

UNIVERSITY REPRESENTATIVE Eveline James, Richard Jones, Mike Wigg

CONTRACTOR Mace

DESIGN TEAM

Architect: Make Project manager: CPC Building services: Hoare Lea Structural engineer: Peter Brett Associates Cost consultant: Arcadis

MAKE TEAM

Cara Bamford, Martina Contento, Sepideh Heydarzadeh, Pete Matcham, Paul Miles, Mojdeh Moasser, Gavin Mullan, Justin Nicholls, Ian O'Brien, Sahar Pathan, Tom Sharp, Ken Shuttleworth, Nicholas Stamford, Tom Wing-Evans, Alistair Wood, Suyang Xu

The Innovation Building is home to commercial research laboratories and a biomedical start-up workspace known as the BioEscalator. It also provides a centralised car park for the estate and a distribution centre for campuswide deliveries. The cladding design – inspired by the numerous trees on site – expresses and unifies these different uses. Internally, the building's different functions are separated by 'The Cut', a striking 5-storey atrium with acoustic European oak cladding and a full-height stair.





1 Diagrams indicating The Cut, which separates the medical research spaces from the car park. The building is designed to streamline distributions across the campus, reduce traffic and deliver new biomedical start-up workspace. 2 Stage C composition explosion. The BioEscalator floors deliver high-tech research facilities for start-up enterprises, with the additional two floors of laboratory space.





3 Original competition models showing the west elevation and facade concept. The building is unified with an external design inspired by the trees found around the site.



А



4 (A–D) Frit design iterations. The lab portion of the building uses four different details of the maple leaf screenprinted onto opaque back-painted unitised cladding. On the car park, aluminium fins twist to imitate a view through the trees.

D





Key

1 Entrance 2 Atrium

- 8 Laboratory9 Write-up space10 Store11 WCs 3 Reception
- 4 Meeting rooms
- 5 Tea point6 Start-up studio7 Office
- 12 Car park13 Distribution centre14 Plant















9 Short section.





8 North elevation.











12 Main entrance/exit to the multi-storey car park. A digital script was used to define specific twists in the aluminium blades to give the appearance of tree silhouettes across the facade.



13 Main entrance with projecting fin that separates the building's different functions.

14 View inside The Cut. The 5-storey atrium features European Oak acoustic timber cladding and a full-height stair that links the functions and provides vertical access.



15 View of the level 3 bridge in The Cut.



16 (Above and right) Looking up into the top-lit atrium in The Cut.



17 (Opposite) View showing the contrast between the leaf pattern cladding of the research spaces and the twisted blades of the car park.



NDM Research Building

CAMPUS Old Road

BUILT 2013

UNIVERSITY REPRESENTATIVE Eveline James, Mike Wigg

CONTRACTOR Mace

DESIGN TEAM Architect: Make Project manager: RB Development Building services: Long and Partners Structural engineer: Peter Brett Associates Cost consultant: Arcadis

MAKE TEAM

Alice Cadogan, Matthew Critchley, Michelle Evans, Chris Jones, Masaki Kakizoe, Robert Lunn, Justin Nicholls, Ian O'Brien, James Roberts, Matthew Seabrook, Ken Shuttleworth, Rebecca Thomas

Oxford's Nuffield Department of Medicine operates at the front lines of drug discovery for heart disease, cancer and HIV. Our design for the research facility reflects its prominent position at the head of the Old Road Campus while offering intimate spaces that establish a sense of ownership for the researchers who inhabit it. The building's welcoming, legible internal arrangement has improved collaboration and communication among researchers, facilitating pioneering research that benefits the global community.







1 Concept sketch of the building, which features a tapering prow and horizontal slot windows. It sits adjacent to two other medical research facilities designed by Make.





3 Section showing the extent of timber cladding in the atrium and staircase. The interior spaces have been crafted to create an intimate scale and establish a sense of ownership among the research groups that inhabit it.

2 Diagrams of circulation showing visual and physical connections between different workspaces. The aim was to establish a sense of connectivity that would improve collaboration and communication among occupants.



Key

- 1 Anodised aluminium louvre
- 2 Clear glazing3 Light shelf
- 4 Spandrel panel
- 5 Precast concrete

Typical facade bay D

Key 1 Entrance 2 Atrium

3 Office

- 7 Waste laboratory
- 8 Kitchenette
- 9 Store
- 10 Autoclave and
- 4 Write-up space glass wash
- 5 Primary laboratory6 Secondary laboratory



4 North elevation.



5 South elevation.



10m | | | | | | | | | | 32ft



- 7 South elevation showing the horizontal louvres cladding the building. The slot windows and rooflights project varying patterns of natural light into the building's interior, creating energising contrasts of sunlight, shadow and shade.
- 8 (Opposite) Front entrance expressing the timber-clad atrium from the outside. The building's full height is immediately revealed on entry, creating a welcoming and legible internal arrangement. NB: The paving has since been reconfigured as part of the Big Data Institute's external landscaping.







9 View looking up to the top of the atrium. A prominent sawtooth configuration on the underside of the staircase follows the lines of treads and risers above.

11 (Opposite) Cantilevered timber staircase connecting the upper floors to the café in the basement. This elm-clad feature stair winds up through the 4-storey atrium, unifying the floors both physically and visually.



10 View down through the atrium. A stainless steel handrail wraps around the internal faces of the stair to provide a visual contrast with the warm texture of the elm.

13 Secondary lab with clerestory windows to prevent overlooking.



14 Lab equipment in use.





12 Primary lab with adjacent write-up space. The aim was to create a direct visual connection between these areas, helping facilitate building users' collaboration and research.

Kennedy Institute of Rheumatology

CAMPUS Old Road

BUILT 2013

UNIVERSITY REPRESENTATIVES Eveline James, Mike Wigg

CONTRACTOR Mace

DESIGN TEAM Architect: Make Project manager: RB Development Building services: Long and Partners Structural engineer: Peter Brett Associates Cost consultant: Arcadis

MAKE TEAM Alice Cadogan, Matthew Critchley, Michelle Evans, Chris Jones, Masaki Kakizoe, Robert Lunn, Justin Nicholls, Ian O'Brien, James Roberts, Matthew Seabrook, Ken Shuttleworth, Rebecca Thomas

Our bespoke home for the Kennedy Institute of Rheumatology is a state-ofthe-art laboratory, training facility and teaching hub all in one. Among its distinctive features are a glass and steel staircase in the atrium, a generous roof terrace, and a corner setback that gives the front elevation an asymmetric twist. The building's entrance spaces correspond with the wider campus layout, while its vertical cladding matches that of its neighbours.







1 Plan showing the building's relationship to neighbouring structures, including the Old Road Campus Research Building, the NDM Research Building and the Wellcome Trust Centre. The Big Data Institute now occupies the open square.

2 Concept sketch of the interior spaces. The collaborative, cross-disciplinary nature of the institute's work prompted us to design a bright interior that establishes a strong sense of openness and community.





4 Section showing atrium circulation. A welcoming space at the front of the ground floor functions as a relaxing staff breakout area.





7 South elevation.



8 CGI glimpse into level 2. The organisation of the lab benches allows for views from the full-height glazing.

10m | | | | | | | | 32ft





9 Ground floor plan as built.

2 Atrium 3 Café 4 Kitchen

Key 1 Entrance

5 Office 6 Lecture theatre

- 7 Seminar/boardroom
- 8 Deliveries



Write-up space
Primary laboratory
Secondary laboratory
Plant

9 Autoclave and



5m \bigotimes 0... | | | | | | | | | | 16ft



11 East elevation showing the café space at the lower level, with offices above that feature outward-opening windows.



12 Main entrance with canopy in use.



13 View of the staircase at the main entrance from various angles. The glazed atrium and feature staircase act as a primary circulation hub rising from the ground floor, with a roof lantern drawing natural light into the heart of the building as well as the write-up spaces on levels 1 and 2.



14 (Opposite) First floor views through to the staircase and fabric acoustic wall behind. Thin white fritted stripes emphasise the verticality of the space, while the zig-zagging staircase – formed from steel, terrazzo and glazed balustrades – conveys a crisp sense of precision.







- 15 Ground floor café in use. The building's interiors were chosen to offer views of both interior and external surroundings, maximising visual permeability and transparency.
- 16 (Opposite) Glass cladding detail. The panels create alternating reflective and matte strips that play on the reflections in the green cladding of the nearby Old Road Campus Research Building.



Oxford Molecular Pathology Institute

CAMPUS South Parks Road

BUILT 2011

UNIVERSITY REPRESENTATIVE Eveline James, Mike Wigg

CONTRACTOR Mace

DESIGN TEAM Architect: Make Project manager: RB Development Building services: Long and Partners Structural engineer: Peter Brett Associates Cost consultant: Arcadis

MAKE TEAM Jonathan Mitchell, Justin Nicholls, Ken Shuttleworth, Rebecca Thomas

Our design for this multi-disciplinary research facility – home to some 200 scientists – puts collaboration at the centre of things. Flexible laboratory spaces surround an open-feature staircase to create a focal point where people can meet and interact. The building's facade references the adjacent Dunn School and features horizontal louvres that provide solar shading in a cascading pattern reminiscent of the DNA double-helix.













² Location plan showing the Oxford Molecular Pathology Institute. The building has been designed to strengthen links with the institute's sister departments by functionally integrating shared resources.

1 Diagrams exploring the building's adjoining relationship with the Sir William Dunn School of Pathology next door.





Provide links between new and existing buildings.



Service from the existing EPA Building.



Replace the Leslie Martin Building.



Expand social and amenity spaces.

3 Diagrams indicating the strategy for replacing the former block on the site and connecting the new building to its neighbours.



4 Sections showing the top-lit atrium and open-feature staircase. Flexible laboratory spaces surround the stairs, which create a focal point where people can meet and interact.



5 Cladding study showing the horizontal louvres on the facade, which take their inspiration from cell structures.



6 North elevation.



7 Cladding elevation patterns inspired by the DNA ladder. The louvres provide solar shading on the building's southern facade.



- Key 1 Main entrance
- 2 Existing café

7 Breakout space

9 Primary laboratory10 Secondary laboratory11 Plant

8 Airlock

- 3 Café terrace
- 4 Main staircase
- 5 Office6 Meeting room











- 10 Images showing the relationship between the Oxford Molecular Pathology Institute and the Dunn School. The new building picks up the fine detailing, colour and texture of the adjoining one, carrying them through with stone and terracotta cladding.
- 11 (Opposite) Cladding detail. The louvres' appearance changes depending on their angle and the direction of sunlight.











13 View of the top-lit atrium and staircase. The stair is lined with timber, a nod to the original building on site and to Oxford's academic heritage.

12 Cladding details at the building entrance, including louvres at different scales. Varying rotations of the louvres cast shadows, giving a layered effect to the facade.



14 Looking down at the breakout spaces at the base of the atrium, designed to encourage chance meetings between building users.





16 Laboratory in use.

15 Detail of the open staircase, which rationalises circulation across the building.

Old Road Campus Research Building

CAMPUS Old Road

BUILT 2007

UNIVERSITY REPRESENTATIVES Eveline James, Mike Wigg

CONTRACTOR Mace

DESIGN TEAM Architect: Make Project manager: RB Development Building services: Foreman Roberts, Long and Partners Structural engineer: Price & Myers Cost consultant: Arcadis

MAKE TEAM Stuart Fraser, Jonathan Mitchell, Justin Nicholls, Ken Shuttleworth, Rebecca Thomas

The Old Road Campus Research Building brings together six world-leading cancer research institutions. Our design breaks down the building into three zones – laboratories, flexible space, and office and write-up space – set around two atria that form the social heart of this 4-storey structure. The atria offer a contemporary reinterpretation of a traditional university quad, with spaces that draw people in and through the building, including cast concrete staircases and a café.







1 (Clockwise from top left) Diagrams exploring the building's sun path, atria, relationship with surrounding trees, and flexibility of use.

2 Cross-section showing one atrium, the café, and front and rear entrances. The building is three storeys above ground, with a partial basement that accommodates a slope across the site.









- 3 (Top) Diagrams showing different workspaces across the building. The structural grid accommodates flexible office spaces that can contract or expand over time depending on the needs of different departments.
- 4 (Bottom) Diagrams showing the typical conditions of the facade and the relationship with desks and research spaces.



5 Stair and atrium study models. The building's facilities are set around two naturally lit atria that form the social heart of the 4-storey structure, offering a contemporary reinterpretation of a traditional university quad.

- 98 Old Road Campus Research Building





Cladding studies











7 Concept sketches showing the high-performance cladding system with louvres, cores and cladding. Glass and aluminium panels wrap the building, with external louvres protecting against solar gain.

- 100 Old Road Campus Research Building
- 6 Cladding studies. The distinctive spectrum of greens visually harmonises with the mature planting surrounding the site and creates a pixel effect that breaks down the scale of the building.



Key

1	Entrance	6	Write-up space/
2	Reception		offices

7 Breakout space

8 Rear entrance

9 Plant

- 2 Reception
- 3 Atrium
- 4 Café
- 5 Laboratory





9 Second floor plan as built.

Ke	У		
1	Entrance	6	Write-up space/
2	Reception		offices
3	Atrium	7	Breakout space
4	Café	8	Rear entrance

5 Laboratory

9 Plant



10 East elevation.



11 Cross-section.







12 View of the recess, which breaks up the mass of the long facade. The orientation-specific facade appears more opaque on the western elevation and more transparent at the north-eastern entrance.









13 Lab spaces in use. The building's highly efficient plant reduces the energy consumption of this high-tech research building.



14 Atrium staircase with cast in-situ concrete. The building's social heart includes a café and a knowledge centre.



15 Feature staircase in use. The atria offer direct visual connections into the labs, allowing a glimpse of research in process.

Photo archive

Photos of the Make team members, past and present, who have worked on projects for the university.



Cara Bamford





Gavin Mullan





Alice Cadogan



Martina Contento



Matthew Critchley



Michelle Evans



Stuart Fraser



Robert Lunn



Pete Matcham



Chris Jones





Paul Miles





Jonathon Mitchell



Thi Pham



Tom Sharp

Sahar Pathan

Ken Shuttleworth



Ian Wale



Tracey Wiles

Masaki Kakizoe





Justin Nicholls



Ian O'Brien



James Roberts



Matthew Seabrook



Nicholas Stamford



Alistair Wood



Rebecca Thomas



Suyang Xu

BOOK TEAM Tom Featherby, Martina Ferrera, Daire Hearne, Ben Hutchings, Pete Matcham, Ken Shuttleworth, Sara Veale

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Make 32 Cleveland Street London W1T 4JY

www.makearchitects.com info@makearchitects.com @makearchitects

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