HAPTER 2.0

DESIGN PRINCIPLES

2.0 Design Principles The Brief

2. 1

UKCMRI is being established at an auspicious time for medical research. New discoveries and technological advances have opened up countless opportunities to uncover fundamental biological mechanisms in health and disease.

2.2

The Proposed Development will perform two distinct but related tasks – it will create a unique platform for biomedical research; and it will contribute to the regeneration of a long neglected fragment of London's urban fabric. Key elements of the client's brief define the functional organisation and design approach.

The Proposed Development must:

Work for Science

- provide a critical mass (to accommodate a minimum of 1,250 researchers)
- be adaptable
- facilitate collaboration
- facilitate research

Work Locally

- be accessible
- provide permeability, both visual and physical
- provide animation
- be integrated with and respectful of the local context

Work Globally

- be sustainable
- create architecture suited to a world class Institute



Fig 2-1. Scientists working in the Apoptosis and Proliferation Control laboratory at Cancer Research UK's London Research Institute

2.0 Design Principles Work for Science

2.3

UKCMRI is an innovative partnership between four of the world's most influential scientific organisations: MRC, CR-UK, The Wellcome Trust and UCL. By joining forces to set up UKCMRI the partners are ensuring that even more will be achieved in the future.

2.4

MRC is a publicly funded organisation dedicated to improving human health through world-class medical research.

2.5

CR-UK is the world's leading charity dedicated to cancer research, supporting the work of more than 4800 scientists, doctors and nurses across the UK.

2.6

The Wellcome Trust is a global charity dedicated to achieving extraordinary improvements in human and animal health.

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UCL is one of the world's leading research and teaching universities.



Fig 2-2. UKCMRI is the result of an innovative partnership

2.0 Design Principles Work for Science

2.8

Multidisciplinarity is a guiding principle for the design of the Proposed Development. The building will be designed to promote interdisciplinary working and to encourage collaboration.

2.9

Size matters not for its own sake but because it creates the critical mass necessary for successful multidisciplinary research. Important biological questions need to be tackled using a range of methodological approaches spanning traditional disciplinary and disease related boundaries. The scale of UKCMRI is thus key to its vision, as is its ability to tap into high-quality research fields outside traditional biomedicine through its links to UCL and other institutions, such as the physical sciences, engineering, maths and computing.

2.10

Laboratories will be grouped around communal spaces to encourage informal interactions. In order to promote mixing and exposure to alternative ways of thinking, research teams will not be grouped according to areas of interest, except when shared equipment is required. Laboratory space will be kept as open as possible; it will also be adaptable to allow conversion to new uses.

2. 11

UKCMRI is ideally placed as a hub of local, national and international research networks. As well as being a substantial centre in its own right, it will also maintain wider influence as a flagship and asset for UK biomedical science. Its physical space will provide opportunities to host large international conferences as well as informal small-scale workshops.



Fig 2-3. Collaborative planning concept

Design Principles 2.0 Work Locally

2. 12

The Institute has a strong series of public engagement goals, an ambition to engage with the local community and to create a building which is visually permeable - 'the sciences on show'.

The publicly accessible facilities will include:

- a community facility,
- use of a teaching laboratory to update teachers and students on the latest scientific developments and
- access to exhibition areas, including private views for local groups.

2. 13

UKCMRI will also work with local schools and community youth groups to help foster enthusiasm about science and medicine, preparing them for the scientific opportunities of tomorrow.

Schools outreach will include:

- the use of a teaching laboratory to update teachers and students on latest scientific understanding and techniques,
- a UKCMRI staff volunteering policy for working in local schools - private views of UKCMRI exhibitions and
- "open house" sessions for teachers, students and governors on -UKCMRI's work.

2. 14

The Proposed Development will support strategies to encourage safe alternative pedestrian routes to Euston Road between St Pancras International and Euston Station. Brill Place will be upgraded by providing animated street frontages and upgraded paving and street furniture. A new pedestrian route on the south of the site adjacent to the British Library is proposed and will be made available to the public subject to UKCMRI retaining control on grounds of meeting limited operational requirements.



Fig 2-4. Concept sketch of teaching laboratory

Design Principles 2.0 Work Globally

2.15

UKCMRI is an important addition to Camden, London and the UK. It is essential that the new building is of an architectural quality representative of a world class institute. The architecture and public realm will therefore be of the highest quality.

2.16

In addition to creating world class architecture, the vision for the Proposed Development is to be a state of the art sustainable development. Sustainability principles will be embedded in its design and operational concepts.

2.17

A laboratory building is a challenging and mechanically intensive building type. Our approach to sustainable design has therefore taken a common sense method that integrates architecture, infrastructure and engineering allowing us to deliver the best possible design with the lowest possible environmental impact. We approach this through a clear hierarchy:

- 1) Load reduction through good passive design and efficient envelope design responsive to orientation.
- 2) Optimisation through efficient and exemplary system design.
- 3) Substitution with appropriate renewable and alternative technologies where possible.

2. 18

The sustainability strategy for the proposed scheme will include a reduction of energy and water usage; optimal occupant well-being and comfort; waste minimisation; use of suitable materials; biodiversity; and promotion of sustainable means of transport. In order to achieve these targets the sustainability vision for UKCMRI is based on a holistic approach embedding all key sustainable principles, balancing social, economic and environmental factors and employing technically innovative sustainable design solutions which are at the same time financially feasible over the lifecycle of the building.

2.19

Given the dynamic nature of research, the scheme will be versatile and adapt quickly to changes in research methodologies. As well as fixed elements of infrastructure, there will be elements that are readily reconfigurable by the user in response to changes in scientific processes, equipment and staffing.

2.20

The Proposed Development will meet its heating, cooling and electrical demands with energy consumption and associated CO₂ emissions to the atmosphere, reduced to realistic minima. In particular, the Proposed Development is being designed to comply with Building Regulations Part L 2010, which involves a 25% improvement in CO₂ emission compared with the current 2006 Building Regulations.

2.21

The development is expected to achieve an 'Excellent' BREEAM rating through a combination of strategies including enhanced thermal performance of the building envelope and the incorporation of low energy technologies.

Fig 2-5. A sustainable development combines social, economic and environmental influences