PROJECT

HARWELL TRAINING CENTRE

USER REQUIREMENTS

Revisions

Rev	Date	Author	Comments/ Amendments
0.1	23.03.2015	S. Simon	Initial Draft
0.2	07.04.2015	S. Simon	Updated with scientific case
1.0	15.04.2015	S.Simon	Updated after comms S. Wells

Approval

Rev.	Date	Approver	Function
1.0	15.04.2015	Sara Wells	Director MLC & Senior User

Contents

Introduction

This User Requirement Document sets out the requirements identified by the MLC for training facilities at Harwell. It does not only focus on the spatial provision but technical, environmental, economic and FM considerations.

Preliminary Operational plan for HARWELL TRAINING CENTRE

Although a fully costed business plan is being constructed, it is intended that the running costs of this training centre will initially be modest (1x FTE training course co-ordinator, 0.5x FTE training manager) and the courses will be charged in order to recover day-to-day running costs. As training time is a premium for most science professionals, it will be important to include the cost of tutoring time in this model. It is imperative for the success of this facility that we do not assume tutors will donate time for free and that we properly invest in the best teaching provision.

It is expected that an initial investment for provision of a training facility will be requested from the MRC. The aim of this facility would of course be to provide courses which not only underpinned MRC research but research for the wider biomedical community.

Why not mention that the training centre could be made available to other organisations in the area on a cost recovery basis. We have excellent communication links with the M4 corridor and Golden Triangle. Plus the training centre would be located on the Harwell Science and Innovation Campus which is on the BIS radar and will help to foster exchange between the physical and biological sciences on Campus and maximise impact

Course offerings

We intend to offer 3 different types of course:

- Technical courses (1 day) providing a particular technical specific skills set (e.g. sample preparation and handling, specific phenotyping assays, basic genetics, database mining, this has the potential to extend to Health and Safety - 25 per year
- Subject based courses (2-3 days) providing the knowledge and skills to begin a particular project type (e.g. bioinformatics, introduction to mouse genetics, comprehensive phenotyping, animal husbandry and individual aspects of mouse genetics such as conditional transgenesis)- 10 per year
- In-depth courses (4-5 days) providing comprehensive knowledge of complete subject areas. These would include several workshops and practical sessions, subject experts would be invited from around Europe and would focus initially on Harwell's strengths of GA mouse generations and characterisation. It is planned that the in-

depth courses would pull together aspects of both the technically focussed courses and the subject based courses.- 4 per year

Courses / workshops:

- Basic mouse genetics
- Advanced mouse genetics
- Genetic engineering in the mouse- an overview
- Microinjection (P)
- Transgenesis (P)
- Genome Engineering
- Cryopreservation (P)
- Assisted reproductive techniques (P)
- Behavioural phenotyping (P)
- Metabolic phenotyping (P)
- Primary phenotyping (P)
- Developmental imaging (P)
- Imaging- light microscopy (P)
- Expression analysis (P)
- Necropsy and dissection skills (P)
- Clinical chemistry- sample collection and preparation (P)
- Working with isolators (P)
- Managing colonies of genetically engineered mice
- Conditional transgenesis
- Genotyping (P)
- Database mining
- Genomic analysis
- Liquid Nitrogen handling (P)
- Health and safety (P)
- DNA manipulation (P)
- Embryo transfer and surgery (P)

Tutors and course organisers

It is intended that the courses run at MRC Harwell capitalise on the skills and knowledge of not only the scientific technical staff at Harwell, but also their wider International network of collaborators. There is much expertise available in consortia such as IMPC and the MRC mouse Networks (a group of 400 researchers who nominate genes for the IMPC). In order to professionalise the tutoring on these courses it will be necessary to a) pay the tutors an honorarium b) have a scientific co-ordinator who can gather course material, assess its

suitability, gauge and disseminate levels of learning and ensure that the intended learning outcomes are consistent with the course on offer.

Rooms by Function

TEACHING

Wet Lab Training facility

The training rooms relating to activities in wet labs need to be sufficient for 6-12 students plus teacher and need to contain:

- 1 no. Wet lab bench space for each student
- 1 no. Microscope bench space to be shared between two students
- 1 no. teaching bench (wet lab bench, microscope, sink)
- 1 no. Fume Hood
- 6 no. Downdraft tables (could be shared between two or more students, depending on size)
- 2 no. double lab sinks (excluding teaching bench)
- LN Handling area
- Hand wash and Health & Safety sink
- Waste collection area

This training room requires a large plasma screen for microscopy images to be displayed to the students. Interactive whiteboards and/or projection facilities, which should have AV and Internet access (for webinars) facilities.

Ante Room / Animal Holding

This room needs to be adjacent to the Wet Lab training facility, preferably with direct access and here the teacher and/or associated support staff will prepare material for the teaching sessions. Although the room will never hold animals over night, it has to adhere to some animal holding standards, such as:

- Washable walls and floors
- Temperature stable in a range between 19 - 21°C
- Connection to IVC rack (ventilation)
- Card access control
- Small computer station with relevant connections

The room needs to accommodate:

- 1 no. IVC Rack
- Trespa benching (appr. 2 metre long)
- 1 no. Cage changing station for culling (preferably recirculating mobile version)
- 1 no. controlled drugs cabinet
- large sink

Seminar Room

The course sizes, which will be held in the main Seminar room are between 20 and 30 attendees. As courses tend to run between 1-5 days, there are some requirements relating to the type of furnishing needed to allow note taking and comfortable seating throughout the training sessions.

The room has to provide maximum flexibility in terms of seating, ie. It should be able to be used in a seminar/lecture setting (including mobile lecturn) as well as in a board room setting.

It should have projecting facilities, which allow full visibility under any of the aforementioned setups. Interactive whiteboard(s) and high spec Audio-/ Video-conferencing is essential, as it is envisaged to connect to life demonstration of scientific activities in other facilities (national and international).

Break out / meeting rooms

Aside from the main Seminar Room there are 3 no. smaller break out/ meeting rooms required. These are to be able to hold between 6 and 10 people and are generally envisaged to provide space to break up in smaller groups to work on training specific tasks, but also function as general meeting rooms for the facilities at Harwell.

They need to have a general meeting room setup, with the provision of

- interactive whiteboard
- projection facility
- AV facilities, including webinar

To achieve maximum flexibility, these rooms should preferably be located in a way, which allows to open them up and combined to one or two rooms, without impairing the projection and AV facilities in either separated or combined setup.

Bioinformatics suite

Bioinformatics is a growing discipline and has consequently seen increased demand for trained staff. The Bioinformatics suite needs to hold up to 12 individuals plus 1 teacher. The room must be conducive to intense computer work, both in terms of layout, temperature/ventilation and lighting. Again, projection facilities are required, although for this facility there is more focus on a webinar approach, i.e. fast internet.

Flexibility in this room should relate to opportunities to connect laptops (power, Wifi) relatively unrelated to the seating layout (floor boxes, etc.).

This function could potentially be provided by the seminar/break out rooms, depending on the flexibility in layout)

SUPPORT FACILITIES

Stores

The training facility requires a store, which can accommodate furniture (folding tables from Seminar room, etc.) and other teaching related accessories (flipchart stands, etc.). This store needs to be located in a way that allows easy access and short ways to both Seminar and break out/meeting rooms.

Training Management office

The office is for maximum double occupancy and should have sufficient space for desks, filing cabinet and storage space for training material (brochures, etc.) as well as general stationery, such as writing blocks, pens, etc. It needs to be located in immediate or close vicinity of the reception area.

Cloak Room

The cloak room needs to be a combination of having sufficient facility to store jackets for the visitors, and a secure store for keeping overnight bags for attendees during the sessions as students will not be able to take luggage in facilities, such as the wet lab or bioinformatics area and avoid provision of large individual locker space. This room/facility needs to be located in immediate vicinity of the reception. It would be preferable to provide an appropriate number of smaller lockers.

Reception

The reception should be some area extended from the training management office, at which visitors can get directions, support, etc. It does not need to provide any security/access function.

Catering

A small, kitchen for storage of crockery, tea, coffee, etc. large fridge, sink, waste area, dish washer and area for food preparation (cold food only) for serving. The area should not be accessible by visitors or teachers.

COMMON AREAS/FACILITIES

Common Room

The common room should be an open plan area centrally to the teaching facilities. It is desirable to be able to accommodate a maximum of 80 people (peak time), however, breaks can be managed to reduce the space requirement accordingly. It should provide for different needs in breaks, such as networking, quiet space (more discrete areas), email checking, eating lunch, etc.

It should consequently have different types of seating arrangements, which are conducive to such activities.

The room should have near or direct access to the toilet facilities and is ideally located in the immediate vicinity of the reception. Catering facility should be adjacent with direct

access or short distance to this room. The room must be able to accommodate some facility to provide buffet style food , tea & Coffee serving. Additionally, vending machines for soft drinks and an individual drinking water fountain are desirable.

External break out area

It would be desirable to establish a controlled (access – see reception) external area to be used for break out meeting/ lunch breaks, etc. during the warmer months. This can be incorporated in the landscaping or similar solutions.

Toilets

Toilet facilities need to be sufficient to cope with the number of indivduals, which can be at the facility in peak times. They should be located in the vicinity of the common room.

Shower

One Unisex shower is required, accessible both for staff or visitors.

TECHNOLOGY

Internet

The facility needs to provide good, strong wifi access to the internet for visitors. Individual networks for specific rooms, such as the seminar room and the bioinformatics room would be useful. All networks need to be password protected, with the password being handed out by reception or provided by facilitators/teachers.

Intranet

Specific areas in the facility require access to the Intranet, such as:

- Training Management office /Reception
- Ante room / Animal holding
- Teacher bench in wet lab and bioinformatics room
- Lecturn at seminar room (lecturn needs to be removable).

Telephone

Each of the teaching rooms, as well as reception and training management office require telephones with access to internal and external networks.

Meeting and Seminar rooms should have teleconference facilities as part of the AV setup.

Security

The following internal areas require specific access control:

- Training Management Office
- Luggage store
- Store
- Tea/ Coffee kitchen
- Ante Room / Animal Holding

EXTERNAL AREA

Parking

The training facility should have dedicated car parking for 30 cars and up to 5 motorbikes.

This area needs to be with easy access from the main site access road, but in close vicinity of the training building to avoid unauthorised access to other areas by visitors. It may be required to establish some access control to ensure that only visitors to the training centre use this car park.

Landscaping

The current landscaping on site is minimal (mainly grass area) and it is desirable to provide landscaping, which provides some protection from view and environment (site tends to experience high winds) for externally used areas. At the same time, the view from the teaching facilities should not distract from the activities inside.

DESIGN CRITERIA

Life Cycle

The building should have a life cycle of approximately 60 years. Therefore, the design needs to consider not only appropriately durable materials, but focus on low maintenance and flexibility of use. It should also include to make the building easy to extend without such an extension being obvious.

Sustainability

The facility is aspiring to lead the way to teach techniques and skills to current and future scientists and associated professions. The MRC's laboratory facilities tend to be heavy users of utilities and it is the aspiration for this building to break this tendency.

In the first phase of this project, the option study only goes to the stages of concept design and this should aspire to

- Minimise site impact;
- Minimise the use (and waste) of water and energy;
- Choose materials which are easy to maintain and have low carbon footprint (both production and transportation);
- Provide good air quality and occupant comfort in the most natural (non-mechancial) way as possible;
- Provision of visual access to the environment;
- Maximum provision of natural light;
- Provide demand responsive M&E design;
- exceeding BREEAM excellence
- design with **Value for Money** in mind.

Design General

The facility should be light, modern with a sophisticated teaching atmosphere and easy to maintain. It needs to both be sympathetic to the existing buildings on site and stand out to signify the aspirations for this facility as well as for ease of orientation on site.

Teaching and meeting rooms should allow all participants appropriate view of the presentations/activities and be conducive to collaborative and individual learning and working.

Communal spaces, in particular the common room should be engaging and promoting communication between the attendees during break time.

Orientation within the facility should be easy and natural.

Flexibility of the space is critical – alternative uses for the spaces will be part of the success for maximum utilisation.

Although we are looking for a building, which does not require significant plant (Air handling, cooling/heating, etc.), the plant that is required should be able to be maintained without having to access or disrupt the teaching rooms. Statutory and legislator requirements must be adhered to.

Value for Money

We are seeking to “square the circle” in that we are aspiring to a high quality facility that does cost less in utility and maintenance costs than our other research facilities (see evaluation criteria, Appendix B to OBC), attracts minimum through life costs and does not require excessive funds in order to build it.

In this we are challenging the designers to think outside the usual standard design approach for such facilities.