

# POST OCCUPANCY EVALUATION REPORT

## HIGHFIELD HOUSE



**JUNE 2014**

**FINAL**

## 1. Introduction

QTC Projects were appointed to carry out the Post Occupancy Evaluation following the submission of a tender for services dated 12 November 2013 to the Development Director, University Estate Office.

## 2. Scope of the Review

### Evaluation Technique

The evaluation was conducted at Project Review stage (1 – 2 years after handover) and has been undertaken in line with the criteria and guidance contained in the HEFCE/AUDE publication, 'Guide to Post Occupancy Evaluation'.

### Analysis

Analysis broadly followed the University's brief for undertaking the evaluation and consisted of reviewing all written information received concerning the building together with information collated from the questionnaires and workshop. Particular areas reviewed were:

Purpose and scope of project (brief)  
Some aspects of the building procurement process  
Building user feedback  
Cost management and control  
Construction and project management  
Functional and technical performance  
Sustainability - Assessment against BREEAM criteria  
- Review of energy efficiency measures incorporated into the design

### Questionnaires

Questionnaires were developed to obtain information and feedback from four specific groups:

- a) User (On-line survey)
  - a representative sample of 56 users of the building being evaluated consisting of Academic/Admin staff and PGR students
- b) Consultant Design Team
  - Architect
  - Project Manager
  - Quantity Surveyor
  - Building Services Consultant
  - Structural Engineer
- c) Estate Office – Development
- d) Main Contractor

A Sample of the User Questionnaires is shown in Appendix 1.

### Interviews

Interviews were held with the following:

- a) Research & Graduate Services
  - Sally Bowden, Research Development Manager
  - Allison Pearson, Humanities & Social Sciences Research Centre Administrator
  - Kathleen Fennemore, PA to Dean & Head of Graduate School
- b) Estate Office
  - James Hale, Capital Projects Officer
- c) Latham Architects – Stuart Hodgkinson
- d) Turner & Townsend
  - Anthony Blackburn, Project Manager
  - Martyn Cooper, Quantity Surveyor
- e) D H Squire – Martin Hart
- f) Main Contractor – Robert Woodhead Ltd – Daniel King

### Workshop

A half day workshop was held on 3 June 2014 (a list of attendees is shown in Appendix 2).

The format for the workshop was a presentation by QTC Projects acting as facilitator which included feedback from the user satisfaction questionnaires. The workshop helped to highlight the key issues that had been raised in the questionnaires and interviews which were then discussed and debated.

The information from the workshop provided important comment which has been incorporated into this report.



### 3. Building Data

Name	Highfield House
Size	1630m <sup>2</sup> (Gross Internal Area)
No of Storeys	2 storeys
Occupants	Centre for Advanced Studies Graduate School Social Sciences & Arts Graduate Centre
Types of space	Offices (cellular and open plan) Graduate Centre Meeting rooms Centrally Timetabled rooms Cloister Toilets/showers Kitchen
Construction Period	51 weeks (including extensions of time)
Start on site	12 September 2011
Contract Completion	6 July 2012
Practical Completion	7 September 2012

#### Net Construction Costs

At Start of Construction	£1,554,000
At Final Account stage	£1,925,000 (including additional works)

<u>Funding</u>	University
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#### Consultant Team

Project Manager	Turner & Townsend, Nottingham
Architects	Lathams, Derby
Cost Managers/QS	Turner & Townsend, Nottingham
Services Engineer	D H Squire, Nottingham
Structural Engineer	Price & Myers, Nottingham

<u>Contractor</u>	Robert Woodhead Ltd, Edwinstowe
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<u>Building Contract</u>	JCT Design & Build 2005 (Rev 2009)
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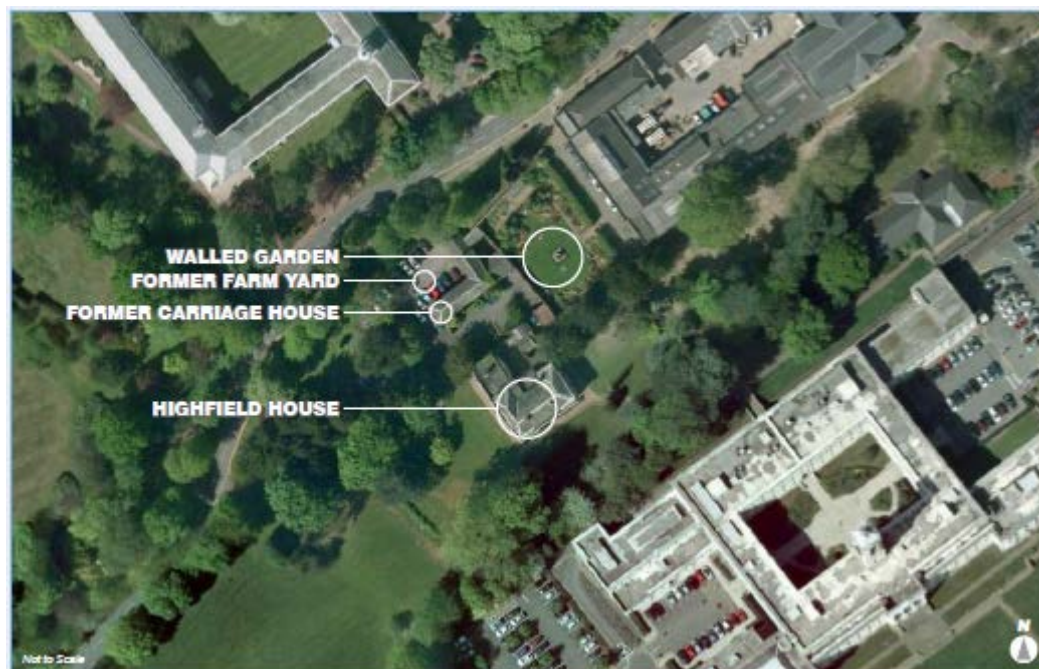


#### 4. Project Background and Description

Prior to development, Highfield House provided accommodation for the Department of Theology, part of the School of Humanities. Following completion of the new building for the School of Humanities, the Department of Theology relocated and Highfield House became vacant and available for refurbishment.

The extended and refurbished Highfield House now provides accommodation for the Centre for Advanced Studies, Graduate School and Social Sciences and Arts Graduate Centre.

Highfield House is a Grade II listed 18<sup>th</sup> century building centrally located within the University Park campus. The site comprised the original former residential building, carriage house and other buildings located adjacent a 19<sup>th</sup> century walled garden. As a standalone building with physical constraints, it was considered inappropriate for current academic and/or administrative use.



A cultural heritage appraisal of the site was carried out in 2009 which provided a detailed analysis of the significant aspects of the buildings and how they could be sensitively developed. This was undertaken within the context of the Hopkins Masterplan prepared in 2009.

Due to the nature of the site and buildings, the pre-planning submission consultation was a lengthy process and after addressing the points raised at the Design Panel Reviews, planning approval with listed building consent was granted in October 2010.

The final design successfully combines a low profile, 600m<sup>2</sup> new build element, mainly white rendered, with the refurbishment of the existing house. The solution produced by the Architects to create a single building from a series of existing ones and linking these to the new build element works well thus achieving the development objectives:

- To carry out a sensitive programme of restoration, using new build elements wisely to retain the original character of the house

- To create a BREEAM 'Excellent' building for postgraduate research students and staff which would also act as a venue for events and graduation ceremonies
- To offer a sustainable, productive future for the building



Work commenced on site in September 2011 and despite changes to the space requirements in the new build element, was completed in time for the start of the new academic term in September 2012.

The building has achieved a BREEAM 'Excellent' rating for the new build element and has received a number of design awards.

A full list of project milestones is shown in Table 1.

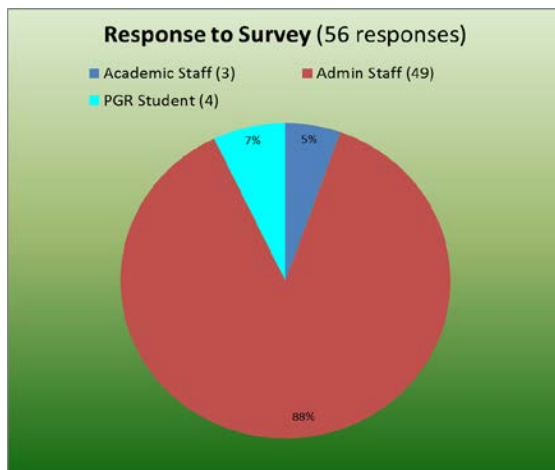
**Table 1 Project Milestones**

Design brief issued	March 2009
Design Team appointed	May 2009
Project Execution Plan	19 June 2009
Planning application submitted	July 2010
Planning approval	22 October 2010
Main contract tenders invited	8 March 2011
Tenders returned	14 April 2011
Contractor appointed	14 June 2011
Existing building vacated	August 2011
Contract start on site	12 September 2011
Contract completion date	6 July 2012
Actual completion	7 September 2012
Final Account agreed	November 2012

## 5. User Satisfaction

Building user satisfaction has been assessed from the responses to the on-line questionnaires received and analysis of the comments made. The results are shown in a series of bar charts covering the following areas:

- Satisfaction with specific room types, ie shared and single offices, graduate centre, meeting rooms, central timetabled rooms, cloister, ancillary space and overall impression of the building
- Security
- Accessibility
- Cleanliness
- Internal room temperature
- Distraction from noise
- Lighting conditions, natural and artificial
- Data connectivity at the workspace
- AV equipment in teaching/lecture rooms

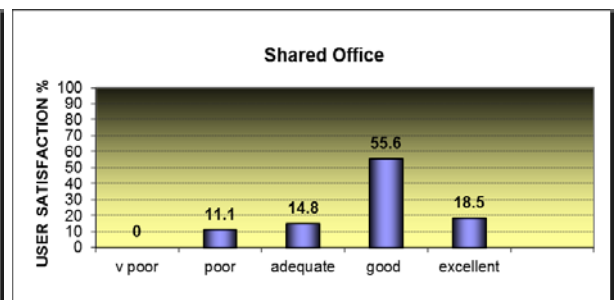
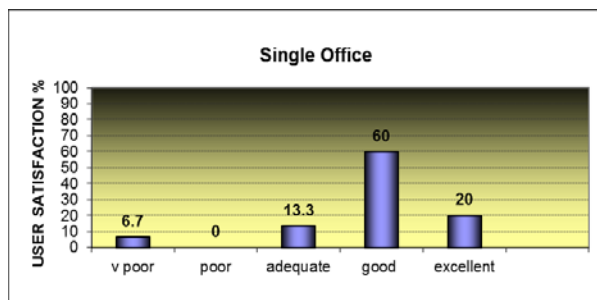


Overall, 56 responses were received from a representative group comprising Academic/Admin staff and PGR students.

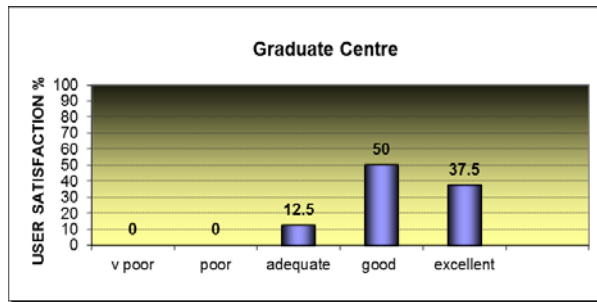
Users were asked to give a response on their overall impression of the building and this has shown an excellent level of satisfaction.

**94% of respondents rated the building good to excellent.**

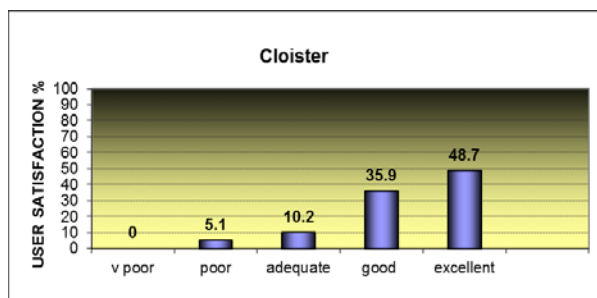
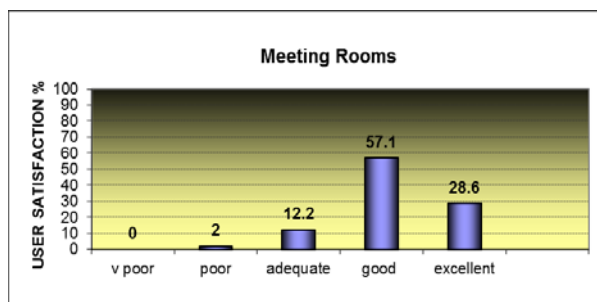
The majority of the offices in Highfield House are located in the Grade II listed building and therefore opportunities to optimise office sizes are limited. Nevertheless, 80% of respondents thought the single offices were good to excellent. In the shared offices there was a similar good response although there were some comments from certain staff regarding noise disturbance from the adjacent printing area.



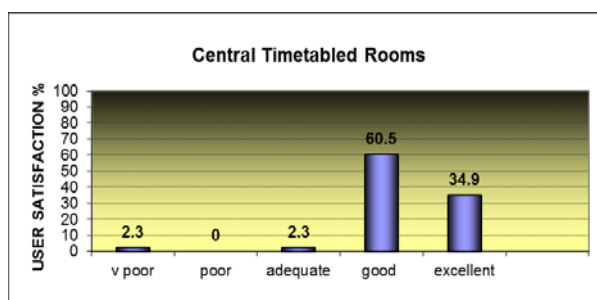
The Graduate Centre provides excellent facilities for private study, meetings, workshops, group study and social networking. The response from the users on the satisfaction survey shows a very good response with 87% rating this area as good or excellent. There were no negative scores.



The new build elements of the project incorporate three small meeting rooms together with the inner courtyard which has been glazed over and refurbished to create an informal social and meeting space. 84% of respondents rate these spaces as good to excellent. The only adverse comments relate to the size of furniture selected for the small meeting rooms (A10 and A12). This has compromised the functionality of the rooms.



The Cloister area successfully links the existing house with the former outbuildings and new build element and provides a useful forum for staff interaction and use for social gatherings, private study/work. The natural light from this area supplements the top-lighting to the internal meeting rooms which form one side of the cloister. Overall this space was rated 84% good to excellent by respondents to the survey.



There are five seminar/teaching rooms on the ground floor which are centrally timetabled. Two of the rooms are reserved for postgraduate use only. The rooms provide very good facilities which is reflected in the 95% good to excellent rating given by respondents to the survey.

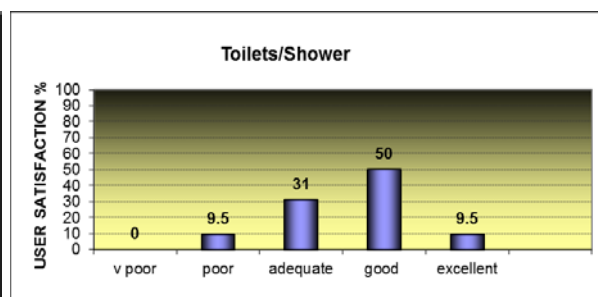


The space audit which was undertaken in October 2014 for actual use of the centrally timetabled rooms shows a good level of utilisation. (See Table below). The exceptions are the Video Conference Room A03 and the seminar rooms A09/A11 which have a low utilisation rate.

The utilisation rate could be improved for A03 if the room was also booked for general meetings. The use of this room should therefore be reviewed by Space Management Committee (SMC) or through the Timetabling Office. It is also noted that use of A09/A11 is restricted to postgraduate and other specialist activities which may explain the low utilisation rate.

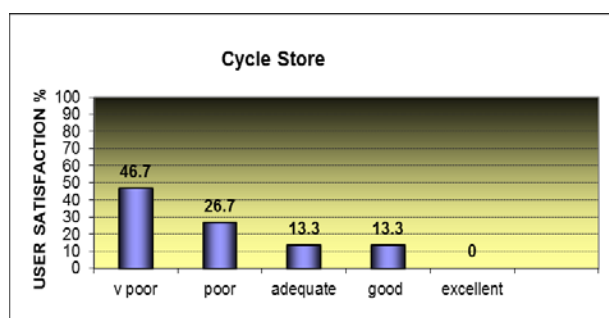
Room	Usage	Occupancy	Utilisation
A01 Teaching Room	100.00%	53.79%	53.79%
A02 Teaching Room	100.00%	55.30%	55.30%
A03 Video Conference	25.00%	20.00%	5.00%
A09 Seminar Room	40.63%	54.87%	22.79%
A11 Seminar Room	12.50%	56.25%	7.03%
<b>Overall</b>	<b>55.62%</b>	<b>48.04%</b>	<b>26.68%</b>

Regarding kitchen facilities, the Graduate Centre has its own kitchen area. The main kitchen for the building is centrally located on the ground floor. This is a well-used area and comments from the users relate to the amount of worktop space which is considered inadequate. Wall space is limited but it is possible to add a short return of worktop to increase the working area. Research and Graduate Services should pursue this via a works request to the Estate Office.



Toilets and showers are adequate with only minor comments made about the cleanliness of the shower at certain times of the day and the need to repair the toilet seat in the assisted WC.

The project included the provision of an external cycle store which is located a short distance from the main building and incorporates bin storage. The store has generated a number of comments in response to the satisfaction survey which shows that 73% of respondents are dissatisfied with this facility. These relate mainly to safety and security both in terms of safe access to the store and the high incidence of cycle theft.

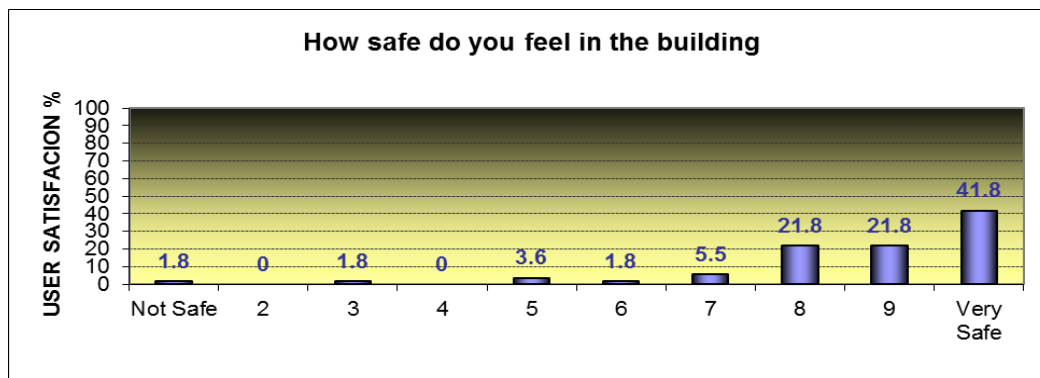




At present there are no plans to improve security to this area. Discussion at the workshop concluded that the store should be restricted to bin storage only and that an alternative location should be sought for cycles or another cycle store used elsewhere.

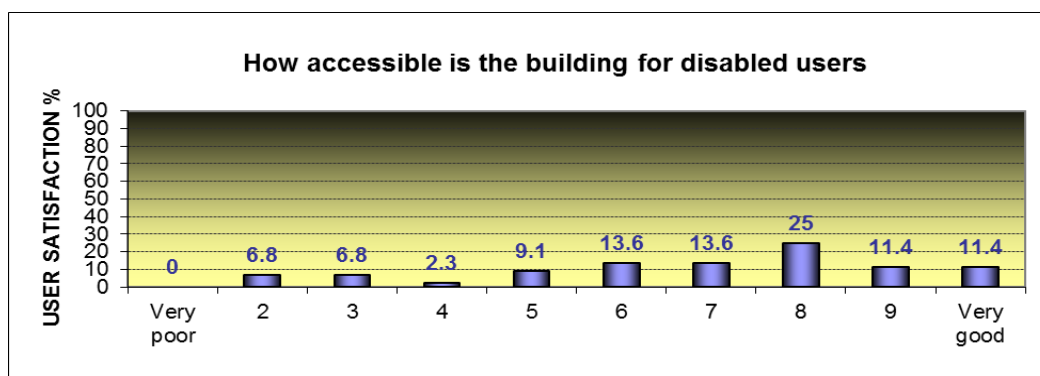
A proposal should be put to Estates Directorate to implement this change for the start of the new term.

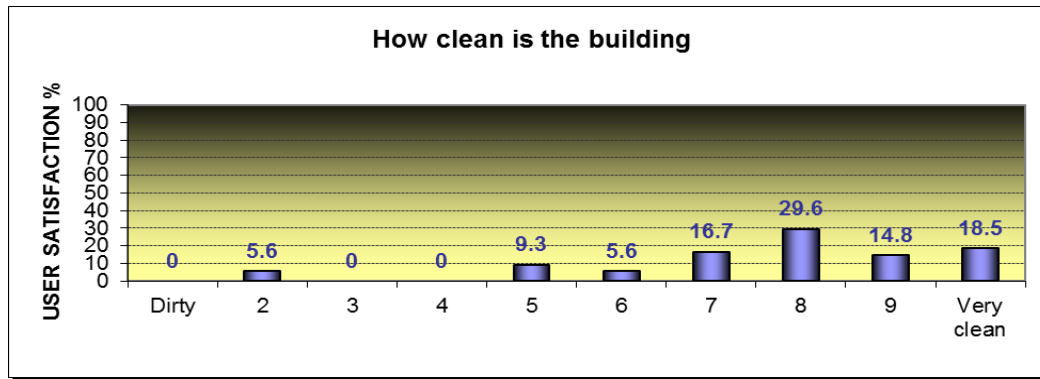
Looking at the charts for building amenity and comfort, most users felt safe in the building. Negative points were made concerning the sensitivity of movement sensors which in some areas activated the lights far too late. Further adjustment of the sensors should solve this problem.



The building is considered fairly accessible. However, there is no access for disabled users to the first floor of the Grade II listed building but this is managed as part of the access strategy for the building. Access to the first floor assisted toilet in the old part of the building is via a very narrow corridor.

Although this point was raised at the workshop, it should be noted there is another assisted toilet in the new build element of Highfield House.



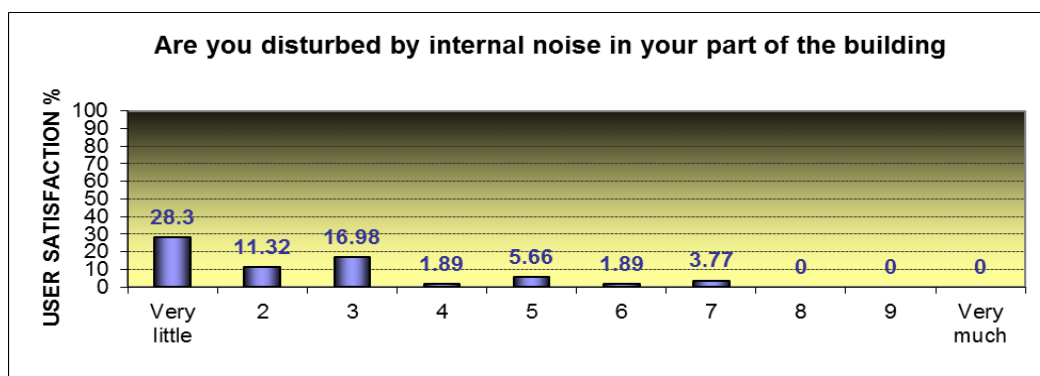


Users are generally satisfied with the cleanliness of the building. Mention has been made earlier in this report regarding the cleanliness of the shower and the cleaning regime for this will be reviewed. Comments were also made concerning the brick paviors to the main entrance and around the cloister.

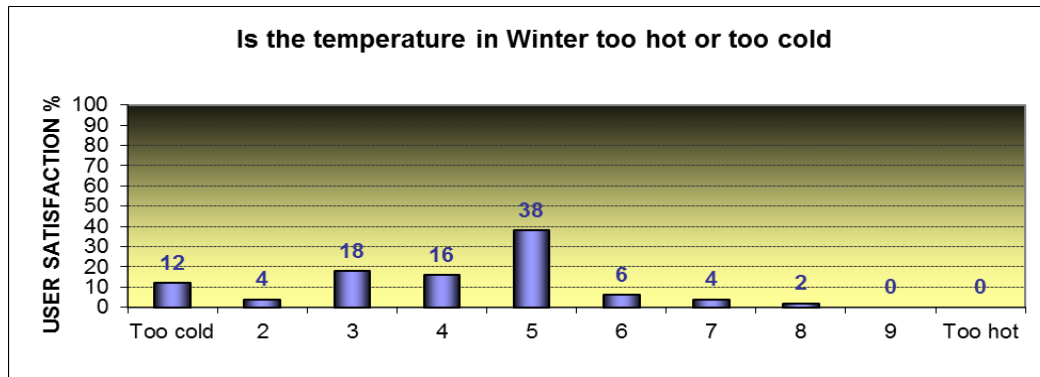
These are in keeping with the style and character of the building but are becoming dirty near the main entrance. Adequate sealing of the floor needs to be maintained and again the cleaning regime for this surface is to be reviewed.

The response to the disturbance from noise question presented scores which demonstrate there is no problem with this aspect. Discussion at the workshop touched on the deliveries to the building which are via the main entrance and the delivery route which causes some noise and disturbance. Also users commented on disturbance in the office due to the print hub being in the room and queried whether it could be relocated into the corridor.

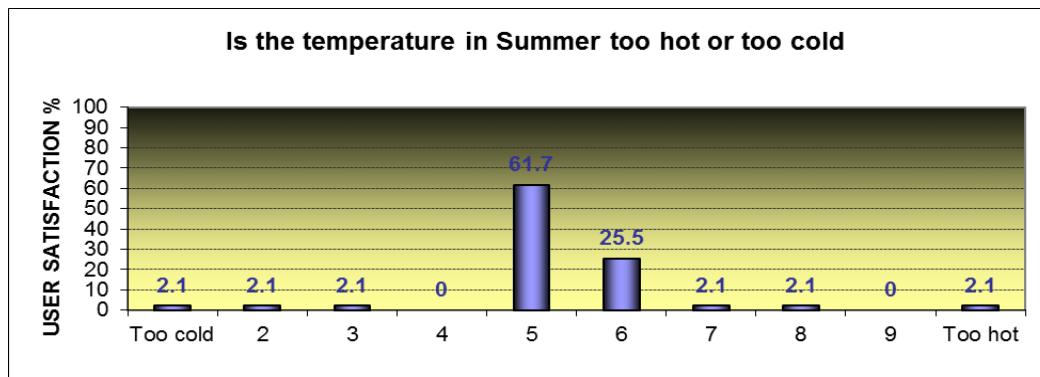
There are other secondary entrances to the building and access for deliveries via an alternative route could be investigated but it should be noted that it may compromise security, fire and access arrangements.



Regarding temperatures in the building, the charts show that for winter, although 38% of respondents felt comfortable, 50% of users felt on the cold side. The thermal mass of the existing building may be contributing to this. Users of the Graduate Centre have commented that the building does go cool in the evening due to the heating switching off. The heating programme/cycle could be reviewed by Research and Graduate Services in conjunction with the Estate Office.

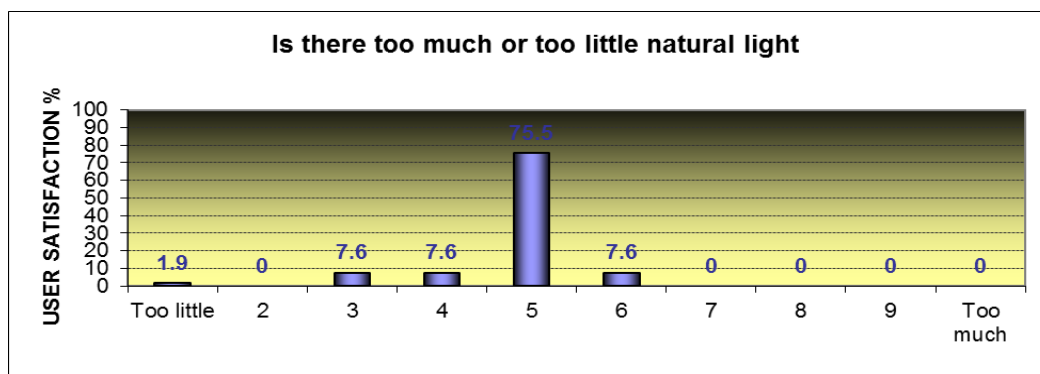


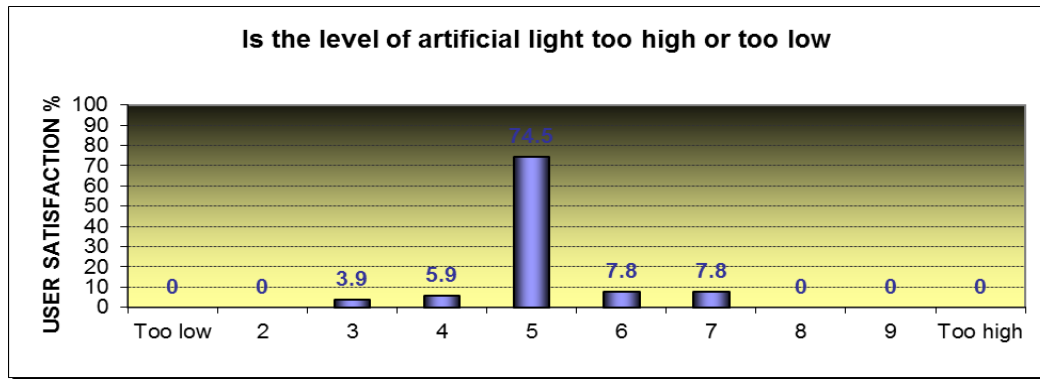
Also comments were made that the wall mounted thermostats controlling the heating and cooling in the Graduate Centre and seminar rooms can be adjusted by the users. This causes problems for the next group of users if controls have not been re-adjusted to reflect external temperatures. This can be resolved by providing a restriction on the range of temperature adjustment and controlled and monitored by the University's Building Management System.



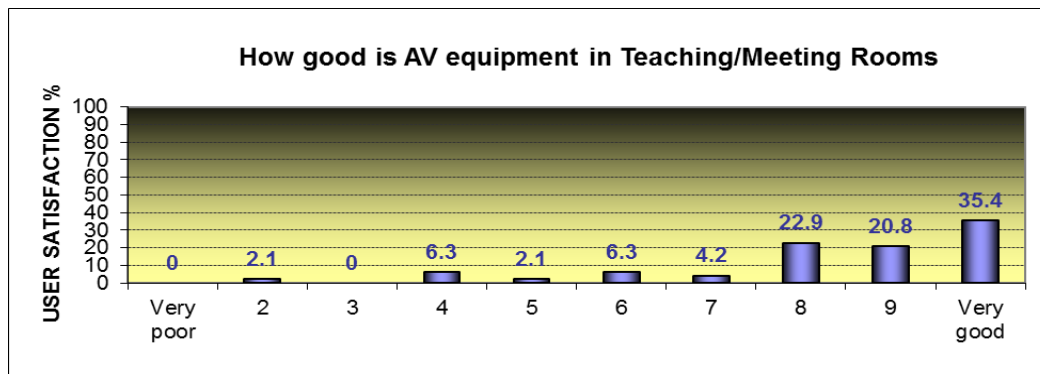
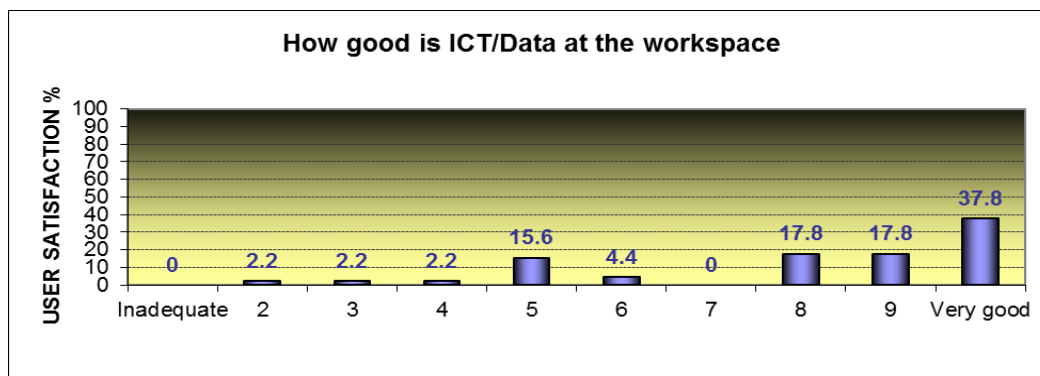
Comfort levels in summer are considered more acceptable.

The charts for natural light and artificial light show a good level of satisfaction (75%). Natural lighting to seminar rooms A09 and A11 is limited due to the planning restrictions imposed on the adjacent walled garden where additional openings were not allowed. (Part of this wall forms the external rear wall to the seminar rooms). This is compensated by the use of roof lights.





The scores on how good the ICT is at the workplace show a fairly positive response and a similar response was given to the rating of AV equipment in the seminar rooms.



## User Issues – Recommendations

### Meeting Room Furniture

There is a need to ensure that furniture is correctly sized for meeting rooms.

### Heating – Graduate Centre and Seminar Rooms

The wall mounted thermostats controlling the heating and cooling in the Graduate Centre and seminar rooms can be adjusted by the users. This causes problems for the next group of users if controls have not been re-adjusted to reflect external temperatures.



This can be resolved by providing a restriction through the Building Management System (BMS) on the range of temperature adjustment made available and then monitoring it through the BMS.

Users of the Graduate Centre have also commented that the building does go cool in the evening due to the heating switching off. The heating programme/cycle could be reviewed by Research and Graduate Services in conjunction with the Estate Office.

#### Cleaning

Brick paviors should be inspected near the main entrance where they attract dirt and mud from shoes. These should be deep cleaned and re-sealed where necessary.

Users have commented that the shower is not clean at certain times of the day. This should be inspected and the cleaning regime amended if necessary.

#### Kitchen

The ground floor kitchen has limited worktop space. Consideration should be given to extending the worktop where possible and Research and Graduate Services should pursue this via a works request to the Estate Office.

#### Cycle Store

Due to the number of cycle thefts and that staff don't feel safe accessing the store during hours of darkness, the store should be restricted to bin storage only and an alternative location should be sought for cycles or another cycle store used elsewhere. It is noted that Security and Sustainability support this view.

#### Movement Sensors

Comments were made concerning the sensitivity of movement sensors which in some areas activated the lights far too late. Further adjustment of the sensors should be made to solve this problem.

### **6. Design Issues**

A number of comments relating to design were raised during the interviews and from the questionnaire returns which were discussed at the workshop. These are listed as follows and commentary given:

#### Design Brief

Generally, those involved with the project felt there had been good communication with the Estate Office, via the Project Officer, throughout the project.

#### Design Co-ordination

There were no issues with design co-ordination. Allowing the scheme to progress to Stage E in its design development prior to novation helped the co-ordination aspects.

#### Planning Stage

The planning period for this project was, of necessity, carried out over a long period due to the nature of the listed building and its setting and the need to carry out a Cultural Heritage Appraisal prior to design development.

The Planners highlighted the importance of the Carriage House and the height of the new build element was kept below the ridge level of this building. Proposals for the development of a glazed enclosure over the main courtyard were debated at length with the Planners.

The 'glass box' design was considered to detract from the character of the existing building and the cloister proposal became the preferred option. The new build element was also revised, replacing the proposed curved roof with a simple 'box' shape.

Overall, planning consultation took approximately 12 months and was handled well by the Architects in liaising with the City Council Design Review Panels and the Conservation Officer.

### External steps and main entrance

The design of the main entrance steps and adjacent paths allows surface water to fall towards the main entrance to the building. Water is prevented from entering the building by use of a drainage channel across the full length of the entrance.



Users have experienced flooding of the lobby area in heavy downpours of rain due to blockage of the drainage channel. A larger channel section together with an additional drainage channel across the adjacent path would have been a better solution.

Due to a number of large trees adjacent to the building, it is important that the drainage channel is kept clear of debris.

### **Recommendations**

- i) Consider installing an additional ACO drainage channel to the footpath running parallel with the building*
- ii) On future projects where possible ensure main steps and paths leading to main entrances fall away from the entrance.*
- iii) A regular maintenance regime should be adopted where drainage channels are used and there is a high density of trees close to the building*

## **7. Construction Issues**

### Contractor Performance

The contractor performed well on this project with good liaison with the novated Design Team. The contractor employed a very good site manager who had experience of working with listed buildings.

### Programme

The programme period for this project was 39 weeks which was extended to 51 weeks due to client changes and additional works (provision of two seminar rooms, Cat 6 cabling, roof and lead works). Two extensions of time were granted, one for 26 days on account of the client changes and the other for 9 days due to a High Voltage cable which was discovered during excavation works and had to be re-routed.

Despite these issues and with accelerated working, the contractor managed to complete the project for the start of the new academic term.

### Quality

The quality of finish to the buildings is to a high standard. The users would have preferred more work done to the existing offices but the agreed budget would not allow for this and work was constrained by the listed status of the building.

### Commissioning/Handover

There were no major issues with commissioning at handover. Snags were confined to decoration except for the problem with the drains blockage and smell. This caused problems for the users at the time but has now been resolved by carrying out diversion work.

### Outstanding Defects

The user representatives reported that there is still evidence of damp penetration in rooms A13 and A17. This has now been investigated and no evidence of damp has been found.

### Health and Safety

There were no health and safety issues raised, the contractor conducting site operations in a satisfactory manner.

## **8. Operations and Facilities Issues**

### Involvement of Maintenance Team

On this project, maintenance staff were introduced and made aware of the scheme and had briefing sessions at the design stage and at handover. The co-ordination of the involvement of the Facilities Team has certainly improved and the recent appointment of two Senior Engineers will strengthen the process further and allow greater interaction and review.

### Building Materials/Services Specification

There were no major issues concerning the specification of building materials and mechanical and electrical services to the new build element. Concerns were expressed by users regarding the operation of the folding partition between seminar rooms A01 and A02.

This was considered a management issue and it is recommended that a note should be included on the Timetabling website stating that an attendant needs to be booked to change layouts and operate the partition. Operations and Facilities confirmed that a maintenance contract was in operation for the partition.



A further item related to the floor boxes in the Graduate Centre to house the electrical sockets. The retractable hoods shielding the cables are easily broken causing potential trips and a hazard to those wearing narrow heeled shoes. The use of this type of floor box should be avoided and alternative cable management methods considered.

Users mentioned that there were still some old 10amp electrical sockets in rooms B12-14 and the adjacent corridor. There have been problems with equipment plugged into these sockets and this should be investigated by Operations and Facilities. It should be noted that these are located in the existing building which was not subject to a full refurbishment.

### Commissioning

Operations and Facilities would have preferred a longer period for commissioning but generally there were no major issues.

### Operations & Maintenance Manuals

Operations and maintenance manuals were produced for this project by the contractor. It was noted at the workshop that important information such as location within the building of stopcocks and shut-off valves should be included in the Fire Plan for the building. The consultants who prepare the O & M manuals should include a note in the documents on future projects.

### Fault Reporting

There were no issues regarding fault reporting through the Estate Office helpdesk. Building users understood the process and were satisfied with the arrangements.

One point that was raised at the workshop related to the High Voltage cable on site which caused delays and resulted in an extension of time being granted.

This was due to poor historic records and confusion over identification and ownership. It was felt that if the contractor had involved the appropriate person in Operations and Facilities from the outset the delay would have been reduced.

## Cleaning

Some very positive comments were made regarding the cleanliness of the building and the cleaning staff. However the following points have been raised which have now been referred to the Domestic Services Manager:

- Brick paviors to main entrance: deep clean and re-seal if necessary
- Shower: check maintenance regime and adjust if necessary
- Glass roof to inner courtyard: cleaning programme now improved
- Insect infestation: this is difficult to eradicate but will be dealt with promptly if a further infestation occurs

## Security

Mention has already been made earlier in this report regarding security aspects concerning the external cycle store. There were no other security issues raised other than concern that the access controlled inner entrance door is often propped open. This practice should cease.

## **Recommendations**

- i) Continue to improve the communication with the Maintenance Team*
- ii) Alternative cable management methods/arrangements should be considered*
- iii) Check the 10 amp electrical sockets in rooms B12-14 and the adjacent corridor and blank off or replace if necessary*
- iv) Ensure the contractor is made aware of the appropriate Operations and Facilities person to contact relating to site services and utilities*
- v) The consultants who prepare the Operations and Maintenance manuals to include information on location of stopcocks and shut-off valves in the building's Fire Plan*

## **9. Project Management**

As with all University capital projects, this project was overseen and monitored by a Project Management Group (PMG) which included representation on the Group from the building user client. In this particular case the representative was initially the Dean of the School of Humanities followed by the Head of the Centre for Advanced Studies. The Dean played an important strategic role in putting forward the change in the brief to accommodate the two main seminar rooms in lieu of the Resource area.

Once the final scheme was selected by the University, the project was delivered successfully through the normal PMG process.

The consultant Project Manager produced a detailed Project Execution Plan which sets out clearly the scope and broad objectives for the project, communication protocol and change control procedures.

There was a significant Client change on the project referred to earlier and although this caused additional cost through accelerated working and extension to the programme, overall the building has benefitted from this change in now providing valuable additional teaching and seminar space.



Risk management was a key part of the project monitoring process. This was handled well with a risk register being produced at an early stage and monitored by the PMG.

## **10. Procurement and Cost Management**

### Procurement

The appointment of the Project Manager and Quantity Surveyor took place once the design team had been appointed. As the Project Manager/QS had worked on a number University projects previously, they were familiar with University procedures and quickly gained an understanding of the objectives and scope of the project.

Due to the nature of this project and the sensitivity surrounding the Grade II listed building, procurement of the Architects was not via a design competition which is the University's preferred route. The Architects were selected on the basis of their expertise and experience of dealing with listed buildings supported by the Structural and Building Services Engineers who were also selected on the same basis.

The Architects and Structural Engineers were novated to the contractor at stage E with the Building Services Engineers being retained on the client side to provide a monitoring role and quality control service. On this project stage E was considered to be the most appropriate point in the design process at which to novate as more design certainty has been achieved by this stage, a critical factor on this project.

The main contractor appointment followed standard University procedures. Following a pre-qualification exercise, five contractors were invited to tender for the proposed works. The appointment of the preferred contractor took place following a detailed assessment of tenders to ensure full compliance with the Employers Requirements and design information, the process and recommendations being set out in a detailed tender report approved by PMG.

The form of contract used was the JCT Design and Build contract 2005 (revised 2009). This form of contract works well particularly since the contract clauses remain unamended and thus requiring less negotiation. In this form it is considered to provide good value in balancing cost and quality.

### Cost Management

Costs were managed well on this project. Regular cost plans and cost checks were prepared prior to construction and once this commenced, regular cost reports were produced. The PMG was kept regularly informed through the cost reports and was able to monitor expenditure effectively.

The final account was agreed and issued 2 months after completion and reflects the client changes relating to the additional works. Taking into account the cost of these changes and the increase in Client Direct costs, if these are deducted, this brings the final out turn cost for construction within the 5% tolerance allowed by the University.

## 11. Sustainability

The design brief for this project stipulated a BREEAM target of 'Excellent' for the new build element which conforms to the requirement of the University's Carbon Management Plan. Although this has been achieved and the final certificate confirming this has now been issued.

Energy Consumption figures have been obtained from the University's Estate Office for the period 1 January 2013 to 31 December 2013. These are shown in the table below and comparison made with the target design (predicted) figures. The following should be noted:

- No heat meter has been installed for the air source heat pumps
- The predicted figures are for the new build element only
- There is no sub-metering of the gas supply so actual figures include for both the existing building and the new build element
- Actual figures for electricity consumption include small power. Predicted figures exclude this

### LZC TECHNOLOGIES

	PREDICTED		ACTUAL	
	kWh/annum	kgCO <sub>2</sub> /annum	kWh/annum	kgCO <sub>2</sub> /annum
ASHP		5,436	No meter installed	
<b>Total</b>		<b>5,436</b>		

### BASE LOADS

	PREDICTED		ACTUAL	
	kWh/annum	kgCO <sub>2</sub> /annum	kWh/annum	kgCO <sub>2</sub> /annum
Electricity	46,575	8,803	156,499	36,464 *
Gas	47,619	25,095	69,145	33,190 *
<b>Total</b>	<b>94,194</b>	<b>33,898</b>	<b>225,644</b>	<b>69,654 *</b>

\* DEFRA 2012 conversion factors used for figures in 'Actual' column

It is therefore not possible to make a realistic comparison between predicted and actual net consumption figures and to determine to what extent the air source heat pumps, as the renewable energy source, are reducing carbon emissions. It is therefore recommended that a heat meter is fitted to the ASHP's.

A number of energy efficiency and sustainability measures have been incorporated into the building, namely:

- Reverse Cycle Air Source Heat Pumps
- Passive ventilation to meeting rooms and cloister area
- High efficiency ventilation fans
- Sedum roof
- Sensor controlled lighting/occupant detection/daylight linking
- Low volume WC flushing controls/PIR detectors

## **Recommendations**

*i) Install heat meter to air source heat pump circuits*

## **12. Conclusion**

Overall, this building has been a huge success in terms of its procurement and design/construction processes. The building's fitness for purpose is very good, demonstrated by the very high level of user satisfaction (94%) and the comments made by users:

*Great building and very impressed with the layout*

*The building is great and we get lots of positive comments about it  
Nice light and airy feel to the building*

*It's beautiful and I love the outside space too. Lots of character with old and new blended really well*

*It's a very beautiful building in equally beautiful surroundings. I consider myself very lucky to work here*

*It's a beautiful building and the modifications have enhanced its use*

The building has also achieved a number of awards:

**RIBA East Midlands 2013 Design Award – Winner**

**RIBA East Midlands 2013 Conservation Award – Winner**

**RIBA East Midlands 2013 Client of the Year Award – Winner**

**RICS Conservation/Regeneration Design Award 2013 - Highly Commended**

### 13. Summary of Recommendations

### Action

#### User Issues

- |   |                              |
|---|------------------------------|
| i) Ensure furniture is correctly sizes for meeting rooms  | Development                  |
| ii) Provide a restriction through the Building Management System (BMS) on the range of temperature adjustment made available and then monitoring it through the BMS | Operations & Facilities      |
| iii) The heating programme/cycle to be reviewed by the Research and Graduate Services in conjunction with the Estate Office.  | Graduate & Research Services |
| iv) Brick paviors should be inspected near the main entrance where they attract dirt and mud from shoes. These should be deep cleaned and re-sealed where necessary | Operations & Facilities      |
| v) Inspect the cleanliness of the shower and amend the cleaning regime if necessary   | Operations & Facilities      |
| vi) The ground floor kitchen has limited worktop space. Consideration should be given to extending the worktop where possible. Pursue with works request            | Research & Graduate Services |
| vii) The Cycle/bin store should be restricted to bin storage only and an alternative location sought for cycles or another cycle store used elsewhere.              | Operations & Facilities      |
| viii) Adjust movement sensors to make more sensitive where necessary  | Operations & Facilities      |

#### Design Issues

- |   |                         |
|---|-------------------------|
| i) Consider installing an additional ACO drainage channel to the footpath running parallel with the building                                    | Operations & Facilities |
| ii) On future projects where possible ensure main steps and paths leading to main entrances fall away from the entrance.                        | Development             |
| iii) A regular maintenance regime should be adopted where drainage channels are used and there is a high density of trees close to the building | Operations & Facilities |

#### Operations and Facilities Issues

- |  |                                      |
|--|--------------------------------------|
| i) Continue to improve the communication with the Maintenance Team   | Development<br>Operations Facilities |
| ii) Alternative cable management methods/arrangements should be considered relating to floor boxes   | Development                          |
| iii) Check the 10 amp electrical sockets in rooms B12-14 and the adjacent corridor and blank off or replace if necessary                       | Operations Facilities                |
| iv) Ensure the contractor is made aware of the appropriate Operations and Facilities person to contact relating to site services and utilities | Development                          |

v) The consultants who prepare the Operations and Maintenance manuals to include information on location of stopcocks and shut-off valves in the building's Fire Plan

Development

Sustainability

i) Install heat meter to air source heat pump circuits

Operations & Facilities



# **APPENDIX 1**

## **Sample Questionnaire**

## POST OCCUPANCY EVALUATION

### BUILDING USER SATISFACTION QUESTIONNAIRE (On-line survey method used)

#### BUILDING: HIGHFIELD HOUSE

**Occupation** (Please tick most relevant or state in 'other')

Academic staff

Admin staff

PGR Student

An evaluation of your building is being conducted to assess how well it performs for those who occupy it. This information will be used to assess areas that might need improvement and provide feedback that can be used for the benefit of similar future buildings.

Please complete the following questions relating to the above project by ticking the appropriate boxes and adding comments where requested.

### 1 – Satisfaction with types of space in building

Please rate the overall quality of the following areas:

(Please tick)

<b>A: Single Office</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>B: Shared Office</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>C: Graduate Centre</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>D: Meeting Rooms</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>E: Central Timetabled rooms</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>F: Cloister</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>G: Kitchen</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>H: Toilets/shower</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>I: Storage</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>J: Cycle store</b>	1 V Poor	2	3	4	5 Excellent	N/A
<b>K: Overall Impression</b>	1 V Poor	2	3	4	5 Excellent	N/A

### 2 - Security

#### 2.1 How safe do you feel in the building? (Please tick)

Unsafe

Very safe

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

### 3 - Accessibility

3.1 How accessible is the building for disabled users?

Dirty									Clean
1	2	3	4	5	6	7	8	9	10

### 4 - Cleanliness

4.1 How clean is the building?

Dirty									Clean
1	2	3	4	5	6	7	8	9	10

### 5 - Temperature

5.1 Is the temperature in winter too cold or too hot?

Too cold									Too hot
1	2	3	4	5	6	7	8	9	10

5.2 Is the temperature in summer too cold or too hot?

Too cold									Too hot
1	2	3	4	5	6	7	8	9	10

### 6 - Noise

5.1 Do you suffer distraction caused by noise in your part of the building?

Very significant									Not significant
1	2	3	4	5	6	7	8	9	10

### 7 - Light

7.1 Is there too much or too little natural light?

Too little									Too much
1	2	3	4	5	6	7	8	9	10

7.2 Is the level of artificial light too high or too low?

Too low									Too high
1	2	3	4	5	6	7	8	9	10

## 8 – Telephone/Network Connectivity/Av Equipment

8.1 How well does telephone and network connectivity operate at your workstation?

Inadequate

Well provided

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

8.2 Is the AV equipment in the teaching/meeting rooms adequate?

Inadequate

Well provided

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

## 9 - Comments

If you have any additional comments that you would like to make about any aspect of the building and your working environment please note them here.

Thank you for completing the questionnaire.



# **Appendix 2**

## **HIGHFIELD HOUSE**

### **Post Occupancy Evaluation Workshop**

**Held on Tuesday 3 June 2014**

#### **List of Attendees**

##### **User Representatives**

###### **Research & Graduate Services**

- Sally Bowden, Research Development Manager
- Allison Pearson, Humanities & Social Sciences Research Centre Administrator
- Kathleen Fennemore, PA to Dean & Head of Graduate School

##### **Estate Office**

James Hale	Senior Capital Projects Officer
Chris Dickinson	General Manager Maintenance
Mark Bonsall	Senior Engineer
Alison Morgan	Senior Security Officer
Yvonne Solomon	Building Surveyor
Paul Wright	Building Surveyor
Keith Baker	Domestic Services General Manager
Cliff Hogan-George	Domestic Services Operations Manager
Alex Glen	Space Resource Manager

##### **Design Team**

Anthony Blackburn	Turner & Townsend – Project Manager
Martyn Cooper	Turner & Townsend – Quantity Surveyor
Joshua Croft	D H Squire – Building Services Engineers

##### **Contractor**

Dan King	Robert Woodhead Ltd
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##### **Apologies**

Stuart Hodgkinson	Lathams – Architects
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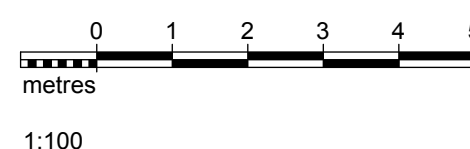
## **APPENDIX 3**

### **Floor Plans**

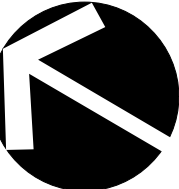


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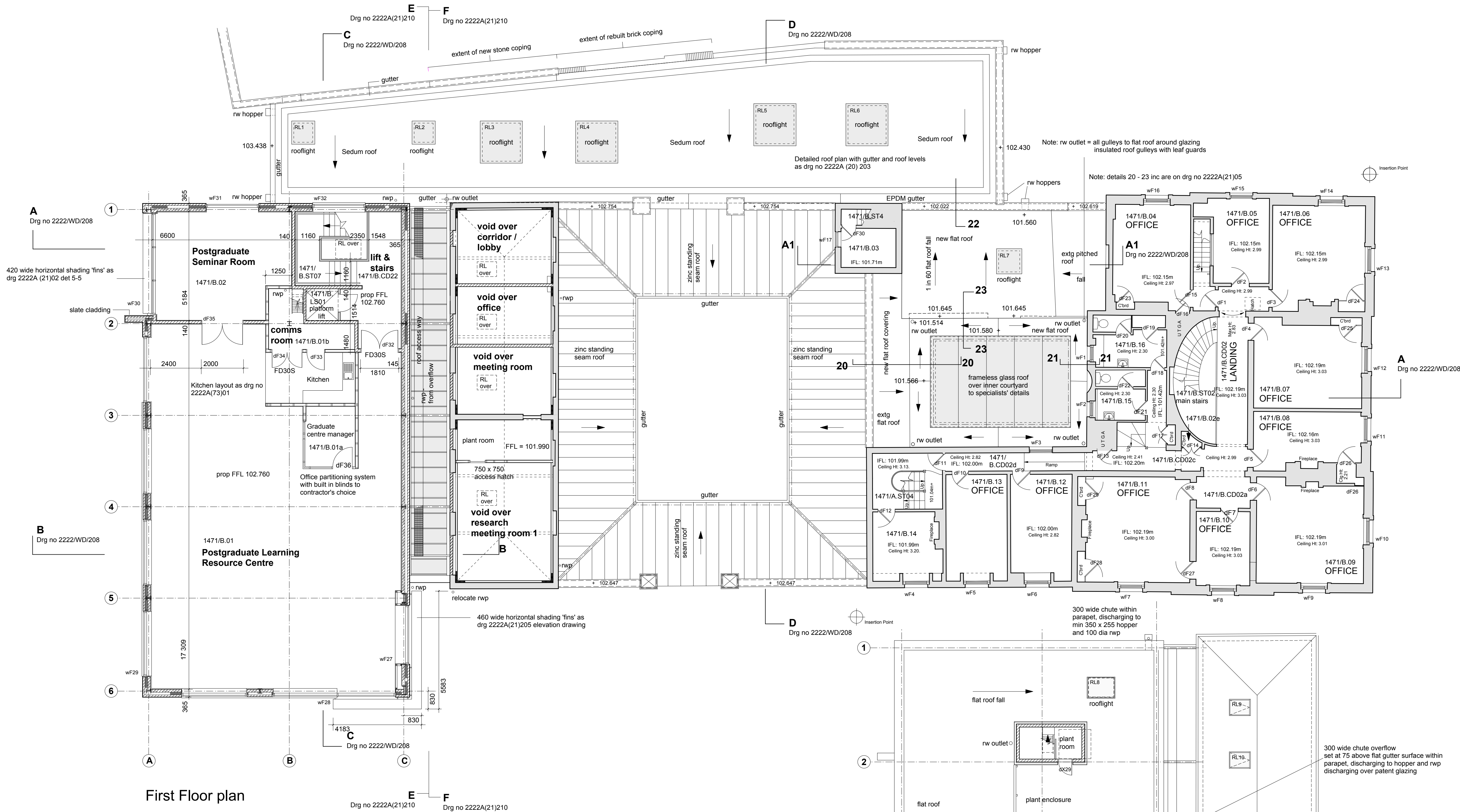






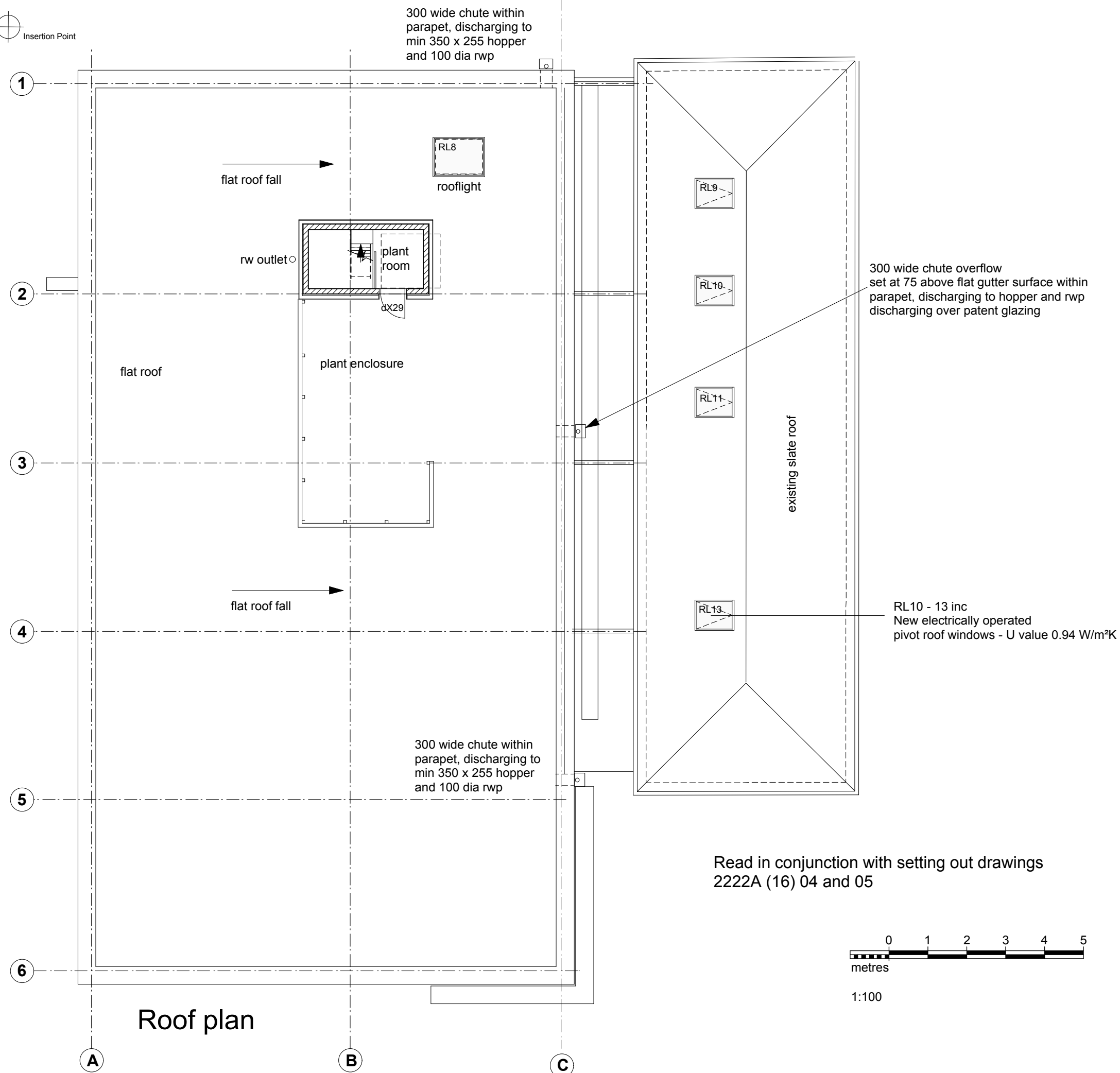
NORTH

NB. For purpose of room data sheets  
North is taken as horizontal



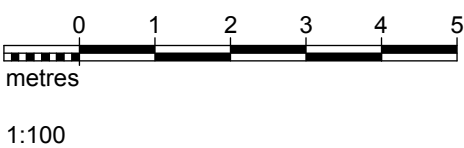
First Floor plan

<b>Key</b>	365 thick external wall: 15 thick Permarock smooth render, 100 medium dense blockwork, 125 cavity with full fill mineral wool insulation, 140 medium dense blockwork, plasterboard drylining - U value = 0.21 W/m <sup>2</sup> K
	min 215 thick existing brickwork with insulated dry lining - U - value = 0.25 W/m <sup>2</sup> K
	225 thick new brickwork with insulated dry lining - U - value = 0.25 W/m <sup>2</sup> K
	New blockwork partition
	New studwork partition
	Existing construction



Roof plan

Read in conjunction with setting out drawings  
2222A (16) 04 and 05



- Rev P 10 Apr 2012 Kitchen area amended to give space for drinks machine, room nos to extg building corrected.
- Rev N 30 Mar 2012 Extension first floor altered -comms room and kitchen area enlarged, manager office added, room designations and nos changed.
- Rev M 12 Jan 2012 flat roof over kitchen and wc's altered to fall towards seminar room. RW hopper added to NE elevation. Link glazing bar centres modified as UMG advice.
- Rev L 15 Dec 2011 modified to show render in lieu of rainscreen cladding to match setting out and detail drawings.
- Rev K 1 Dec 2011 reconstructed pitched roof over wc and shower omitted, parapet levels added.
- Rev J 28 Oct 2011 corner 6C modified to simplify detailing and incorporate ventilation equipment following design team mtg.
- Rev H 6 Oct 2011 Stairs and top landing amended. Plant space added over store A.48, Rooflight RL12 omitted. First floor level corrected.
- Rev G 27 Sep 2011 gridlines added, df32, 33 and 34 modified
- Rev F 17 Aug 2011 External wall construction to extension altered to cavity/blockwork following tender, rwp pipes and roof drainage indicated, door and window nos added, plant room stair repos'd to avoid steelwork. Link roof glazing crs modified
- Rev E 30 Mar 2011 Rooflights to coach house indicated, partition between reception and lobby shown to full height of space.
- Rev D 26 Jan 2011 Comms room amended, room nos added.
- Rev C 01 Dec 2010 cloister roof revised, glazed roof added over courtyard, comms room and roof access altered.
- Rev B 14 Oct 2010 lift amended, levels adjusted in extension, dimensions and fire doors added. Roof plan added.
- Rev A 28 Sept 2010 checked against survey and insertion points added.

STATUS As Built

St. Michael's, Queen Street, Derby, DE1 3SU  
Tel: 01332 365777 - Fax: 01332 290314  
enquiry@lathamarchitects.co.uk  
www.lathamarchitects.co.uk

Chartered Architects  
Urban Designers  
Landscape Architects  
Town Planners  
Historic Building & Conservation Advisors

Latham's

PROJECT  
HIGHFIELD HOUSE  
UNIVERSITY OF NOTTINGHAM

CLIENT  
ESTATE OFFICE  
UNIVERSITY OF NOTTINGHAM

TITLE  
PROPOSED FIRST FLOOR PLAN

SCALE 1:100 DATE Sept 2010  
DRAWN BY gr CHECKED BY SH

JOB NO: 2222A DWG NO: (20) 202 REV NO: P ORIGINAL SIZE A1