The University of Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

POST OCCUPANCY EVALUATION REPORT

ORCHARD HOTEL



JULY 2015

FINAL

QTC projects

1. Introduction

QTC Projects were appointed to carry out the Post Occupancy Evaluation following the submission of a fee for services dated 25 March 2014 to the Senior Capital Projects Officer, 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

Analysis of guest satisfaction was undertaken by assessing feedback published on recognised hotel booking and review web sites and collating summary data from these.

Questionnaires

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

a) User Client (East Midlands Conference Centre)

b) Consultant Design Team
- Architect
- Project Manager
- Cost Consultant
- Building Services Consultant
- Structural Engineer

c) Estate Office – Development

d) Main Contractor

Interviews

Interviews were held with the following:

a) Orchard Hotel General Manager - Lasse Hogberg
Orchard Hotel Maintenance Manager - Graham Alls

b) Estate Office
- James Hale – Capital Projects Officer

c) Christal Management (now E C Harris) Project Manager – Alison Carroll

d) Elementa Consulting Engineers – David Glossop

e) Graven Images Interior Designers – Ross Hunter

e) BAM Main Contractor – Mark Ferrie

Workshop
A half day workshop was held on 9 July 2015 (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	Orchard Hotel
Size	9,407m² (Gross Internal Area)
No of Storeys	6 storeys

Types of space	Bedrooms (standard, executive and accessible) Meeting rooms, Executive Lounge Front of House (Reception, foyers, lounge, bar, restaurant) Ancillary space
Construction Period	67 weeks
Start on site	18 July 2011
Contract Completion	31 October 2012
Practical Completion	8 November 2012

Net Construction Costs

At Start of Construction	£17,344,586
Final adjusted contract sum	£18,390,824

Funding	University

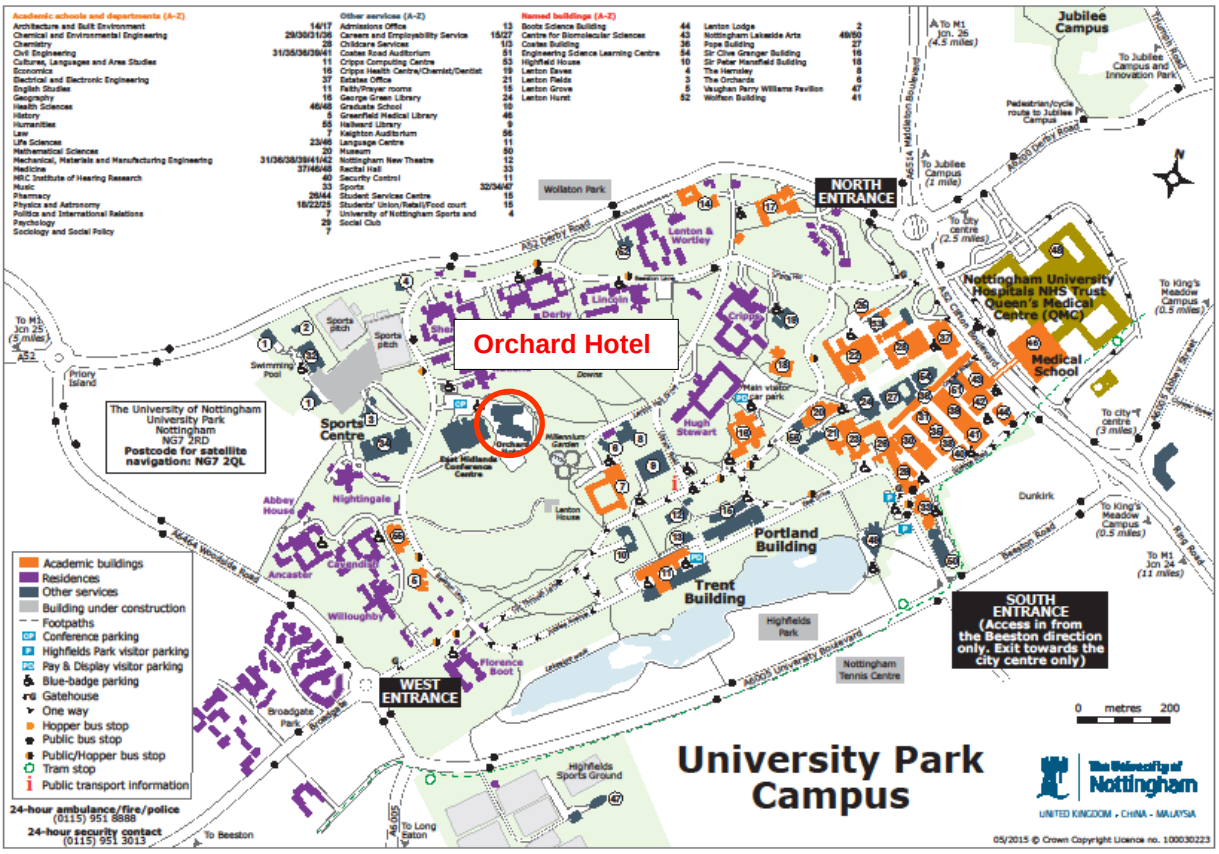
Consultant Team

Project Manager	Christal Management, Manchester (now EC Harris)
Architects	RHWL, London
Cost Managers/QS	Capita Symonds, Manchester
Building Services Engineer	Elementa Consulting Engineers, London
Structural Engineers	Clarke Nicholls Marcel, London

Contractor	BAM Construction, Manchester
Building Contract	JCT Design & Build 2005 (Rev 2009)

4. Project Background and Description

The building is located on the University Park campus on a sloping site adjacent the existing East Midlands Conference Centre. Originally a car park for the Conference Centre together with former greenhouses and apple orchard, the building is carefully located within the surrounding hillside and existing landscape.



The University considered the possibility of a hotel development back in 2007 and commissioned consultants to undertake feasibility studies and market research on several possible sites on University Park. Outline planning consent was also granted for a hotel development in January 2007.

The University recognised the potential of a hotel as part of the development of the Conference Centre which lacked residential accommodation on site hindering its future growth. This was confirmed in the final feasibility study whereby such a development would provide “a more cohesive approach to its offering and enhance its marketing approach”.

Following an extensive and detailed design competition for the selection of the preferred design team and the selection of the main contractor, construction commenced in July 2011 through a turn-key design and build contract. The hotel became operational in November 2012.

The hotel provides 202 bedrooms including 55 executive bedrooms and 5 accessible bedrooms over 5 floors. The lower ground floor, cut into the hillside hoses the plant rooms, ancillary and staff accommodation. The main entrance and public areas are provided in double height space incorporating a mezzanine level which provides access to the rear of the hotel and the landscaped areas. There are three further floors of bedroom accommodation in the wings that flank the central atrium space.

The atrium, with exposed ‘Glulam’ laminated timber structure is an impressive design feature with extensive glazed areas which flood this space with natural light.

The hotel has been built to very high design standards. Bespoke furniture and high quality interior finishes set this hotel apart from others in this 4 star category.

The environmental features that have been incorporated into the development to minimise carbon emissions include a green roof. PV panels, ground source heat pump and CHP unit. The building has achieved an 'Excellent' rating in line with the Building Research Establishment's environmental assessment methodology (BREEAM) and has won a number of awards.

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

Table 1 Project Milestones

Design Brief issued	July 2010
Design Team appointment	October 2010
Project Execution Plan	5 October 2010
Stage C Report	13 December 2010
Planning submission	7 February 2011
Main construction tender invitation	14 March 2011
Tenders returned	12 May 2011
Tender Report	26 May 2011
Planning Approval	27 May 2011
Contract start date	18 July 2011
Access given to De Vere	15 October 2012
Contract completion date	31 October 2012
Practical Completion	8 November 2012
Date of making good defects	12 December 2014

5. User Satisfaction

Building user satisfaction has been gathered from two user types: hotel guests and hotel staff. Guest feedback has been evaluated from the reviews and scores posted on four web-based review sites: Booking.com, Trip Advisor, Late Rooms and Expedia. The tables below show a very positive picture with high levels of customer satisfaction.

SITE: BOOKING.COM		SITE: TRIP ADVISOR	
Overall Rating: **8.9 / 10**	No of reviews: 1,226	Overall Rating: **4.6 / 5**	No of reviews: 793
Cleanliness	9.4	Location	4.5
Comfort	9.1	Sleep quality	4.5
Location	8.9	Rooms	4.5
Facilities	8.8	Service	4.5
Staff	8.6	Value	4.5
Value for money	8.4	Cleanliness	5.0
Free Wi-Fi	8.9		

SITE: LATE ROOMS		SITE: EXPEDIA	
Overall Rating: **5.5 / 6**	No of reviews: 337	Overall Rating: **4.6 / 5**	No of reviews: 430
Cleanliness	6.0	Room cleanliness	4.8
Customer service	5.0	Service & staff	4.5
Family	5.0	Room comfort	4.7
Food quality	5.0	Hotel condition	4.8
Room quality	6.0		
Value for money	6.0		

There were some negative comments related to the dining area which some guests felt became overcrowded especially at breakfast when conferences were being held. Overall most guests had a positive experience and recommended the hotel in the written reviews.

De Vere Hotels also operate a guest feedback questionnaire within their own hotel group. Again the feedback from guests is very good. In the year to December 2014, 97% of guest responses rated the hotel 'Good' or 'Excellent'. The Orchard Hotel was only one of four hotels that scored 100% for overall experience out of a total of 29 De Vere hotels.

Feedback from staff was obtained from discussions with the Hotel Manager and Maintenance Manager and from issues raised at the workshop. These are listed below and commentary given.

<u>Size of kitchen and dining area</u>

The dining area provides 130 covers and struggles with capacity when conferences are held. The size of the kitchen is considered too small. It is understood the layout changed and was re-designed.

It should be noted that at the early design stage when the design concepts were being considered for these areas, the University was not able to confirm operations and determine what type of food offering was to be served as the Hotel Company had not been appointed at that stage.

Location of cellar in relation to bar area

The location of the cellar is considered too remote from the bar making servicing more difficult. At the workshop it was stated that the cellar was added later as the design concept did not take into account the dispensing of draught beer.

Office space

Office space provision proved insufficient by the time De Vere were appointed and were able to comment on what was being built. Some staff were relocated from the Conference Centre and other rooms converted to office space. eg. the Accounts office is located in what was the sprinkler room.

Solar glare at the reception desk

Due to the orientation of the glazed atrium in relation to the hotel reception desk, staff experience discomfort from solar glare at certain times of the day. Only limited brise soleil or tinted glass were fitted as part of the design. Conditions have been improved by applying solar film to some of the glass panels but the problem has not been completely eradicated.

Carpets

Some problems have been experienced with carpets in the public areas and bedroom corridors. The original carpet strips have had to be replaced with timber although this is still causing some problems. There are a number of different floor finishes which has been a challenge in providing a satisfactory junction solution bearing in mind the amount of foot traffic over them. Also trolley movement over the carpet tends to cause ripples as the carpets are only edge fixed.

Lifts

Lift breakdowns have been occurring especially to one of the lifts despite there being a good service contract in place. This needs to be investigated.

Recommendations

i) More detailed assessment is needed when developing the design of catering facilities at the early design stage. It is important to understand what food and drink is to be served and assess the impact of conferences on the hotel services. It is very important where a hotel company is engaged to manage the facilities that they are brought in at the early design stage

ii) Establish the design brief for office space at an early stage and engage with end users where possible

iii) Future design of highly glazed spaces should take into account the possibility of solar glare and build in preventative measures such as brise soleil and tinted glass if it cannot be avoided

iv) Where several different floor finishes are being used establish a satisfactory junction solution that will withstand heavy foot traffic, luggage and trollies

v) Investigate the cause of the lift breakdowns

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

The University issued a design brief at the competition stage. This was adequately detailed and provided sufficient information for the Consultant Architects, who had good hotel design experience, to prepare preliminary designs. These were based on the Hilton Garden Inn brand (3 star) but the University had aspirations to deliver a more bespoke hotel of higher quality.

The Design Team considered there was good communication through the University's Estate Office via the Capital Projects Officer.

User Consultation

The initial design brief set out the space requirements that would enable a preliminary design to be developed. Further user consultation would enable more detailed designs to be prepared leading up to design Stage C and D submissions for client sign-off.

Initially the University intended to operate the hotel in-house but made the decision later to bring in a leading hotel chain to run the facilities. This decision was taken at a late stage in relation to the development of the scheme.

The tender process for the selection of a suitable operator took place in June 2011 but it was December of that year when De Vere were awarded the contract by which time almost six months of construction work had been completed. This was far too late for the user client to influence the design during its development.

Design Co-ordination

The selection of the Architects as lead consultant for the design team included the Mechanical and Electrical Consultants and the Structural Engineer. The Architects also appointed their own Interior Design Consultants. All had worked together as a team on other projects.

The main contractor who was to take on the design team through a novation agreement had no say in the selection of the design team. This influenced the later design co-ordination which the contractor felt was a major problem. It was felt that the Architects excelled in the development of the design concept but were not as successful in detailing some aspects of the design.

The Contractor's Design Manager also did not take a strong enough stance in steering the design co-ordination, which would have balanced the need to ensure the Architect's design concept was not lost whilst applying the contractor's expertise in buildability. However it was felt that BAM Services who co-ordinated the various works packages performed very well.

Planning issues

Outline planning permission was granted for a hotel development on the site in January 2007 but this had time expired prior to construction commencing. However it set a precedent for future development.

Careful consideration was given to the massing of the building and its relationship with the existing topography and landscape and also that it overlooked the adjacent Boots land. No major issues were encountered in dealing with the planning process which followed standard procedure in pre-consultation and effective dialogue with the City planners.

Showers

It is noted that the location of the Linear drainage channel to the shower enclosure in the executive bedrooms is positioned at the opposite end to the shower head. This is unusual and results in the occupant standing in draining water whilst drying off. It is assumed that this was done to suit the plumbing arrangements. The position of the drainage channel in all other bedrooms is located correctly.

In the accessible bedrooms the fall to the floor in the shower area (wet room) is considered inadequate.

Ground source heat pump

Initially problems were experienced with the ground source heat pumps which provide heating to the foyer, meeting rooms and bar. On investigation it was found that the pumps were undersized and these have now been replaced. However the Maintenance Manager still has some concerns and further monitoring may be necessary.

Recommendations

i) User client should be involved at a much earlier stage in the design and construction process particularly on specialist builds such as hotels in order to avoid later design changes.

ii) In order to improve design co-ordination on future projects consider involving the contractor in the design team selection process

iii) Ensure drainage channels to showers are correctly positioned and in accessible bedroom showers ensure adequate fall is provided to wet room floors

iv) Continue to monitor the operation of the ground source heat pumps

7. FM Issues

Facilities management of the hotel is operated by the Conference Centre with a dedicated Maintenance Manager and small support team to cover the Conference Centre and hotel. This appears to work well with effective maintenance regimes in place for the hotel. There are full service contracts in operation with planned preventative maintenance routines carried out to bedrooms three times a year.

There were some early teething problems but these have now been resolved:

- Edges to the timber frame bed were found to be too sharp and have now been modified

- Originally the hotel management had little control over temperature which was controlled centrally by the University's building management system. This has now been changed

- There were insufficient power sockets in the public areas and more have now been added

The only other issue relates to the restaurant timber floor. Due to heavy use, this has had to be stripped and re-sealed three times and is now being considered for replacement.

8. Construction Issues

Programme

It is considered that the overall programme was reasonable and could be achieved with the appropriate level of on-site resources. However during the construction period, the contractor encountered a number of difficulties. There were issues with the location and level of the existing gas main which ran across the site. The contractor also made reference to delays due to inclement weather, graduation ceremonies and late information. However only one week was granted for delays due to graduation.

The contractor's programme slipped as construction proceeded but they maintained that the programme would be met. It was only when there was just four months to contract completion that the contractor acknowledged that further time was needed to complete the programme.

It was considered that several more weeks were needed but at this stage it was too late bearing in mind the University was already committed to using 20 of the bedrooms for a conference that had been planned well in advance.

The University therefore felt obliged to take possession of the building due to the conference commitment and the contractor gave De Vere beneficial occupation of some parts of the building to prepare for the conference. However snagging and completion of works continued over the next six months whilst the hotel was open for business. Consequently, the sequencing of these works had to be managed carefully on a day to day basis and completion therefore took longer as a result.

Quality

Due to the scale of the project, the University appointed clerks of works. It was also considered that due to the low tender submitted by the contractor that there may be an issue with resources on site and the support of Clerks of Works would help in monitoring site progress and quality.

It was felt that the main contractor's site management struggled with available resources and in some cases didn't follow through agreed actions. The Consultant Project Manager felt the site management needed further support. The Clerks of Works produced snagging lists but some of these were incomplete and it was therefore not possible to carry out all de-snagging inspections.

Overall and despite these difficulties, the final outcome is a building that has a good level of quality finishes, particularly with joinery works. The level of interior design has also had an impact on the overall finish.

Commissioning

The period for commissioning was considered to be too short having been curtailed due to the issue of early practical completion. There was also loss of revenue due to some bedrooms being out of commission.

Outstanding defects

Following handover, snagging and completion of items took six months with a further eighteen months to complete defects during the liability period. The main contractor stayed on site for a considerable period after handover to deal with these issues as part of their aftercare service.

Health and Safety

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

Recommendations

i) Where possible, the practical completion certificate should only be issued when works are substantially complete and the majority of snagging items have been cleared.

ii) Ensure that the contractor provides adequate resources on site and that this is regularly monitored through the Consultant Project Manager

iii) Ensure that the Clerk of Works commission allows time to follow through completion of snagging and final checks

9. Project Management

Communication worked well on this project. The consultant design team, Project Manager, Quantity Surveyor and main contractor all had positive comments to make regarding the relationship with the Estate Office and the accessibility of the University's Project Officer.

As with all University capital projects, this project was overseen and monitored by a Project Management Group (PMG) which included representation from De Vere's Hotel Manager (albeit at a late stage) and members of University Council. Once the final competition scheme was selected by the University, the project was delivered successfully through the normal PMG process.

There were a large number of client changes on this project (over 100 variations 50% of which were client changes). This was due mainly to the late appointment of the end user client. The design was complete by the time De Vere got involved so client changes were therefore inevitable. However the cost of the majority of these were covered by the project risk budget.

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.

Risk management was a key part of the project monitoring process and 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 Architects on this project acted as lead design consultant, being appointed following the outcome of a design competition. This has proved to be a worthwhile and beneficial process as it enables the client to consider a range of designs and different approaches to interpretation of the brief.

The Architect also selected the Structural and Building Services Engineers to make up the overall design team. As hotel interiors are an important selling point and quality indicator the Architects also had an interior designer on their team. The consultant Project Manager and Quantity Surveyor were appointed separately.

The Architects and Structural Engineers were novated to the contractor at stage D+ with the Building Services Engineers being retained on the client side to provide a monitoring role and quality control service. It is considered that stage D+ or stage E is the most appropriate point in the design process at which to novate as more design certainty has been achieved by this stage.

The main contractor appointment followed standard University procedures. Following a pre-qualification exercise, six contractors were invited to tender for the proposed works and five tenders were received.

The appointment of the preferred contractor took place following a detailed assessment of tenders with the process and recommendations being set out in a detailed tender report approved by PMG. The cost consultants did point out in their tender report that the tender recommended for acceptance was £2million below the pre tender estimate. The report identified two possible risks:

- The contractor may be forced to source the lowest possible quality of materials and labour rates
- The contractor could pass on the commercial pressures to their subcontractors which may impact on their ability to trade.

The design team therefore built in safeguards into specifications and drawings to reduce these risks. Nevertheless there is no doubt that the low tender submission affected the contractor's ability to apply the right level of resources on site and caused delay to the main contract works.

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 require 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 as the pre-tender net construction budget was well above the accepted tender sum, no value engineering/cost saving exercises were needed following receipt of tenders.

Once construction commenced, regular cost reports were produced. PMG was kept regularly informed through the monthly cost reports and was able to monitor expenditure effectively and direct as required.

The final account has not yet been agreed which needs to be addressed as a matter of urgency. However final account summary dated August 2013 shows the final project cost within 5% of the total budget.

Recommendations

i) Agree the final account with the main contractor

11. Sustainability

The design brief for this project stipulated a BREEAM target of 'Excellent' which conforms to the requirement of the University's Carbon Management Plan and this has been achieved.

It is a requirement of the Nottingham City Council Planning Guidelines that 10% of all energy used (interpreted through CO_2 emissions) in new developments over 1000m² be obtained from low carbon emission or renewable energy sources.

The design intent was that following an appraisal of possible options this would be achieved through the provision of ground source heat pumps powered by energy generated by photovoltaic roof mounted panels. A CHP unit was also factored into strategy for renewable energy provision. The design calculations assessed that this would achieve an overall 20% reduction in CO_2 emissions.

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

- Ground Source Heat Pumps
- Photovoltaic panels
- CHP unit
- High thermal mass of building
- Energy efficient and sensor controlled lighting including daylight sensors
- Sustainable urban drainage system

12. Conclusion

This building has successfully delivered on the design brief and produced a quality building. There are some issues that need addressing and these are shown in the list of recommendations but overall, a well-designed building has been produced fully funded by the University. This will enable the Conference facilities to become a one-stop venue and provide both the University and the City of Nottingham with a bespoke hotel that easily achieves a 4 star rating.

The hotel has received a number of awards:

- ***RICS East Midlands Award (Tourism & Leisure) 2013***
- ***Laterooms Simply The Guest Awards***
  - Large Hotel of the year – 2013
  - Business Hotel of the year – runners up – 2014
  - Business Hotel of the year – 2015
- ***Certificate of Excellence 2014 Tripadvisor***
- ***Gold Level Green Tourism Award – Tripadvisor***
- ***Nottingham Post Environment Awards – runners up***
- ***Local Authority Building Control (LABC) Best Large Commercial Building 2014***

13. Summary of Recommendations

	Action
<u>User Issues</u>	
i) More detailed assessment is needed when developing the design of catering facilities at the early design stage. It is important to understand what food and drink is to be served and assess the impact of conferences on the hotel services. It is very important where a hotel company is engaged to manage the facilities that they are brought in at the early design stage	Development
ii) Establish the design brief for office space at an early stage and engage with end users where possible	Development
iii) Future design of highly glazed spaces should take into account the possibility of solar glare and build in preventative measures such as brise soleil and tinted glass if it cannot be avoided	Development
iv) Where several different floor finishes are being used establish a satisfactory junction solution that will withstand heavy foot traffic, luggage and trollies	Development
v) Investigate the cause of the lift breakdowns	Main contractor
<u>Design Issues</u>	
i) User client should be involved at a much earlier stage in the design and construction process particularly on specialist builds such as hotels in order to avoid later design changes.	Development
ii) In order to improve design co-ordination on future projects consider involving the contractor in the design team selection process	Development

	Action
iii) Ensure drainage channels to showers are correctly positioned and in accessible bedroom showers ensure adequate fall is provided to wet room floors	Development
iv) Continue to monitor the operation of the ground source heat Pumps	Operations and Facilities
<u>Construction Issues</u>	
i) Where possible, the practical completion certificate should only be issued when works are substantially complete and the majority of snagging items have been cleared.	Development
ii) Ensure that the contractor provides adequate resources on site and that this is regularly monitored through the Consultant Project Manager	Development
iii) Ensure that the Clerk of Works commission allows time to follow through completion of snagging and final checks	Development
<u>Cost Management</u>	
i) Agree the final account with the main contractor	Development

Appendix 1

ORCHARD HOTEL

Post Occupancy Evaluation Workshop

Held on Thursday 9 July 2015

List of Attendees

User Representative

Lasse Hogberg	Hotel General Manager

Estate Office

James Hale	Capital Projects Officer
Adrian Mawdsley	Space Resource Manager

Design Team

Kimberley Stott	RHWL – Architects

Main Contractor

Mark Ferrie	Project Manager - BAM
Peter Harris	Customer Care Manager - BAM

Apologies

Alison Carroll	Christal Management – Project Manager
David Glossop	Elementa Consulting Engineers
Corrie Jones	RHWL - Architects
Graham Alls	Hotel Maintenance Manager