The University of Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

POST OCCUPANCY EVALUATION REPORT

VAUGHAN PARRY WILLIAMS PAVILION

QTC projects

APRIL 2012

1. Introduction

QTC Projects were appointed to carry out the Post Occupancy Evaluation following the submission of a tender for services dated 10 August 2011 to the Development Director, University Estate Office. The appointment was confirmed on 19 September 2011.

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

Questionnaires

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

a) User
- a sample of users of the building being evaluated consisting of sports clubs/teams and individual students

b) Consultant Team
- Project Manager
- Quantity Surveyor

c) Estate Office – Development Section

d) Main Contractor

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

Interviews

Interviews were held with the following:

a) University of Nottingham Sport & Recreation
   - Nigel Mayglothling, Assistant Director of Sport

b) Estate Office
   - Tim Brooksbank, Development Director
   - James Hale, Project Officer

c) Gaskell Construction Consultants
   - Dean Williams, Project Manager
   - Dick Eite, Quantity Surveyor

d) Main Contractor G F Tomlinson Building Ltd
   - Kevin Dodds, Contracts Manager

Workshop

A one day workshop was held on 23 February 2012 (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 users. 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	Vaughan Parry Williams Pavilion
Size	823m² (Gross Internal Area)
No of Storeys	2 storeys
Types of space	Entrance Foyer Changing Rooms/showers Large tea room/multi purpose space Meeting/seminar rooms Store Kitchen including servery
Construction Period	34 weeks extended to 50 weeks
Start on site	27 July 2009
Contract Completion	19 March 2010
Practical Completion	7 July 2010

Net Construction Costs

At Start of Construction	£1,288,195
At Final Account stage	£1,337,623
Funding	University

Consultant Team

Project Manager	Gaskell Construction Consultants, Nottingham
Architects	A+G Architects, Loughborough
Cost Managers/QS	Gaskell Construction Consultants, Nottingham
Services Engineer	Edmond Shipway, Nottingham
Contractor	G F Tomlinson Ltd, Derby
Building Contract	JCT Standard Form with Contractor's Design 2005

4. Project Background and Description

The main sports pitches for the University are located at the Highfield Sports Ground. The existing facilities for players and spectators were limited, consisting of a timber clad pavilion and changing rooms. Part of the accommodation was considered unsatisfactory and failed to present the right image for the University with the changing rooms and tea room facilities being in poor condition and poorly located.

The University therefore put forward a proposal to replace the existing facilities with a purpose built pavilion of a high standard in terms of accommodation and building design and which would command extensive views across the sports pitches.

A detailed development brief was prepared by the University and the new sports pavilion was procured through a design and build contract with the full design team appointed through the main contractor. This procurement method was used for the Sutton Bonington Sports Centre with much success and was considered appropriate for this project.

The preferred contractor was selected following interviews and presentation of the design solutions. The appointment was also based on best value in terms of tenders submitted. Work commenced on site on the preferred scheme in July 2009 and completed the following summer.

The building presents a unique and innovative design solution being elliptical in shape and on two storeys. Changing rooms are arranged on the ground floor with entrances/exits for the pitches on the north west and south east elevations. A separate main entrance to the pavilion is also provided. On the first floor is an extensive flexible meeting/viewing area with kitchen facilities. Two meeting rooms are also provided at this level.

Externally, the building is constructed of face brickwork at ground level and cedar boarding at first floor level. Metal sheet material forms the roof covering and fascias. The building is well sited in relation to the pitches both of which take account of the proposed route for the new tram link down University Boulevard.

Despite the delays caused by the gas supply infrastructure, the building was completed successfully and handed over to the user client at the start of the summer season and was within 5% tolerance on gross development costs.

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

Table 1 Project Milestones

University design brief	March 2007
Tender invitations issued	29 July 2008
Tenders returned	1 October 2008
Tender report	5 January 2009
Presentations to PMG	13 January 2009
Briefing meeting with contractor	15 January 2009
Finance Committee approval	3 March 2009
Letter of Intent	12 March 2009
Planning approval	11 June 2009
Start on site	27 July 2009
Contract completion date	22 March 2010
Revised contract completion date	19 April 2010
Handover to user client	21 May 2010
Practical completion	7 July 2010

5. User Satisfaction

Table 2 Pavilion Users

PAVILION USERS

- **University**
  - **M Rugby Union x 6**
  - **M Rugby League x 2**
  - **W Rugby Union x 2**
  - **M Football x 4**
  - **W Football x 4**
  - **M Cricket x 4**
  - **W Cricket x 1**
  - **Archery Elite Squad practice**
- **External Users**
  - **Dagfa School PE classes**
  - **Medics FC**
  - **Real United FC**
  - **Beeston Town FC**
  - **City Boys FC**
  - **Notts County FC**
  - **BUCS Home Nations**
- **Other Users/Events**
  - **Notts School Games**
  - **Nottingham HE/FE Consortium**
  - **Foster Care Associates**
  - **University Dept Training days**
  - **England Hockey AASE**
  - **Hockey Nations Cup International Office**

The list of users of the Sports Pavilion is shown in Table 2 and although no comprehensive feedback was obtained from users, those that did respond showed a very high level of satisfaction. Some of the positive comments are listed below:

We recently hired the facilities at Nottingham University and were extremely impressed by the whole experience.

The facilities were exceptional both changing and playing and the pavilion offered an excellent venue to host pre and post game presentations.

Without doubt the staff present on the day made the experience of the facilities so exceptional. They were extremely helpful and were able to provide an answer or solution to all of our event issues.

The catering post game was fantastic and again the staff were polite and friendly.

We have received some excellent feedback from the players and parents who attended the event in regards to the standards of the facilities and we will be looking at returning to Nottingham for future events.

Rugby Football League

The changing facilities are first class, always clean, spectator facility upstairs is brilliant if you want a different perspective of the game. The showers are excellent but I can't really comment on the tea bar etc as it is not open when we play. The groundsman locks the changing rooms as soon as the teams have vacated them, re-opening at half time and re-locking after.

To sum up Attenborough FC have been thoroughly impressed by the facilities and the friendliness of the groundstaff.

Attenborough Football Club

Resulting from the questionnaire responses, interviews and various discussions, a number of issues have been highlighted and were presented at the POE workshop for further discussion/debate. The issues have been grouped under the following headings and considered in more detail in this report.

- Building procurement
- Cost management
- User Issues
- Design issues
- Construction Issues
- Facilities and Operations Issues
- Sustainability

6. Building Procurement

The procurement strategy for the appointment of the consultant design team followed a very similar process to that adopted on the Sutton Bonington Sports Centre whereby the main contractor was made responsible for all design aspects relating to the project. The contractor therefore appointed the Architects and Building Services Engineers to create the design team with the structural elements being dealt with through subcontractor design. The contractor was also responsible for the planning application and obtaining subsequent planning approval.

The contractor was appointed on a full Design and Build contract following presentations from four shortlisted tenderers and a detailed assessment of their tender submission.
Although the tender selected was not the lowest, the Project Management Group considered it gave the best value based on relative cost/m² and design content of the proposed building.

The Project Manager and Quantity Surveyor were separate client-side appointments following the University's standard procedures.

Overall, this procurement strategy worked well and should continue to be used on this type of project.

Recommendations

i) Continue to use the full Design and Build procurement strategy for this type of project

7. Cost Management

Costs were managed well throughout the project with regular cost reports prepared and presented to the Project Management Group. Variations were minimal with thirty-two issued amounting to £30,291 (2.35% of contract value) many of which were client changes.

A summary of project costs is shown in Table 3 which shows overall expenditure exceeded the approved budget by £43,061 (2.69%) but is within the University agreed 5% variance on gross development costs.

Table 3 Cost Summary

TENDER SUM	**£1,249,470**
GROSS INTERNAL AREA	**835m²**
COST/m²	**£1,496**
AGREED CONTRACT SUM	**£1,288,195**
VARIATIONS	**32 (£30,291)**
FINAL ACCOUNT	
APPROVED GROSS COST	**£1,600,000**
ACTUAL GROSS COST	**£1,643,061**
OVERSPEND	**£43,061 (2.69%)**
EXTRAS	
Tarmac works to car park	**£75,155**

The additional costs can be attributed mainly to the following client changes:

- Alterations to services to accommodate kitchen
- Conversion of cleaners store to form ground floor assisted WC
- Whiterock panels to corridor walls
- Security shutters to front entrance

Also costs for services supplies and diversions set against provisional sums were higher than expected. On completion of the project further work was carried out to the tarmac areas to improve the car park.

There were no financial claims submitted from the contractor and no liquidated and ascertained damages applied.

8. User Issues

Overall, the user client is very satisfied with the building with a number of positive comments made:

- Orientation of the building gives good views of pitches and takes account of the flood plain requirements
- The changing rooms are well proportioned with good drainage to the floor. The absence of shoe racks improves cleaning
- Minimal defects at handover
- Storage is adequate and has allowed the removal of existing ad hoc stores on site

Base unit in First Aid Room

Typical Changing Room

During the user client interview and workshop discussion a number of further issues were raised:

- Paint finish to changing room walls: a more durable paint finish would have been preferred that allowed the walls to be washed down. Also the white colour shows marks easily
- The shape of the training room makes it difficult to optimise space when setting out furniture
- The chairs in the first floor tea room may not be considered sufficiently robust – where seat backs are subject to abuse rather than normal wear and tear
- The showers to the changing rooms are temperature controlled and the user cannot manually turn them colder
- The carpet to the main entrance is difficult to keep clean due to spectators bringing in mud on their shoes
- The base unit in the First Aid Room has not withstood general wear and tear

Recommendations

i) Consider a more durable paint finish to changing room walls which can be washed down and masks marks and scuffs

ii) In future design of meeting spaces, integrate furniture more carefully to account for shape of room where possible within the agreed shape of the building

iii) Check the condition of the chairs to the tea room and change the specification on future similar projects if necessary

iv) Provide one shower within each of the team changing rooms which can be manually operated to allow cooler temperature if required

v) Review carpets to entrances where muddy conditions are present and consider a more easily cleanable flooring material

vi) Ensure fitted furniture is of the right quality to withstand general wear and tear

9. Design Issues

Prior to submission of the formal planning application, consultations were made with the City Council between October 2008 and January 2009 on the submissions made by the four contractors. Although the planners were initially critical of the design put forward by the preferred contractor in what they considered an area for low-rise development, the proposals were eventually approved following further discussion.

The design has provided good first floor space with the provision of a training room as a bonus as this was not required in the original brief. The tea room which is more of a flexible space for multipurpose use is a good asset but it is not well used. It is noted that this facility is beginning to be used more for University Departmental use. It has the benefit of being an off-site venue and lends itself to conference and training events.

View of Tea Room/Viewing Area

Kitchen

The tea room is served by a fully equipped kitchen but is not large enough to cater for events such as weddings. At early design stage it was difficult to obtain a user brief and eventually the consultant Project Manager approached a kitchen fit-out company to develop a brief.

At present the kitchen generally remains unused with catering often provided through outside caterers.

One of the main client changes once work had started on site was the provision of a disabled toilet on the ground floor – the Architects' layout did not provide for this on the basis that it was considered unlikely that the changing facilities on this level would be used by people with special needs. A disabled toilet was designed and provided at first floor level.

Subsequently, following a request from the Sports Department, a cleaners store on the ground floor was altered to create an assisted WC (not possible to create space for a fully disabled WC).

Recommendations

i) On future projects, design briefs need to be more clearly established and defined for facilities such as kitchens and University Catering should be consulted where appropriate

ii) Lines of communication and points of contact with end user representatives need to be established at the start of the project to ensure appropriate consultation takes place with those who understand the needs of the pavilion

10. Construction Issues

Consultation with the project manager and Quantity Surveyor and the University's Project Officer indicated that the main contractor performed well. Overall, the project team had a positive relationship with the contractor which contributed to overall performance and the satisfaction with the finished building.

Design complexity of the steelwork to the roof presented some challenges to the contractor and there were some co-ordination issues with the steelwork subcontractor. Some adaptation was required by the contractor in order to translate the design into a workable solution on site.

The original programme for the construction phase (34 weeks) was fairly tight and left little room for slippage. There were some delays and amendments to the programme which extended the completion by a further four weeks to 19 April 2010. The building was handed over to the client on 21 May 2010. Main delays in this period were caused by steelwork delivery and inclement weather.

However practical completion was not achieved until 7 July 2010 due to problems with commissioning, particularly the operation of the boiler caused by the difficulties in the contractor finding personnel to carry out the specialist commissioning and problems with fluctuations with the gas pressure which took considerable time to identify. Dealing with the utilities company proved to be problematic with a lack of clarity from them on who should be dealing with the incoming services.

No health and safety issues have been raised and the contractor was able to work around the use of the pitches which continued throughout the contract period. Problems at practical completion of ponding on the roof have been resolved and the certificate of making good defects has been issued.

One issue that has come to light is the inability to gain access to the filters in the roof space for maintenance or replacement due to the close proximity of roof steelwork. The main contractor is currently investigating options for resolving this.

Recommendations

i) The contractor should ensure that manufacturers/suppliers selected for major engineering services components such as gas boilers have sufficient resources to provide prompt attendance in dealing with specialist commissioning

ii) Main contractor to complete modifications in roof space to give access to filters for maintenance/replacement

11. Facilities and Operations Issues

The feedback from the Operations and Facilities Team was that there were no major issues to raise and the building has performed well since handover. Issues raised at the workshop were:

- Access to filters in roof space (mentioned earlier in this report)
- No 'As Built' Mechanical & Electrical CAD drawings have been received (due to Mechanical & Electrical subcontractor going into liquidation)
- Toilet cubicles to referees' changing areas too cramped
- No lighting to access road (not part of brief)

Recommendations

i) Consider commissioning a survey of the Mechanical & Electrical installation to produce 'As Built' drawings to complete the maintenance manuals

ii) Check size of toilet cubicles to referees' changing areas to determine whether minimum design standards have been met

12. Sustainability

The design criteria set out in the Employers Requirements document (March 2007) state that the design should practically address sustainability and that a BREEAM rating of 'Good' to 'Excellent' would be expected although a formal assessment was not required.

It is therefore difficult to determine whether the building has achieved either 'Good' or 'Excellent' referred to in the BREEAM assessment methodology. The University should therefore consider requesting a written statement from the contractor confirming the environmental assessment of the building.

Reference in the Employers Requirements document is made to rainwater harvesting for irrigation purposes. The contractor has confirmed this was installed together with pressure boosted harvested water connections to toilet flushing outlets as described in the M & E Outline Services Specification.

It would be useful to measure water consumption to determine the beneficial effect of rainwater harvesting. No water meter was installed as part of the main contract and it is recommended that this is now installed.

The building floor area is less than 1,000m² and so does not need to comply with the City Council's policy of 10% of energy consumption from renewable sources. However the building has incorporated a number of energy efficiency measures:

- Highly efficient gas condensing boiler
- High efficiency lighting
- Motion sensors to lighting (common areas)
- Low maintenance underfloor heating

Energy consumption for water, gas and electricity for 2011 has been compared with two other University Sports centre buildings, Sutton Bonington and Jubilee. Figures are shown in Appendix 3.

Based on the intermittent use and accommodating mainly changing rooms, the higher heating and hot water consumption (Gas) and the lower electricity consumption compared to the other two buildings which accommodate more facilities, is not surprising.

Recommendations

i) The University should consider requesting a written statement from the contractor confirming the environmental assessment of the building.

ii) Install a water meter to measure consumption

13. Summary of Recommendations

Building Procurement

i) Continue to use the full Design and Build procurement strategy for this type of project

User Issues

i) Consider a more durable paint finish to changing room walls which can be washed down and masks marks and scuffs

ii) In future design of meeting spaces, integrate furniture more carefully to account for shape of room where possible within the agreed shape of the building

iii) Check the condition of the chairs to the tea room and change the specification on future similar projects if necessary

iv) Provide one shower within each of the team changing rooms which can be manually operated to allow cooler temperature if required

v) Review carpets to entrances where muddy conditions are present and consider a more easily cleanable flooring material

vi) Ensure fitted furniture is of the right quality to withstand general wear and tear

Design Issues

i) On future projects, design briefs need to be more clearly established and defined for facilities such as kitchens and University Catering should be consulted where appropriate

ii) Lines of communication and points of contact with end user representatives need to be established at the start of the project to ensure appropriate consultation takes place with those who understand the needs of the pavilion

Construction Issues

i) Contractor should ensure that manufacturers/suppliers selected for major engineering services components such as gas boilers have sufficient resources to provide prompt attendance in dealing with specialist commissioning

ii) Main contractor to complete modifications in roof space to give access to filters for maintenance/replacement

Facilities and Operations

i) Consider commissioning a survey of the Mechanical & Electrical installation to produce ‘As Built’ drawings to complete the maintenance manuals

ii) Check size of toilet cubicles to referees’ changing areas to determine whether minimum design standards have been met

Sustainability

i) The University should consider requesting a written statement from the contractor confirming the environmental assessment of the building.

ii) Install a water meter to measure consumption

APPENDIX 1

Sample Questionnaire

POST OCCUPANCY EVALUATION

BUILDING USER SATISFACTION QUESTIONNAIRE

BUILDING: VAUGHAN PARRY WILLIAMS PAVILION

User Type (Please tick most relevant or state in 'other')
Student
Staff
Organisation/Club…….....

Date ……..

An evaluation of the Sports Centre building is being conducted to assess how well it performs for those who occupy and/or use 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. Completed questionnaires should be emailed to Tony@qtcprojects.co.uk

1 – Satisfaction with types of space in building

Please rate the overall quality of the following areas:
(Please tick)

A: Common Areas (e.g Tearoom, Committee Room)	Poor	1	2	3	4	5	Excellent
B: Changing Facilities	Poor	1	2	3	4	5	Excellent
C: Overall Impact	Poor	1	2	3	4	5	Excellent

2 - Security

2.1 How safe do you feel in the building and its surroudings? (*Please tick)*

Unsafe									Very safe
1	2	3	4	5	6	7	8	9	10

3 – Disabled Access

3.1 How accessible is the building?

Not Accessible									Very accessible
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 – Changing Rooms

5.1 Are you satisfied with the facilities within the changing rooms?

Not satisfied									satisfied
1	2	3	4	5	6	7	8	9	10

6 - Temperature

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

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

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

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

10 - 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. If relevant to a particular question please give the question number.

Thank you for completing the questionnaire.
Completed forms should be returned to Tony@qtcprojects.co.uk

Appendix 2

Post Occupancy Evaluation Workshop

Held on Monday 23 April 2012

List of Attendees

User Representative

Dan Tilley	Director of Sport

Estate Office

Tim Brooksbank	Development Director
James Hale	Project Officer
Steve Gilbert	Senior Building Surveyor

Project Manager & Quantity Surveyor

Dean Williams, Project Manager – Gaskell Construction Consultants
Richard Eite, Quantity Surveyor – Gaskell Construction Consultants

Architects

Andrew Hardy	A + G Architects

Contractor

Kevin Dodds	G F Tomlinson Building

APPENDIX 3 - ENERGY CONSUMPTION DATA 2011

Building	Net floor area (m^2)	Gross floor area (m^2)	Energy consumption for 2011			Energy consumption for 2011		
			Gas (kWh)	Electricity (kWh)	Water (l)	Gas (kWh)/sq.m.	Electricity (kWh).sq.m.	Water (l)
Vaughan Parry Williams Pavilion	513	823	117,284	68084 *	Not metered	143	83	Not metered
Sutton Bonington Sports Centre	1,614	2,450	232,552	187,687	166	95	77	166
Jubilee Sports Centre	1,979	2,467	339,695	238,928	1,339	138	97	1,339

Key	
Pink Cells	Billing data
Green Cells	Metering data
* VPWP Elec total = Lighting + Mechanical submeter data;	
Lighting	45999
Mechanical	22085
All elec	68084