Post Occupancy Evaluation of the Sheffield International College, University of Sheffield

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Executive Summary

BRE was commissioned by the University of Sheffield to carry out a Post Occupancy Evaluation (POE) of the Sheffield International College (SIC) George Porter Building, Phase 1 refurbishment project. Post occupancy reviews are a valuable method of obtaining feedback on recently completed construction projects from those personnel who were involved in the process as well as occupants and other end users. The review was carried out in December 2008, after the SIC had been in operation in the building for approximately two years.

The Sheffield International College (SIC) is a new, joint educational partnership between the University of Sheffield and Kaplan International College. The college prepares international students for undergraduate and postgraduate degrees at the University of Sheffield. The college uses teaching space in a number of buildings on the Sheffield campus but its base is in the George Porter Building on the North Campus, a former site of the Health and Safety Laboratories, acquired by the University from the HSE. The campus is located on Broad Lane, just across the road from the main engineering departments and consists of three main buildings – the Kroto Institute, the Nanoscale Sciences Building and the George Porter Building. All these buildings have undergone some refurbishment to meet the needs of the University since acquisition.

The University decided to refurbish two floors of the George Porter building, built in late 1950’s to serve as a laboratory, as a temporary home for the International College until its brand new purpose-built accommodation was completed.

The project for the Phase 1 refurbishment of the George Porter building for the use of the Sheffield International College was not without complications although it finished in time for the first students to move in September 2006. The space provided met the immediate needs of the college in terms of accommodating the required number of students and the subsequent phases coped with the anticipated expansion. However the college has been to some extent a victim of its own success and has now outgrown the space. As completion of the new purpose build premises has now been delayed, there are plans to refurbish the top 2 floors of the George Porter building to accommodate the increased intake expected in September 2009.

The project delivery process was not as smooth as it could have been for a number of reasons. The key issues were:

- There was uncertainty about the long term use of the building and this lack of a strategy meant that the remit of the project was not made clear, even late on in the process. This had impacts on the programme and the final quality of the build as the project was delayed in starting on site.

- The actual state of the building was found to be much worse than had been expected for a working building owned by the HSE. A full condition survey was not commissioned and it was only when the building was taken over in early 2006, that the full situation was revealed. What action could actually be taken to remediate this, was severely constrained by the budget and programme that had already been set.
• The building’s refurbishment has been undertaken in a piecemeal manner due to the lack of a long term plan for the building. This meant that the mechanical systems were not upgraded in Phase 1 with the result that they are still not working and a great deal of time and money has been spent from the University maintenance budget to try to sort them out, with limited success

However in spite of these problems the delivery team worked very well together and the project managers, contractors and subcontractors were praised for the attitude and the long hours they put in to finish the project in time for the new academic year.

With hindsight the project team would take into account a number of lessons learned from the project:

• Consider cost effectiveness of short term refurbishment of parts of a building rather than a holistic view. Try to consider the long term strategy as this is more cost effective in the long run
• Lack of a clear decision as to the final brief causes delays to the programme. This should be finalised before the tender stage
• Leadership by project managers is important. The project managers were given appropriate responsibility for decisions and sign off to enable the project to proceed smoothly
• Make use of the technical expertise within the University and the Estates Department. Time should be allowed for this in their job description
• A University Clerk of Works provides support and monitors the management of the site as well as quality of works. If the level of major projects is to remain high, consider employing additional personnel
• Never assume that ‘what you see is what you are going to get!!’ If buying a building of this age eg from the 1960s-70s, carry out a more in-depth survey of the building not just a condition survey, particularly of the M&E systems. This will pay dividends later.

Staff and students are generally fairly satisfied with their space and feel it is a ‘nice building to study and work in’, but there are a number of factors that they feel should be addressed. The main common concerns voiced by occupants are:

• Thermal comfort issues – the building is either too hot or too cold depending on location and season. Many of these issues are still the subject of improvements by the maintenance team.
• Lack of space for expansion
• Noise issues from plant on adjacent building means that windows cannot be opened to provide ventilation
• Problems for visitors accessing the building as there is poor signage in and around the building
• Solar gain and glare in some offices and classrooms
• Some toilets, are not adequate.
• Lack of space for informal meetings for staff and students and for larger teaching space and exams

Suggestions for lessons that can be learned and taken into account on future projects together with recommendations for improvements that can be carried out to address current issues have been included in Appendix B at the end of this report.
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Appendix A: Participants in workshops, interviews and questionnaire respondents
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1 Introduction

This report sets out the findings of the Post Occupancy Evaluation (POE) of the International College Phase 1 project, a major refurbishment project on the University of Sheffield's North Campus, that was carried out during 2006.

Post occupancy reviews are a valuable method of obtaining feedback on recently completed construction projects from those personnel who were involved in the process as well as occupants and other end users. Such reviews provide useful information that can be used in two ways. Firstly, to highlight any problems that can be addressed and solved within the project in use and secondly, to provide lessons that can be used to improve the process and design on future construction projects.

Post Occupancy Evaluations are usually carried out about a year after project completion and can include both objective and subjective techniques such as questionnaires, interviews, focus groups, observation, documentation audits and technical monitoring. Ideally, as wide a range of stakeholders as possible should be involved in order to provide a holistic picture of the project, its successes and shortcomings.

In line with the recommendations of HEFCE, Sheffield University carries out POEs on all capital construction projects costing over £1 million. The Higher Education Design Quality Forum (HEDQF), have developed a POE methodology based on a series of structured facilitated discussions (Forums) to be attended by representatives of all groups involved in the project from 'inception to completion'.

A complementary methodology, the DQI (Design Quality Indicator) has been developed by the Construction Industry Council (CIC). This questionnaire-based tool focuses on the assessment of a building in use and is structured in such a way as to encourage discussion of key issues of success or concern.

The HEDQF recommended methodology was used as the basis for the evaluation of the process of the project and was supplemented by the DQI for the assessment of the building in use.
2 Description of the project

2.1 Project background

The Sheffield International College (SIC) is a new, joint educational partnership between the University of Sheffield and Kaplan International College. The college prepares international students for undergraduate and postgraduate degrees at the University of Sheffield. The college uses teaching space in a number of buildings on the Sheffield campus but its base is in the George Porter Building on the North Campus, a former site of the Health and Safety Laboratories, acquired by the University from the HSE. The campus is located on Broad Lane, just across the road from the main engineering departments and consists of three main buildings – the Kroto Institute, the Nanoscale Sciences Building and the George Porter Building. All these buildings have undergone some refurbishment to meet the needs of the University since acquisition.

The University decided to refurbish two floors of the George Porter building, originally built in late 1950’s to serve as a laboratory, as a temporary home for the International College until its brand new purpose built accommodation was completed.

2.2 Description of the building

The approximate total internal floor area of the building is 7,585m². The lower and ground floor covers the entire footprint of the building. The central part of the ground floor roof forms a quadrangle with skylights, surrounded by the remaining five floors with doubly loaded corridors. The College is located on the first and second floor, accommodating technical and support staff, and 470 of students in 6,000sq m of space (gross area), with a net usable area of approx 2,600 sq m of classrooms, office space, storage, and circulation area. The classrooms are of varying sizes and are located over two floors at the South and West facing sides of the building. The West facing class rooms overlook the adjacent Nanoscale Science building exhausts and laboratories. Internally, the central circulation corridor separates them from the offices, meeting rooms and facilities. The offices, staff facilities and toilets are located overlooking the central courtyard.

2.3 Description of the project

The refurbishment of the two floors was carried out in three phases, all of them now complete. Although the aim of this exercise is to carry a Post Occupancy Evaluation (POE) of Phase 1 alone, as the occupants use all three phases and would not be able to distinguish between them, these were all covered in the occupant evaluation, though the post-project review only focussed on Phase 1. A detailed understanding of all three phases was therefore necessary for the POE. The three phases were:

- Phase 1: the refurbishment of class rooms 1, 2 and 3, East class room 4, meeting rooms, 2 supporting staff offices, facilities and toilets.
- Phase 2: upgrading the second floor South and West facing class rooms and the remaining facilities.
- Phase 3: the refurbishment of the main reception, IT suite, resource area, offices, storage and a class room.

The refurbishment involved some changes in layout and redecoration of the first and second floor lobby areas. No original windows or doors have been replaced. However a few new fire doors are introduced to meet fire regulations. Only the Phase 3 windows are draught proofed, none in Phases 1 or 2.
In terms of Mechanical & Electrical (M&E) systems - the building is predominantly naturally ventilated. Only the first and second floors have been rewired, this is to meet the College requirements of lighting, small power equipment and fire alarm system. Excluding a few new electric heaters in the class rooms, the original heating and ventilation services have been either upgraded or left as they were in the original building.

The hot water for heating is supplied by the Sheffield Heat and Power district heating system. This is distributed by a wet heat distribution system using radiators and fan convectors. In addition to this a supply and extract mechanical ventilation system is in place, although this is only operational on the second floor.

2.4 Project team

The project was managed by University of Sheffield Estates, and supervised by a Project Executive Group. The project team comprised:

- University Project Management: Paul Turner, Department of Estates
- External Project Management: Geoff Stringer, GMS Design & Consultancy
- M&E Consultant: Pearce Buckle (Design Engineers Ltd)
- Architects: Jefferson Sheard Architects
- Main Contractor: Bluestone Plc
- M&E Contractors: Longcross Group Limited

Work began in the building in June 2006 with practical completion in October 2006.
3 Methodology

The POE was carried out on the 25th and 26th November 2008 by independent consultants from BRE and involved an observational walk-round of the building, a focus group session with the project team, end user consultation session and informal discussions with students. The focus group session investigated on the process issues associated with the design and refurbishment of the project and was based upon the format developed by the Higher Education Design Quality Forum (HEDQF) but tailored to suit the particular needs of the project. A detailed pro-forma, designed by the research team was used to guide the forum discussion. The session was attended by representatives from the supply and demand-side who had been involved in the project – the project end user, client, M&E consultant, Clerk of Works, Project Manager and representatives from the University Estates Department. The topics covered in the session were:

- Briefing, feasibility and design
- Construction process
- Handover and moving in

As a number of key project team members were not able to attend the workshop session, separate telephone interviews were carried out with the architect and external project manager to gather their views.

The second session focussed on the project in use and was attended by occupants, both staff and students. (See Appendix A for list of participants in all workshops and interviews). The sessions were based around the completion of the Design Quality Indicator (DQI). The DQI is a questionnaire based tool that helps clients, designers and end users to evaluate how well a completed building has been designed and constructed. The questionnaire consists of a series of short non-technical statements looking at the Functionality, Build Quality and Impact of a building.

- **Functionality** looks at the way the building is designed to be useful
- **Build Quality** looks at the materials and the different systems and conditions inside the building
- **Impact** refers to a building’s effects on the local community and environment

Due to lack of time, the questionnaire was not completed during the workshop but was handed over to the participants who were asked to complete the forms and return them to the research team via the college staff. The session focussed upon a discussion about their attitudes and opinions regarding the project in use. This was followed by informal interviews with students around the college. In addition electronic copies of the questionnaire were distributed to be completed remotely and returned to the research team.

The following sections set out the findings of the workshop sessions, interviews and questionnaires. Suggestions for lessons that can be taken into account on future projects and improvements for addressing any concerns with the building in use are given at the end of each subsection. These are summarised in Appendix B.
4 Findings – process

4.1 Feasibility, design and briefing

4.1.1 Feasibility stage
The joint educational partnership between the University of Sheffield and Kaplan International Colleges to form the Sheffield International College (SIC) was agreed in 2005 and a business plan was developed to deliver a phased expansion; from 200 students in the first year rising to 1000 over a five year period. The lack of teaching facilities of this scale within the campus, highlighted the need for a suitable location for the International College. Meanwhile, the University Project Executive Group (PEG) was looking at the refurbishment possibilities for one of the University buildings in the North Campus – the George Porter building. The Group proposed to refurbish part of the George Porter building as temporary fit out for the International College until it moved into a permanent home. Although there had been some thought given to demolishing the building, the initial condition surveys showed that the building was structurally sound and the adjacent highly sensitive research buildings made demolition unfeasible so a decision was taken to carry out a refurbishment.

The Capital Projects team carried out a financial feasibility review to temporarily accommodate the SIC in the buildings and a business model and proposal for funding were prepared by David Webster. The bulk of the initial set up cost was towards meeting fire safety and other regulations for the proposed change of occupation. The business model also considered the future use of these floors for a research business incubator once the SIC moves out to permanent accommodation but the project was always seen as a temporary solution that would be revisited after three years and no firm decision was made as to the use of the remainder of the building in the long term. It was agreed that the refurbishment of the building offered the most cost effective solution and the University approved an initial budget of £40,000 for Phase 1, £710,000 for Phase 2 and £474,000 for Phase 3. A loan of £200K was provided by Kaplan to fund the project and this was repaid in year 1.

Due to the success of the college, since the completion of the project, the college has already outgrown its accommodation and at present both the first and second floor are used to its maximum capacity. Phase 1 was conceived as a start up facility to accommodate a maximum of 175 students. The current roll is 470 students and expecting to increase to 650 in January 2009, earlier than expected. The lecture theatre in the building is hired for induction and examination purposes. The College has also obtained additional temporary teaching space in the Graduate Research Centre and Bartholome House nearby but the completion of the SIC’s new building has been delayed so the refurbishment of the top two floors of the building is now being considered. This will cause additional disruption and expense and may still not correspond with the longer-term plans for the building when the college eventually moves out.

Lesson: The decision taken to take a short term view of just providing temporary accommodation for three years for the SIC and not considering the longer term strategy for the building has impacted on the operation of the college and will mean additional work and expense to meet the University’s needs in the future.

4.1.2 Project Management
The Project Executive Group (PEG) for the North Campus was already in existence when the project was being discussed and so it administered the initial project development. David Fletcher from PEG signed off the project and budget. Once the funding formalities were complete the PEG appointed Paul Turner from the Estates department as the Project Manager for this project.

As the project progressed a core group was set up to manage project delivery. The group included representatives from Estates, Finance, the project client and Kaplan and, once they had been appointed, the end users - Lesley Price, the International College Director and Richard Hume, Manager of Student Services

As this refurbishment was really an offshoot from the main projects - the Kroto and the Nanoscience building, the Project Manager and core group reported to the PEG although the Project Manager was given the responsibility for most of the day to day decision making. There were regular fortnightly project design team meetings which became more frequent towards the end of the project.

An external Project Manager, Geoff Stringer, of GMS Design and consultancy was also appointed to provide additional support and to manage the contract as the internal PM was very stretched with a number of large projects running simultaneously. This arrangement was felt to have worked well.

It was widely agreed that the project was managed well by the Estates within the budget and time constraints with good project management from the internal and external PMs.

Lesson: The project had strong leadership under the PEG and Project Managers. The Project Managers were given appropriate responsibility for decisions to enable the project to complete in time.

4.1.3 Appointment of architect and other consultants
The University has a framework agreement in place for the selection of consultants - all companies in the framework have to pass a rigorous selection and approval process. The project Architects and M&E consultants were selected from this existing framework on the basis of previous experience and good relations with the University on previous projects. The architects were appointed early in 2006, approximately 6 months before the completion, but no access to the site was available before the handover so plan progressed little during this time.

The structural and M&E consultants were appointed at the same time as the Architect, also from the University framework. There was no consultation with the Architects as to the choice of other consultants although they had worked with the structural engineer previously. There was little structural engineering input required on this project - their work was limited to providing advice on the removal of load bearing walls and the design of the new fire escape stairs.

Lesson: Aim to allow consultants site access as early as possible to speed up the design process.

4.1.4 Briefing stage
The Phase 1 brief was to refurbish part of the first floor to provide teaching accommodation for up to 272 students. The brief was set to meet the SIC spatial requirements, cost and timescale to be ready for the first intake of SIC students in the new academic year, September 2006. These were the three key drivers in the project. The design was really a case of utilising what was already there to provide the required accommodation.

Until the University took possession of the building there had not been the possibility of a full survey of the services. A condition survey of the building was carried out prior to purchase and although it was recognised that the condition of services was not good they were thought to be ‘workable’ and so the original brief did not cover this aspect.
The original brief was in two phases – Phase 1 comprised part of first floor and the reception (now Phase 3). However, the higher than anticipated number of registrations in the first year pushed the need for additional classroom spaces, within tight term-time constraints for the following year. This changed the University plans from expanding across the first floor to moving up to the second floor for Phase 2. Another external factor that changed the brief was the delay in the moving out of the University Careers Service, who occupied the reception area of the first floor – this became Phase 3 when alternative accommodation had been found for them. All these changes added more strain on the already stretched budget and programme. It was felt that a whole building approach would have been preferable rather than a piecemeal strategy.

It was felt that the lack of clarity in the original brief, and about the long term plans for the building as well as the constant changes had a serious impact on the project and is still having repercussions today.

Lesson: Lack of clarity of and changes to the original brief has implications further down the line

4.1.5 User/Occupant consultation

Initially the end user input was provided by the University and Kaplan client representatives but after the appointment of Lesley Price and Richard Hume, the Director and Associate Director, they became the main consultation point in terms of the end user requirements. They were extensively consulted and updated through regular meetings during the design process and during construction. It was felt that co-ordination of their input was a straightforward task. No major layout changes were made.

The work relationship between the occupant representatives, the Project Managers and the design team was good. The representatives moved into the building as soon as they could to accelerate the refurbishment process by constant monitoring. Apart from site visits, the representatives could not officially go in to make detailed investigations, to ensure whether the technical design met their requirements before they occupied the building.

The occupants said that one issue that arose in the latter stages of the project was that if the Project Manager happened to be absent, it was difficult to get hold of the right individual to communicate specific details. There is a generic contact list issued by the University, however it was felt that it could have been more specific as to the actual responsibilities.

Lesson: Involving occupants in the decision making process worked very well in delivering the project within time.

Lesson: Provide a detailed contact sheet for the end users explaining the responsibility of individuals.

Lesson: In the absence of main contact give someone else on the team the responsibility of communicating with the end users.

There were also comments on lack of involvement of facilities and maintenance personnel who would have responsibility for running the building. The maintenance staff had visited the building immediately after the HSE vacated to understand the state of the building. But no Phase 1 design decisions were made with the feedback from the maintenance staff. There appeared to be a lack of communication between the maintenance personnel who are responsible for the day-to-day work and the design team. This was a lost opportunity as the team have needed to put in a great deal of work to address issues such as problems with the heating and ventilation post-handover that they could have flagged up in the course of the project with earlier involvement.

Lesson: Involve the University Estates Department maintenance personnel, who will have final responsibility for the day to day running of the buildings early in the design stage. This could save time and expense after
handover. In this case the team was able to transmit lessons they learnt from Phase 1 to the design team so that they were taken into account in Phase 2 and 3.

4.1.6 Detailed design stage/Design issues

Unfortunately due to time pressures to open the building for students by September 2006, the design stage was very short and perhaps did not allow enough time for careful planning of M&E, layout and iteration, particularly to carry out on site surveys. The detailed design was only started in March 2006. This meant that the timescales were very tight for the design team and contractors. Also the temporary nature of the occupancy imposed limitations on budget and in prioritising which details were to be addressed.

The detailed design process involved refining the user requirements and matching these with the spaces available within the building. The works covered fire escape, minor layout changes, painting and decorating and upgrading the toilets. The original single glazed, galvanised iron frame windows and majority of the internal doors were retained and no draught proofing of windows was done. In terms of services, the wet heating system was left untouched except for the repair of existing leaking pipework.

Detailed services design only involved the upgrading power requirements and lighting supplies to suit the college needs as per the brief and the installation of a full new fire alarm and emergency lighting system for the entire building. A lot of work was needed on the data/communications systems to install small power equipment such as projectors. The end user discussions highlighted the need for an independent server room, an additional data point on top of the usual two data point procedure adopted by the University.

At this stage the existing systems were assumed to be working adequately as the building was a working lab owned by the HSE. However when the building was taken over in Spring 2006 it was found that little work had been done on the building over the years before the sale particularly where the mechanical and electrical services are concerned. Although this was brought up in meetings and minuted, it was felt that as the cost of a full M&E services upgrade was far higher than the original budget intended for this building so a decision was made not to address this fully in Phase 1.

Lesley Price highlighted that if the state of the Mechanical services had been known earlier, more funds may have been arranged by Kaplan, or at least, if there had been more transparency, the issue could have been discussed and an informed decision made. Other participants also felt that this decision had been perhaps short sighted as the premises did not meet the thermal comfort requirements of the occupants and this will be an on going issue whoever occupies the building eventually.

Although a condition survey had been carried out prior to the sale, it was agreed that when any building of this type is being purchased a more in-depth architectural and engineering survey of the state of systems should be commissioned. Although this may be an additional cost, it was felt that this would be justified. The full extent of the issues concerning the M&E was only discovered during the course of the project and caused delays. Although suitable financial contingency was included, the programme delays caused the threat to the project and additional cost was incurred after handover. There was some feeling that the M&E consultant did not do a complete enough survey of the building after handover and did not always communicate well – in fact the team were not used on Phase 2.

Lesson: The strategic decision to treat the project as the provision of temporary accommodation limited the budget and design decisions. It should be noted that when occupants are going to occupy the building for a reasonable period of time, minimum ventilation and heating requirements need to be taken care of.

Lesson: If buying a building of this age, it is better to carry out a more in-depth preliminary survey while deciding the business case of the building; particularly of the M&E systems, as thermal comfort is one of the major occupant requirements.
Lesson: On a project such as this one, time should be given to pre-planning and design stages. Estates were not given enough time in the programme to do this properly

4.1.7 Approvals - planning and other restrictions on the project
Approvals were minimal given the nature of the project; an external planning consultant was appointed to give inputs to the application. There were no significant planning issues. The main issue was obtaining permission from Building Control (e.g. Fire safety). An external independent consultant was appointed to aid this process.

4.2 Construction stage

4.2.1 Appointment of main contractor and subcontractors
The contract was a traditional one, managed by the University. Due to the time and budget constraints a decision was taken not to go out to competitive tendering in selecting the contractor and subcontractors. Bluestone, the Principal Contractor was completing refurbishment works of the adjacent Nano-science building and as the company was in the University's framework, The University carried out negotiations against their rates from the previous work and appointed them to carry out the Phase 1 refurbishment of the college.

It was felt by a number of participants that this procedure was contrary to the University guidelines on competitive tendering and, although the contractors and subcontractors teams on the site were felt to have been excellent, it made the contractor’s higher management side more difficult to deal with than if there had been a “negotiated” contract. However due to the time constraints this proved a good solution for the University as it was appreciated that if the procedures had been followed, the project may not have been completed on time.

The sub contractors were brought in along with the Principal contractor and were the same company used in the Nano-science building.

Lesson: Contractor and sub-contractor selection procedures should be adhered to on all projects, unless there is very good reason to deviate from these.

4.2.2 Relationships within project team
Once the project was on site, fortnightly meetings were held with the project team to discuss progress and were seen as instrumental in maintaining excellent relationships. The M&E sub-contractors worked well in conjunction with each other and the main contractor. Towards the end of the project the construction hours were long and frequent meetings were held to resolve any issues. Everyone in the team was working together to get the project finished before the opening of the college.

The occupants’ representatives were involved in these meetings. This benefited the design team while making some of the layout decisions. There were some issues about delays in decision making eg there were some delays in obtaining information from the end user eg their requirements for the phone system. There were also communication problems with obtaining input from internal University departments eg AV, phones when appropriate individuals were absent, especially during summer holidays. There were no deputies so decisions had to be deferred till the key person returned. This caused delays.

Sometimes the occupants were not sure whether the project would meet their induction deadline – although they were told at meetings that the timetable was on track, the personnel on site were more realistic when they spoke to them.
Lesson: Regular meetings and good working relationships are important.

Lesson On a University project, due to the impact of the academic holidays, it is important to nominate alternative project contacts in the absence of key team/departmental members to prevent delays

4.2.3 Construction issues/During construction

The University obtained the keys to the building in January 2006 and construction began in late May 2006.

A number of issues impacted on the smooth running of the project:

- The University contracted a separate company to carry out the demolition works on site to clear the building. It was felt that it would have been more efficient if Bluestone had been contracted to do this themselves but no schedule of demolition works had been prepared by the QS. Again it was felt that this was down to lack of time.

- The electrical sub-contractors, Longcross, were employed to carry out a survey of the electrics and found that much of the wiring did not comply with the current regulations (although the building had been occupied by the HSL) and this therefore had to be changed.

- During construction it became apparent that the mechanical systems within the building were in an even worse state than had been anticipated. It was felt that the condition of the services proved to be such that they were usable as long as they did not have to be touched but once they had to be adapted at all, the knock on effect caused problems. This meant that a lot of additions and changes to the M&E works had to be made and this caused delays. However, time and budget constraints pushed the project team to prioritise works that had to be done to meet regulations at that time and deal the remaining issues later. This decision led to a wide range of problems with the heating and ventilation systems, gas lines, fire alarm systems some of which are still ongoing. It is recommended that if further work is to be done in the building, the M&E services need to be addressed for the building as a whole to bring it all up to date and ensure they are fit for purpose. In fact it was recommended that if such a project was undertaken again, it would be more cost effective to strip out all the services and start again as this would provide a better solution for occupants and for the University.

- Some of the existing air supply and extract ducts were too low to give adequate ceiling height in the class rooms and offices. It was decided that some of the ducts were to be cut and boarded up. It was not clear who made this decision.

- The electrical supply for the fans which “assist” the through flow of the heat supplied by the LPHW pipes was available, however the existing plugs could not be plugged in as they could not be PAT tested. Where the heating system was working under natural convection system, it was left and where no natural convection was possible, electric convector heaters had to be installed as there was no alternative heating to these rooms.

- The Careers Service was still occupying the building although this had not been expected, so noisy and dusty work had to be programmed out of hours to reduce disruption. It is never easy to carry out works in an occupied building.

- The contractor used a different fire alarm system to the University standard specification. Also there was minor discrepancy in upgrading fire alarms. But the installation was carried out and the system functioning is satisfactory.
• The University's own asbestos removal team was employed to deal with the asbestos before work began. However additional asbestos was found and there were delays in getting the team back in.

As mentioned above, it was felt that the contractors and subcontractors teams on site did an excellent job although they were very stretched. Also a good contribution was made by the M&E Clerk of Works but it was felt that they are very over stretched given the number of projects they have to supervise.

Lesson: Though the M&E design was led by the budget and time constraint, it is worth reviewing the future impacts of the design decisions. The design carried out within these constraints can lead to much higher maintenance cost in future.

Lesson: It is a good idea that if demolition/clearance work is to be carried out on a project, the contractor should be asked to carry this out to provide continuity

Lesson: If decisions, sign-offs etc are required from University personnel, they should respond within a set time frame to avoid delays to the project.

Lesson: If such a project was undertaken again, ie the refurbishment of an existing building, seriously consider if it would be more cost effective to strip out all the services and start again as this would provide a better solution for occupants and for the University in the longer term. Additional budget should be justified in these cases.

Lesson: Communication is important at the early stages of a complex refurbishment project as decisions taken then impact further down the line e.g. decision to ignore the existing air supply and extract ducts to ventilate the class rooms.

Lesson: The University Clerks of Works make an invaluable contribution but they are overstretched with supervision of a large number of projects. Consider appointing additional Clerks of Works if the current rate of construction projects continues.

4.2.4 Programme management and control

The construction programme was dictated by the opening day of the college, in the first week of September so the programme was tight from the start. The programme was felt to be unrealistic for the amount of work involved. In addition, delays in final decisions about the scope of the project meant that the project was late starting on site and the issues cited above, caused further delays as the project progressed.

It was felt that the contracting team were open and communicative about the schedule and any problems, helped by the fortnightly meetings. The occupants felt that as they were on site and closely observing the work progress it was obvious that the scheduled deadline was not going to be met. But the Project team insisted that it would be delivered and did not give a realistic delivery date.

In the end the team worked very hard, putting in time in the evenings and at weekends and managed to complete the project in time for the new term. A three week over run was seen on the project as a whole.

Lesson: On a project such as this one, where timescales are tight, delays will have a considerable impact so pre-planning and minimal changes are vital to keep the programme on track.

4.2.5 Financial issues
The initial budget setting process was based on the business case developed by the University. This included costs for appointing of the consultants. When the project's spatial requirements increased more funding was arranged by the University for further phases.

Based on the business case an initial budget of £40,000 was set by the University for Phase1. The University mainly funded the project but also received a loan of £200,000 from Kaplan. This was paid back in the first year.

The delays, variations and on-site problems required recruiting additional on site work force and extended working hours to complete the project. They also had to work out of hours to reduce disruption for the Careers Service. A sum of £70,000 was added to the original budget for this phase. Overall, on completion the whole project was delivered within the capital budget of £1.224 million.

With hindsight the budget was felt to have been too low for achieving the expectations of Kaplan. It was calculated on the basis of improving the basic infrastructure of the building but did not take into account issues such as improving internal thermal conditions, electrical rewiring, and extra fire stopping to corridor areas. The University will benefit from this building, as it will allow for some future use once SIC vacate the property. There are plans for refurbishing Floors 3 and 4 for the College and the ground floor as archive space.

The final agreement with the contractor was straightforward and any remediation works requested by the occupants were carried out. The budget for refurbishment was not discussed with operation and maintenance staff. It was suggested that if the two had worked together in the early stages of the project money would have been saved overall as they have spent a great deal of time and money in the building since handover.

Lesson: The original budget did not allow cost for out of hours working as originally the building was to be unoccupied

Lesson: Although the project came in on-budget, it has placed a large financial burden on the maintenance department - a more realistic costing may have avoided this. Consider earlier integration of O&M team in order to spend money where it is most effective. Engaging with the University FMs at the start may have enabled them to make a more realistic estimate of the needs of the project, and their input may have been costed into the budget. Rather then being an ad hoc, open-ended addition to the Estates’ operational budget.

4.2.6 Management of the site eg disruption/health and safety

The work was planned and carried out in such a way that the disruption to the occupants was minimal. Not much space was available around the building, the main entrance at the lower ground floor was utilised for deliveries and waste. The health and safety requirements were met by the contractors.

One of the practical issues was segregation of access routes between the contractors and students while the refurbishment was progressing in other spaces. This is still an on-going issue, with plans for future expansions to the third and fourth floor. Another issue reported by the occupant was the absence of restriction barriers to refurbishment sites in other floors. Otherwise the site was well managed and run safely with no accidents reported.

Lesson: It is worth reviewing the access routes of contractors and the students in the planned future refurbishments.

Lesson: Consider barrier measures to stop students wandering into construction sites in other floors.
4.3 Handover, aftercare and moving in

4.3.1 Handover, documentation and training

The occupants’ representatives were in a temporary accommodation on site – co-ordinating the works and organising the supporting facilities for opening the College. As they kept a close contact with the work progress there was no formal handover.

Commissioning was carried out by the consultants before handover, especially with regards to the heating, lighting, small power systems, as well as the fire alarm. It was expressed that the project commissioning was made extremely difficult as the Phase 1 alone could not be properly commissioned in isolation because it became apparent that the systems as a whole were not functioning correctly.

The original budget allocation was based on long term forecast across the three phases. This made it difficult to obtain funding to upgrade the services while commissioning just the Phase 1. It is assumed that work on these and full re-commissioning was not part of the project brief. The first occupants to move in were continually disrupted by commissioning and testing of systems in the other two phases. There was therefore a general feeling of disruption and bad feeling while completing the refurbishment in other areas.

Commissioning records are available but no detailed user-friendly manual was handed to the occupants. The occupants are still not clear on routine maintenance works like the timetable of the weekly fire alarm procedures. The University carries out the maintenance of the building. But the occupants were not made clear of any set procedures to report faults or fix any controls.

No maintenance staff received handover training while commissioning the systems. This would have reduced the amount of approximations to be made by maintenance staff in using the system controls. A pre-handover meeting was arranged for all 3 phases, however only the cleaners, end user and space planning departments turned up! A commissioning meeting was also arranged, but again, no-one from the University came although they were invited. Questions were asked as to whether messages and invitations are being communicated to the right people in Estates ie the FM team and the importance of this was stressed. Even a short handover period with the maintenance team with extensive knowledge of the system would have saved time and money in the long run.

Lesson: On commissioning systems in an existing building, it is worth involving the experienced maintenance team to save time, money and provide thermal comfort to occupants. It is important that any communications about handover training, commissioning and design comment are communicated to the right people in Estates and that dealing with these issues should be accepted as part of the job description of the FM

Lesson: Provide a user friendly manual from the point of view of the occupants - on fire alarm procedures, what to do in the event of common problems with the heating systems, security procedures etc,

Lesson: In phased refurbishment projects review and develop a holistic design and commissioning strategy prior to commencing the refurbishment.

4.3.2 Moving in

It was generally felt that moving in was smooth with the help of the University and the contractors. The Project Manager co-ordinated both the completion of the project and the moving in process. Everything worked well, including the computers, projectors and associated functions. However there were a few items needed eg blinds, which were thought to be originally part of the specification, were not installed in the South facing classrooms and were eventually put in about 3 months after handover. Apparently, the blinds were not
on the contract drawings that were signed off by all parties and the omission was only noted when the work was completed, hence the delay in installing them. It should be noted that the impact of glare and solar gain on occupants of south facing classrooms is such that a solution such as blinds or other shading should always be considered in the design.

After handover there was some confusion as to who the occupants should contact to deal with any post-handover issues. No dedicated individual was appointed to take care of the occupant needs and they were unsure whether to go to the Project Manager, site manager or the Facilities Helpdesk. As the staff were new to the University and were the only occupants of the building at the time, it would have been useful to have clarified the reporting routes.

Lesson: The appointment of a single contact with responsibility for co-ordinating the moves helps these to run smoothly.

Lesson: On handover, communicate procedures for reporting any problems etc clearly to the occupant representative

4.3.3 Issues after handover

The day to day management of the building as a whole and the common areas is carried out by the University Estates department. The Estates Technical Services staff are in fact now located in the ground floor of the building. Also, Lesley Price represents the College ‘user group’ in the North Campus Steering Group. This group looks after the needs of the entire North Campus site. The College is utilising the available two floors to the maximum capacity, and sharing the communal facilities such as the café and lecture theatre with other University users.

Many of the issues that arose post handover have been minor but irritating, not just for the occupants but also for visitors e.g. no signs of the location of the College in the main North Campus entrance, constant failure of communal lifts, no room layout signs or maps. Other general issues are lack of vending machines, café closing times not meeting the occupancy hours and no external lighting in the parking areas.

However the major issues concern thermal comfort, day lighting, noise, ventilation and health and safety in the Phase 1 of the refurbishment. After moving in it was found that there was no heating to the classrooms which had originally had fan coil units, as these were not working. Occupants were ‘freezing’. There seems to be some confusion as to whether this was the case from the start of the project or whether they had been disconnected by the contractors. The University therefore installed wall mounted electric heating in these areas.

Since occupation there has been regular contact between the occupants and maintenance staff to ‘get it up and running’, but there appear to be many on-going issues. The Estates Department is unsure how much of the maintenance budget is used to run this building. It is understood that the majority of this money has been spent on the heating systems which are still not working correctly.

In addition, since the Phase 1 handover, the refurbishment of other floors under Phase 2 and Phase 3 has created noise and disruption issues that impacted on the day to day running of the college. However it was pointed out that lessons learned from Phase 1 allowed the team to budget accordingly for out of hours work to minimise disruption on Phases 2 and 3 whilst still working within the tight financial and time boundaries set.

Lesson: Combining refurbishment and maintenance budgets for the building and spending money on the mechanical systems earlier on would have saved time and money.
5 Findings: Project in-use

5.1 DQI results: Individual question ratings

The following sections of the report focus on the project in use and report the findings from the interviews, and workshops covering the project in use. As users find it confusing to comment on the Phase 1 area alone, the consultation covered their use of the building as a whole as this feedback was considered to be useful for the University. The college could not find any participants who would give the time to take part in a full DQI workshop so the workshop took the form of an informal discussion supplemented by informal interviews with students. An link to an electronic version of the DQI questionnaire was sent out by the College Operations Manager to all staff and students. However as there were only five replies only the overall section scores have been reported (See section 6). The findings from the workshop discussions are reported here, set out under the ten DQI section headings. Lessons learned from this project or potential solutions to any problems with the existing building highlighted by the respondents are given at the end of each sub-section in italics.

5.2 Functionality

*Functionality is concerned with the arrangement, quantity and interrelationship of spaces and how the building is designed to be useful*

5.2.1 Access

*Access is concerned with how easy it is for all people to get to and around the building*

**Building Signs and room numbering**

- Lack of external signage at the entrance to the North Campus showing the location of the College and the sign on the building is not very visible.
- The foyer looks bare and empty. It has a board explaining what is located on each floor but it is not clear enough for visitors or new students.
- The building is confusing for visitors to find their way around and it is felt that some additional internal signage is required. There are no signs on the lift lobby or stairs indicating floor numbers and the floors are indicated by letters i.e. F for first floor. Also there is confusion about the naming and labelling of the each floor – Lower Ground, Ground etc
- There is no user friendly floor layout explaining the room numbers and their location on each floor for the students. It is felt that it would be a good idea to have a central directory on the ground floor indicating the departments in the building and their location.

**Parking and supporting facilities**

- Provision for car parking is seen as adequate. It is recognised that car parking is at a premium on the campus.
- Bike racks are outside the Porter’s lodge but not covered and there are not enough spaces – additional ones have been requested
- There is insufficient external lighting in the parking area.
- There are no lockers or shower rooms for the cyclists

**Stairs, lifts and corridors**

- The two passenger lifts are often out of service
- The corridors and lifts are not of adequate size to accommodate disabled students.
- Difficult to segregate student access to the main reception via lecture theatre at the time of corporate events.
- Out of hours swipe card access is a problem as some of the cards stop working occasionally.

**Fire access**
- The fire escape stair in South West corner of the building opens directly into the west side street. This is used by the students as an alternative to the only main entrance imposing a security risk.
- No end user is clear of which day and time of the week routine checking of fire alarm is carried out. It was generally felt that University needs to clarify exactly the fire alarm routine procedures.

**Action:** Consider additional signage in lifts, foyer, by the entrance to the College and campus.

**Action:** Provide a student friendly floor layout showing the room numbers and location for each floor.

**Action:** Rationalise interview room numbering with the help of the tenants to prevent any internal confusion.

**Action:** Investigate how disability access can be improved.

**Action:** Consider a suitable access management system for South West fire escape doors to the main street e.g.: Limit Swipe card access

**Action:** Ensure that arrangements for people including people with disabilities e.g. in case of fire are clarified to all occupants.

**Action:** Provide a simple work plan explaining weekly fire alarm routine specific to the College.

**Action:** Continue to address increased cycle storage provision

### 5.2.2 Space

Space is about the size and interrelationship of the buildings or component spaces.

**Reception area**
- The college reception area works very well and the College uses it for displaying general information, leaflets etc., However there is a concern that there may not be adequate space in the future to deal with increasing number of students at their induction, assignment submissions etc.,

**Classrooms**
- In general the size of the classrooms is felt to be good. However in the event of combining classes and for exams there is a need for a larger class room to accommodate a at the least 40-45 students.
- The facilities in the class room meet fundamental teaching mode, mainly power point presentations. However there are some issues eg
  - the linear size of classrooms limits the flexibility of furniture layouts. For example, an arrangement for small group discussions vs a layout for general lecture.
  - The positioning of some of the whiteboards is poor -behind the computer console so students cannot see

**Staff and associated facilities**
- The available space within the building has been used well. However it is felt that the number of part time staff is so high that ‘hot desking’ is an issue. All the offices are full and there is already some hot-desking but not enough. The staff room is currently used by some of the temporary staff as a base.
- Some users complained that their offices were cramped and the desks too close together.
- It was generally felt that too much walking has to be done to go from one area to another as there are no alternative circulation routes
- The staff room is always overcrowded. The facilities eg seating area, microwave, fridge, are inadequate for the current number of staff.
- It was felt that the number of meeting rooms is limited. There are only two formal meeting rooms.
- The two staff photocopying machines are also used as printers. The current facilities are OK, however the number and distribution of photocopiers across the floors is an issue. It is a long walk between the photocopying rooms and staff offices.

**IT and reading spaces**
- The size and amount of student IT services is not enough to meet the current needs of 470 students e.g. There is no student photocopying facility. Only one student printer is present in the IT suite and this cannot be used if the suite is in use for teaching. These services will be overloaded with increasing number of students in the coming years.
- There is no library or reading room facility for the students. The only student quiet reading space is the seating area near the reception. It is adjacent to the open planned IT suite which is often used as a class room and it is also a thoroughfare.

**Break out spaces**
- There are no informal or break out spaces, for students to use in between lectures.
- Though there is a café, there is an issue of its opening hours in relation to the College functioning times. In addition it is a shared space with the external visitors and corporate guests and when an event is on it is out of bonds to students. This discourages the use of the café by the staff or students as a social space.

**Storage spaces**
- The College has an archive room for storing the exam papers for a stipulated period. This is now getting full and there is a need for additional storage space.
- Overall storage facilities for the permanent teaching staff and administrative staff are fine. The temporary staff are using locker facilities next to the photocopying room. However it was felt that given the number of temporary staff, the number of staff lockers is insufficient.
- There are no locker facilities for the students. This is felt as a major issue by many of the students.

**Toilets and other facilities**
- In general the toilet facilities are felt to be adequate. Some staff felt that they prefer using the second floor toilets to the first floor toilets.
- The frost film on the windows in some of the toilets is peeling off and ceiling tiles and light switches are missing in some areas.
- Some of the toilet cubicle locks are not working properly.
- Some end-users reported that the first floor ladies toilets repeatedly flood and have ventilation problems, as the extractor is not working.

*Action: Repair or replace broken locks, first floor ladies toilet extractor, missing ceiling tiles and frost film in toilets.*

*Action: Revisit storage – investigate possibility of adding provision or address storage management e.g. consider centralised storage in University archives.*

*Action: In future refurbishments of floor 3 and 4 consider the possibility of:*
  - Flexible layouts, acoustics and ventilation as an integral part of class room design
  - Integrating additional hot desk facilities, lockers and staff room requirements
- Quiet reading room or library facilities
- Informal student breakout spaces
- Student locker and drinking water facility

5.2.3 Uses

*Use is concerned with how well the building caters for the functions it will accommodate*

- The emptiness and refurbishment works of the floors above and below is resulting in insecure feeling for staff with late working hours. Though there is a main security lodge and the security staff visit the building, the building security systems between the floors are felt to be inadequate by many end users.
- There are issues reported on security and the current lighting systems across the floors -
  - The last working staff member takes the responsibility to turn the corridor lights off. This leaves the individual feeling insecure moving through the corridor to the exit, the main stairwell landing.
  - The lights in the main landing are generally switched off. The control switch is located at the farthest wall from the College doors, leaving the staff to walk across the landing in the dark to turn the stairwell lights on before going down the stairs.
- Some end users asked for a hot drink vending machine as there is none apart from the café. But the café opening hours do not suit the staff and students.
- No drinking water facilities for the students. Students have to buy water from the café or go to the nearest drinking water facilities in other buildings in the main campus.

*Action: Investigate the possibility of installing a hot drink vending machine and water cooler.*

*Action: Investigate location of lighting controls and possibility of installing PIRs in corridors etc*

5.3 Build quality

*Build Quality stems from how well the building is constructed: its structure, fabric, finishes and fittings, its engineering systems, the co-ordination of all these and how well they perform*

5.3.1 Performance

*Performance is concerned with the building’s mechanical, environmental and safety systems*

**Temperature**

- There is little information available about the heating and ventilation systems. The heating system and controls were not upgraded to meet the current demands. This has created a lot of work for the operational staff. The original HVAC systems to the classroom have been disconnected. Classrooms have high solar gain and have overheating issues without any ventilation.
- Thermal comfort in the building is not appropriate to use and is one of the main areas of complaint by occupants - some parts of the building are too hot, others too cold. There is a clear gradient of temperatures between the floors and with the north end of the building much colder and the south hotter. Fan heaters have been brought in as a temporary solution eg the academic office is very hot in summer and cold in winter. The classrooms on the south side are unbearably hot in summer.
- Heating and ventilation controls are inflexible and unsatisfactory. Though it is possible to control the internal environment, the controls do not seem to be adequate.
- The operable windows in some spaces cannot be opened for a number of reasons:
  - In some rooms the skylights over the ground floor are in the way.
  - The noise from the adjacent plant is very disturbing when the windows are open.
- Occupants have been told that they should not open the windows near the plant for health and safety reasons as there might be emissions
  - Some occupant representatives highlighted that there is more than average sick leave taken by staff in this College. There are complaints that the building is stuffy and hot or cold across rooms and floors. Students have to work in coats and gloves or are so hot that they feel unwell.

**Lighting**
- The office and classroom day-lighting is good. But most of the time due to glare problems the blinds are down and lights are on.
- The classrooms have light coloured blinds. This is resulting in some glare problems for presentations.
- Lighting systems are felt to be adequate. However it was felt that it would be useful to have dimming options in classrooms

**Acoustics**
- The classroom windows open to the adjacent buildings’ plant room. This has serious noise issues while teaching and in summer.
- Some of the lessons are audio based; the current noise issue limits the clarity of lessons, eg the use of contemporary audio teaching methods for international students.

**Other**
- The University cleaners take care of the facility and the cleaning work is satisfactory. The provision of cleaners’ cupboards is adequate.

*Action: Investigate improvement of HVAC strategy and controls to minimise the cost spent via maintenance.*

*Action: Investigate ways to introduce adequate ventilation to classrooms and corridors using the existing supply & extract air ventilation systems*

*Action: Consider the solutions to deal with the solar gain and ventilation issues in the class rooms*

*Action: Investigate the current lighting control strategy and the management system to minimise the insecure feeling. E.g. PIR sensors in the main landing.*

*Action: Replace the current window blinds with dark blinds to minimise glare.*

*Action: Improve the acoustics of classrooms in order to cater the teaching needs of the college such as audio exams*

### 5.3.2 Engineering Services

*Engineering looks at the quality of the building’s components*

- There is occupant control for heating in most of the rooms but control is still a problem and services are still not working as they should. The situation is improving due to Clive’s hard work.
- The plant room on the lower ground floor is felt to be OK. But it is felt the plant itself could be improved to meet the requirements of the occupants.
- The main heating control systems are not clear even to the maintenance staff. They were not briefed during the commissioning process. The controls are adjusted up and down as and when requested by the occupants.
- The maintenance team is having constant complaints of heating and ventilation in the class rooms. The FM is proposing to reinstate the existing ventilation systems and install inverters but they are awaiting funding and other clearance from the University. The situation is better on the second floor,
phase 2, as the existing ventilation grilles were not covered and the FM installed vents in the
classroom doors to provide air flow.

- The fire alarms are tested regularly. There are no announcements in individual rooms that this is a
test alarm. This is confusing for visitors and students: e.g. students and staff working in the building
often stop working and begin to leave the building.
- The whole plumbing system in the building is made out of Polish copper, a material known for
corrosion and leaking problems. These pipes were not upgraded during refurbishment, leading to
constant complaints on leakage.
- The extract fan plant room servicing the main lecture theatre is contaminated and used by pigeons
as a 'nest'. We were told that this room cannot be accessed to clear the pigeons as it is
contaminated with asbestos. This can be a serious health and safety problem. It needs to be
addressed as a matter of urgency.
- Some of the class rooms do not have projector screens. They are either missing or broken. The
controls for the motorised screens projector controls keep going missing and the batteries run out
frequently.

Action: Continue to investigate the problems with the main heating controls. Investigate the possibility of
reinstating the existing services to increase ventilation to the classrooms.

Action: Communicate the fire alarm schedule. Put a notice up eg on the front door letting occupants and
visitors know that 'a fire alarm test is due today'

Action: Investigate cost implications of fixing leakage vs replacing the plumbing works.

Lesson: on future buildings of this age, be aware of the Polish copper issue

Action: Fix the doors in the extractor plant room to avoid pigeons using the plant room.

Action: Investigate the position of extractor fan in an asbestos contaminated room as it is imposing serious
health risks posed on occupants.

Action: Investigate the issues with the projector screens and controls. On future projects consider non
motorised screens

5.3.3 Construction

Construction is concerned with how well the building is put together

- The building and its fixtures and fittings are felt to be durable.
- Most of the classroom and office furniture were provided by the University and as such have been
proven to be durable and of a high specification.
- The windows are very poor and ill fitting and let in draughts ‘sometimes it is a wind coming
through’. – they were not changed as part of the project but they need draught proofing.
- Hot water is provided by Sheffield Heat and Power, improving the sustainability of the building.

Action: Investigate the possibility of improving draught proofing on windows

5.4 Impact

Impact includes a building’s ability to delight, to intrigue, to create a sense of place and up lift the
local community and environment. ALSO the design’s contribution to the arts and science of
building and architecture
5.4.1 Urban and Social Integration
This is concerned with the integration of the building into the local neighbourhood and the relationship of the building with its surroundings

- The building is well situated. But there are signage issues in finding the location of the College. It has no impact or presence on site
- Though the gatehouse supervises the whole site, the external bike parking has not adequate locking up or lighting. This is a security concern for bikers. Also, the security of individual floors within the building is still questioned.

Action: Address signage issues

Action: Investigate external security lighting and security of bike storage

5.4.2 Internal environment
This section is concerned with the quality inside the building’s envelope. Many of these aspects have been reported with under Performance.

- Personal fans and fan heaters have been brought in to many of the office spaces to provide thermal comfort.
- The poor performance of personal control over the internal environment aggravates problems with the central HVAC system.

5.4.3 Form and materials
Form and materials is concerned with the building’s physical composition, scale and configuration within its boundaries

- The building is felt to be architecturally uninteresting – ‘it needs more colour and vibrancy’.
- Most of the external areas need painting

5.4.4 Character and innovation
Character and innovation is concerned with what people think of the overall building

- Occupants feel that the main entrance foyer and stair well in the building feels desolate and lifeless and is unwelcoming – it should be a showcase for international students
- Some occupants expressed the need for exhibiting some creative works. Currently there are not many pictures/ artworks. In the Kroto, artworks in the stairwell, and other pictures in the lobby have really lifted the building.
- The reading space next to the reception is used as the main break out space during class breaks and at lunchtimes. Such spaces can help to integrate students however it is felt that it is too small and there is still not enough social space in the building eg common rooms for staff.
- The college staff have a good relationship with the North campus steering group and University. It is felt that other Departments in the University have a reasonable understanding of what work is being carried out in the building.
- The occupants appreciate the efforts of maintenance staff to provide adequate thermal comfort within the M&E service limitations. This is seen as largely down to the North Campus team and occupants have a good relationship with the technicians.
- It was felt to be a pity that there was not enough budget for improving the décor etc as this spoils the look of the building. The décor in the corridors and lighting treatment in Phase 3 are much brighter and airy compared to Phase 1.
Action: Investigate possibility of obtaining artworks for the common areas. This can be done at minimal cost eg competitions for students, work with local schools

Action Investigate redecoration of the foyer eg new notice boards, leaflets, artwork, plants

Action: Investigate the possibility of providing some informal space for students. If the top floors are going to be used, this is an important facility especially for foreign students who are new to the country
6 Findings: Section scores and Likes/dislikes exercise

This section reports the findings of the questionnaire at a Section level rather than at an individual question level. The section scores graph below shows the results from the questionnaire responses, grouped under the ten main questionnaire sections. The graph takes the form of a spider diagram scaled between 0 and 6 and displays the averaged responses of respondents to each section. The higher the score (the further out) the better the respondents felt the design was achieving that characteristic. The graph gives an idea of how well the design as a whole is thought to have performed rather than by section.

![Section Score responses](image)

**Figure 1 Section Score responses: All respondents**

As shown in Figure 1, the overall spider diagram shows that although ratings were not particularly high, all were below 3. A number of the sections were rated as higher than others in terms of satisfaction. These are in line with the detailed results outlined above. Satisfaction was highest with the Access, Space and Performance elements. Lowest ratings were received for Character and Innovation.
At the end of the DQI questionnaire respondents were asked to indicate three things that they particularly like about the building and three things they particularly dislike. The raw data is given below. The results are in line with the findings of the interviews and workshops with the most popular aspects related to the access and location and the least, related to comfort, control and systems issues.

<table>
<thead>
<tr>
<th>Likes</th>
</tr>
</thead>
<tbody>
<tr>
<td>View from windows</td>
</tr>
<tr>
<td>Windows that open</td>
</tr>
<tr>
<td>good natural and artificial light</td>
</tr>
<tr>
<td>Easy access to local facilities and public transport on West Street</td>
</tr>
<tr>
<td>Leaving it</td>
</tr>
<tr>
<td>Location: close to the university and city centre</td>
</tr>
<tr>
<td>Security: Swipe card access out of hours and porter at lodge</td>
</tr>
<tr>
<td>Car parking directly outside the building</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dislikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The extremely erratic heating!</td>
</tr>
<tr>
<td>Windows are not double glazed, so it gets cold after sunset</td>
</tr>
<tr>
<td>Toilets are all concentrated in one part of the building - would be better spread out.</td>
</tr>
<tr>
<td>Internal temperature</td>
</tr>
<tr>
<td>Cramped rooms</td>
</tr>
<tr>
<td>Inadequate natural daylight</td>
</tr>
<tr>
<td>the heating is completely unpredictable</td>
</tr>
<tr>
<td>I seem to spend hours roaming corridors - poor layout</td>
</tr>
<tr>
<td>narrow corridors become crowded with students</td>
</tr>
<tr>
<td>The upper half of the building is in terrible disrepair</td>
</tr>
<tr>
<td>Not enough space for the amount of students and staff using the college</td>
</tr>
<tr>
<td>Pigeons fly into building through broken windows in upper two floors</td>
</tr>
</tbody>
</table>
7 Conclusions and recommendations

The project for the Phase 1 refurbishment of the George Porter building for the use of the Sheffield International College was not without complications although it finished in time for the first students to move in September 2006. The space provided met the immediate needs of the college in terms of accommodating the required number of students and the subsequent phases coped with the anticipated expansion. However the college has been to some extent a victim of its own success and has now outgrown the space. As completion of the new purpose build premises has now been delayed, there are plans to refurbish the top 2 floors of the George Porter building to accommodate the increased intake expected in September 2009.

The project delivery process was not as smooth as it could have been for a number of reasons. The key issues were:

- There was uncertainty about the long term use of the building and this lack of a strategy meant that the remit of the project was not made clear, even late on in the process. This had impacts on the programme and the final quality of the build as the project was delayed in stating on site.

- The actual state of the building was found to be much worse than had been excepted for a working building owned by the HSE. A full condition survey was not commissioned and it was only when the building was taken over in early 2006, that the full situation was revealed. What action could actually be taken to remediate this, was severely constrained by the budget and programme that had already been set.

- The building’s refurbishment has been undertaken in a piecemeal manner due to the lack of a long-term plan for the building. This meant that the mechanical systems were not upgraded in Phase 1 with the result that they are still not working and a great deal of time and money has been spent from the University maintenance budget to try to sort them out, with limited success.

However in spite of these problems the delivery team worked very well together and the Project Managers, contractors and subcontractors were praised for the attitude and the long hours they put in to finish the project in time for the new academic year.

With hindsight the project team would take into account a number of lessons learned from the project:

- Consider cost effectiveness of short term refurbishment of parts of a building rather than a holistic view. Try to consider the long term strategy as this is more cost effective in the long run
- Lack of a clear decision as to the final brief causes delays to the programme. This should be finalised before the tender stage
- Leadership by Project Managers is important. The project managers were given appropriate responsibility for decisions and sign off to enable the project to proceed smoothly
- Make use of the technical expertise within the University and the Estates Department. Time should be allowed for this in their job description
- A University Clerk of Works provides support and monitors the management of the site as well as quality of works. If level of major projects is to remain high, consider employing additional personnel
• Never assume that ‘what you see is what you are going to get!!’. If buying a building of this age eg from the 1960s-70s, carry out a more in-depth survey of the building not just a condition survey, particularly of the M&E systems.

Staff and students are generally fairly satisfied with their space and feel it is a ‘nice building to study and work in’. However there are a number of factors that they feel should be addressed. The main common concerns voiced by occupants are:

• Thermal comfort issues – the building is either too hot or too cold depending on location and season. Many of these issues are still the subject of improvements by the maintenance team.
• Lack of space for expansion
• Noise issues from plant on the adjacent building means that windows cannot be opened to provide ventilation
• Problems for visitors accessing the building as there is poor signage in and around the building
• Solar gain and glare in some offices and classrooms
• Some toilets are not adequate.
• Lack of space for informal meetings for staff and students and for larger teaching space and exams

Suggestions for lessons that can be learned and taken into account on future projects together with recommendations for improvements that can be carried out to address current issues have been included in Appendix B at the end of this report.
Appendix A: Participants in workshops, interviews and questionnaire respondents

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Shackleton</td>
<td>University, Department of Estates</td>
<td>Clerk of Works</td>
</tr>
<tr>
<td>Janet Gay</td>
<td>University, Department of Estates</td>
<td>Customer Liaison</td>
</tr>
<tr>
<td>Jackie Gresham</td>
<td>University, English Learning Teaching Centre</td>
<td>Project Client</td>
</tr>
<tr>
<td>Paul Turner</td>
<td>University, Department of Estates</td>
<td>Project Manager</td>
</tr>
<tr>
<td>Andy Fella</td>
<td>Capita Pearce Buckle</td>
<td>M&amp;E Consultant</td>
</tr>
<tr>
<td>Richard Hume</td>
<td>Kaplan International</td>
<td>Associate Director College Operations</td>
</tr>
<tr>
<td>Anita Wilson</td>
<td>Sheffield International College</td>
<td>Operations Manager</td>
</tr>
<tr>
<td>Lesley Price</td>
<td>Sheffield International College</td>
<td>SIC College Director</td>
</tr>
<tr>
<td>Caroline Major</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Colette Ellis</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Stephen De Almeida</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Claire Henstock</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Sarah Dalton</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Rebecca Higgs</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Adele Waterman</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Craig Fletcher</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Hazel Slinn</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Michelle Waters</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Rachel Woodward Carrick</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Chen Qu</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
<tr>
<td>Batool Azra</td>
<td>Sheffield International College</td>
<td>Building occupant</td>
</tr>
</tbody>
</table>
Appendix B: Lessons learned record

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Successes</th>
<th>Shortcomings</th>
<th>Recommended solutions/ why it worked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Planning</td>
<td>• Business case for the college was well established</td>
<td>• Short term focus stored up problems for later – impact on operational budget and on programme</td>
<td>• Consider cost effectiveness of short term refurbishment of parts of a building rather than a holistic view. Try to consider long term strategy</td>
</tr>
<tr>
<td></td>
<td>• Project Managers worked very well as a liaison point throughout the project</td>
<td>• College has been ‘victim of own success’. Recruitment exceed business case estimates</td>
<td>• Day to day decisions should be down to the design group and Project Manager so time was not wasted</td>
</tr>
<tr>
<td></td>
<td>• The project had strong leadership under the PEG and Project Managers. The Project Managers were given appropriate responsibility for decisions to enable the project to complete in time.</td>
<td>• University PM was very good but PMs have overload with so many major projects</td>
<td>• It is a good idea to have and external and internal project manager on a project that needed a lot of PM input once it was on site</td>
</tr>
<tr>
<td></td>
<td>• The external Project Manager provided additional support to focus on the site and programme whilst the internal PM dealt with the budget, and client liaison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Management</td>
<td>A condition survey was commissioned before purchase</td>
<td>• It was assumed that the building would be fit for use with only minor works. This proved not to be the case. The condition survey was not detailed enough to provide the information needed</td>
<td>• Although it may be an extra expense, it is cost effective in the long run to commission full architectural and engineering survey prior to purchase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lack of foresight and</td>
<td>• Aim to allow consultants site access as early as</td>
</tr>
</tbody>
</table>
### Health, safety and environmental impacts of site

- The site was managed well with no accidents reported
- Disruption to occupants was minimal
- The University Clerk of Works visited regularly
- The site compound was shared with the other projects on the campus

Part of the building was still occupied by the Careers Service whose move out was delayed. This meant that working hours had to be adjusted to minimise disturbance and led to extra cost

- The University Clerks of Works are excellent but are overstretched

- The University and contractors should work together to ensure safety and security of the site
- A University Clerk of Works provides support and monitors the management of the site as well as quality of works. If level of major projects is to remain constant, consider employing additional personnel
- Working round occupants is more difficult and expensive – if possible move these out to alternative accommodation

### Procurement

- A traditional contract was used and this was thought to be a good choice for this type of project

- The procurement route should be chosen to suit the particular needs of a project – not a one size fits all decision

### Budget Management

- The project was
- The University funded
- Delegate clear budget
completed on budget for all three phases.

- The budget was well controlled by the project managers

<table>
<thead>
<tr>
<th>Quality Control</th>
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<tbody>
<tr>
<td>• The University Clerk of Works visited the site regularly to check on quality of workmanship</td>
</tr>
<tr>
<td>• The end users were on site for the last part of the project and were able to be hands on</td>
</tr>
<tr>
<td>• There is some confusion at to some of the decisions about services eg to cut off the original vents and heating pipes and not to install heating to the classrooms where there was no working heat source. Electric heaters had to be retrofitted.</td>
</tr>
<tr>
<td>• It was felt that perhaps the M&amp;E consultant had not been as proactive as they could have been</td>
</tr>
<tr>
<td>• A Clerk of Works will ensure that the standards expected were set at the start and adhered to. He can address any issues on the spot if possible</td>
</tr>
<tr>
<td>• On a services heavy project the M&amp;E consultant should have a role in providing advice, and visiting the site regularly to monitor the situation</td>
</tr>
<tr>
<td>• It is a good idea for the end users to be involved when the project is on site as they can provide a check and ensure their needs are met</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Status Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Good communication throughout the project</td>
</tr>
<tr>
<td>• Regular design team meetings and site meeting and good informal communication in between</td>
</tr>
<tr>
<td>• There was some contradiction between the reports to the end user from the site personnel and management team on the programme. End users would like to be told the truth about programme delays so they can make contingency plans.</td>
</tr>
<tr>
<td>• Set up good relationships. Good formal and informal communication mechanisms – regular meetings, are vital to promote and maintain the team working ethos.</td>
</tr>
<tr>
<td>• Team should be honest and open with the end users eg on programme delays etc as this has an impact on their own plans</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Selection of consultants and contractors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Appointment of consultants went smoothly as used the University Framework list</td>
</tr>
<tr>
<td>• The contractors were not selected using the normal University tendering process. Although they</td>
</tr>
<tr>
<td>• Select all consultants and contractors from the University Framework list or via a the defined University selection</td>
</tr>
</tbody>
</table>
performed well this was seen to have been a mistake
- The subcontractors were chosen by the contractors as they had worked well together in the past

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Successes</th>
<th>Shortcomings</th>
<th>Recommended Solutions</th>
</tr>
</thead>
</table>
| Project Communication | • Once the project was on site communication was good                      | • The FMs should have been more involved in the project during the design and construction stages.  
  • The end users and client were consulted extensively during the feasibility and design stages.  
  • See above for communication with end user on programme delays  
  • There were some delays in decision making due to academic holidays  
  • End users did not have a full contact list | • Involve the FM who will be managing the building at the earliest stages on the design team to avoid operational problems later  
  • Ensure that academic holidays are taken into account and either do not timetable key decisions to be made at that time or consider appointing a deputy with decision making powers  
  • Ensure a full list of contacts and deputies is given to clients and end users |
| Team Experience       | • The consultants and contractors were selected from the Framework and performed well.  
  • Previous track record for the University and on lab buildings was a good criterion for selection | • There was no cross consultation between the consultants on selection but this was not a particular problem | • Take into account previous experience and track record and ask colleagues who have worked with firms in the past about their experience with specific personnel  
  • Consider cross consultation between consultants to appoint companies with previous experience of working together. |
<table>
<thead>
<tr>
<th>Quality of Meetings</th>
<th>Contractor Interactions with occupants</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Regular meetings kept the programme and budget on schedule</td>
<td>• The contractors had to work around the Careers Service. There were few issues as they managed the disruption</td>
</tr>
<tr>
<td></td>
<td>• Works on subsequent phases continued for some time after the SIC occupants moved in. There were some issues of noise and disruption. • During the later phases, access to the construction sites on other floors was not sufficiently restricted and students were entering these areas</td>
</tr>
<tr>
<td></td>
<td>• Contractors should work with the occupants to minimise disruption – this had not been planned for on this project • Access should be restricted when works are carried out in an occupied building, even if on another floor people can wander around onto the site</td>
</tr>
<tr>
<td>• Regular design and site meetings ensure that communication channels are kept open</td>
<td></td>
</tr>
</tbody>
</table>
Handover

- The moves went smoothly and were well organised and planned
- The systems were commissioned before handover but due to the overlap of the phases this continued after occupation
- The building occupants and maintenance staff were not given training or a user friendly manual.
- Occupants were unclear about the process of reporting issues/complaints after the moved in
- Training should be provided for staff who will be maintaining the building after handover
- On commissioning systems in an existing building, it is worth involving the experienced maintenance team to save time, money and provide thermal comfort to occupants.
- It is important that any communications about handover training, commissioning and design comment are communicated to the right people in Estates and that dealing with these issues should be accepted as part of the job description of the FM
- A building user guide is helpful for the non technical occupants, especially on a building where there is no University porter to report to.
- Commissioning of the systems is vital and should be carried out before handover and before the occupants move in to avoid disruption. A decision should be taken whether it is preferable to delay moving in until systems are fully operational
- The occupants’ representatives should be provided with contact details for any post handover issues
## PROJECT SUMMARY

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Successes</th>
<th>Shortcomings</th>
<th>Recommended Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupant satisfaction with process</td>
<td>• The client and end user were satisfied to some extent with their involvement</td>
<td>• The lack of strategic planning and issues with the services have impacted on client satisfaction</td>
<td>• Ensure that planning takes into account the long term as well as short term use of the building in a refurbishment</td>
</tr>
</tbody>
</table>
| Technical Success   | • The University FM staff have put in a tremendous amount of work since handover and are very much appreciated for this.  
                      • The lighting, data and phones work well | • The environmental conditions are still not appropriate for the occupants  
                      • The thermal climate, ventilation etc are still subject to complaints  
                      • The lifts constantly break down and are not fit for purpose  
                      • The systems are still subject to a lot of work for the operational staff – without their hard work the situation would have been much worse | • Continue to support the FM staff in their work on the M&E systems 
• Address the issue of the lift breakdowns |
| Quality Product     | • The quality and durability of the works was good  
                      • Furniture etc is fine | • The problems with the M&E systems mean that the environmental conditions are a continuing problem  
                      • Some issue with quality eg missing ceiling tiles in toilets, leaks, windows. Some | • See above on approach to M&E aspects of the project 
• Address some of the outstanding issues re toilets, leaks etc 
• On future projects of this age, consider the |
<table>
<thead>
<tr>
<th></th>
<th>of these were existing problems that were not addressed due to lack of funds/time</th>
<th>impact of pipes made with Polish copper</th>
</tr>
</thead>
<tbody>
<tr>
<td>The décor in Phase 1 and the lobby and common areas are disliked as they are depressing and shabby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polish copper in pipes cause leaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project On Time</td>
<td>Although the project was a few weeks late, this had been prepared for and planned</td>
<td>Be realistic about delays to the programme</td>
</tr>
<tr>
<td></td>
<td>Project was under pressure from the start and delayed going on site</td>
<td>Changes to brief and design will cause delays to programme.</td>
</tr>
<tr>
<td>Project Within Budget</td>
<td>Within budget for the 3 Phases. Additional budget was used for Phase 1</td>
<td>Set a realistic budget level at the start to avoid financial burden on maintenance staff post-project</td>
</tr>
<tr>
<td></td>
<td>A high level of cost has been put in post project to get the systems working properly. This was at the expense of the Estates department - additional to the capital project cost</td>
<td>Consider long term impacts of decisions – it will cost much more to put the mechanical problems right as it would have at the time. Short term brief for temporary accommodation was short sighted as M&amp;E systems will need to be fit for purpose for any future user</td>
</tr>
<tr>
<td>Project Objectives Met</td>
<td>The project provided accommodation for the numbers planned for in the brief</td>
<td>Investigate comfort issues</td>
</tr>
<tr>
<td></td>
<td>Site team working hard to meet needs of the occupants</td>
<td>Plan for contingency eg of expansion of numbers or delays in finding new accommodation</td>
</tr>
<tr>
<td></td>
<td>There are some areas of occupant dissatisfaction particularly relating to thermal comfort and glare.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The space is now too small to accommodate the expansion of student numbers – new building is not ready so another short term solution is being sought</td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td>See above: The</td>
<td>Monitor sickness levels</td>
</tr>
</tbody>
</table>
| **Objectives Met** | Project has provided a base for the SIC and as such as been successful.  
• Students are generally happy with the accommodation | Space for expansion  
• Lack of space for exams impacts on college as these are a major part of the work  
• Some users complain that staff sickness levels are high – possibly due to heating and ventilation problems | and continue to address heating and ventilation issues  
• Address alternative spaces for exams |

### FUNCTIONALITY

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Successes</th>
<th>Shortcomings</th>
<th>Recommended Solutions</th>
</tr>
</thead>
</table>
| **Access** | • Good car parking  
• Good access to public transport | • Unclear signage internally and externally  
• Need for more and covered bike racks and showers and lockers for cyclists  
• Lifts are out of order much of the time  
• Fire escape stair leads onto public street and is not secure  
• Fire alarm tests are not communicated to occupants | • Address signage and room numbering issues  
• Consider additional signage in lifts, foyer, by the entrance to the College and campus  
• Provide a student friendly floor layout showing the room numbers and location for each floor.  
• Rationalise interview room numbering with the help of the tenants to prevent any internal confusion.  
• Investigate how disability access can be improved.  
• Consider a suitable access management system for South West fire escape doors to the main street. E.g.: Limited Swipe card access  
• Ensure that arrangements for people |
<table>
<thead>
<tr>
<th>Uses</th>
<th>Space</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| • Security good as | • Reception area works well  
• Size of classrooms is adequate  
• Café and lecture theatre are well used  
• Staff have adequate storage space for their needs  
• Students like the IT breakout space by reception | • Reception may become crowded as more students are taken on  
• Larger rooms needed for exams etc  
• Some rooms have no projector screens and controls are missing  
• Not enough room for staff as offices are all full  
• Staff facilities inadequate for number  
• No informal space for students  
• Not enough printers etc for students  
• No lockers for students  
• Storage space for archiving student records is becoming full  
• Some issues with some of the toilets – flooding, vitiation, locks  
• No library/reading space for students | • Repair or replace broken locks, first floor ladies toilet extractor and frost film in toilets.  
• Revisit storage – investigate the possibility of adding provision or address storage management eg consider centralised storage in University archives.  
• In future refurbishments of floor 3 and 4 consider the possibility flexible layouts, acoustics and ventilation as an integral part of class room design  
• Integrating additional hot desk facilities, lockers and staff room requirements  
• Quiet reading room or library facilities  
• Informal student breakout spaces  
• Student locker and drinking water facility |

including with disabilities e.g. in case of fire are clarified to all occupants.

• Provide a simple work plan explaining weekly fire alarm routine specific to the College.

• Continue to address increased cycle storage provision
<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Successes</th>
<th>Shortcomings</th>
<th>Recommended Solutions</th>
</tr>
</thead>
</table>
| Performance | • Lighting generally very good  
• Day-lighting good  
• Building cleaners perform well | • Ongoing problems with heating and ventilation  
• Windows cannot be opened due to noise, obstructions and emissions from nearby labs  
• Glare in some rooms not controlled by transparent blinds  
• Noise from adjacent building plant is disturbing to students eg during audio exams/tests | • Investigate improvement of HVAC strategy and controls to minimise the cost spent via maintenance.  
• Investigate ways to introduce adequate ventilation to classrooms and corridors using the existing supply & extract air ventilation systems  
• Consider the solutions to deal with the solar gain and ventilation issues in the class rooms  
• Investigate the current lighting control strategy and the management system to minimise the insecure feeling. E.g. PIR sensors in the main landing.  
• Replace the current window blinds with dark blinds to minimise glare.  
• Improve the acoustics |
<table>
<thead>
<tr>
<th>Engineering</th>
<th>Construction</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fire safety and security systems eg alarms, swipe cards work well</td>
<td>• Building, fixtures and fittings re seen as durable</td>
<td>• Continue to investigate the problems with the main heating controls. Investigate the possibility of using reinstating the existing services to increase ventilation to the classrooms.</td>
</tr>
<tr>
<td>• Some control of heating – TRVs on radiators</td>
<td>• Poor fitting and draughty windows (not part of project)</td>
<td>• Communicate fire alarm schedule. Put a notice up eg on the front door letting occupants and visitors know that ‘a fire alarm test is due today’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Investigate cost implication of fixing leakage vs replacing the plumbing works.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• On future buildings of this age, be aware of the Polish copper issue</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fix the doors in the extractor plant room to avoid pigeons using the plant room.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Investigate the position of extractor fan in an asbestos contaminated room as it is imposing serious health risks posed on occupants</td>
</tr>
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<td></td>
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<td>• Investigate the possibility of improving draught proofing on windows</td>
</tr>
</tbody>
</table>
IMPLICIT

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Successes</th>
<th>Shortcomings</th>
<th>Recommended Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban and social</td>
<td>• The building is well situated</td>
<td>• College is not well signed – has no impact or presence on the site</td>
<td>• Address signage issues</td>
</tr>
<tr>
<td>integration</td>
<td></td>
<td>• Some security issues eg bikes, poor external lighting</td>
<td>• Investigate external security lighting and security of bike storage</td>
</tr>
<tr>
<td>Internal environment</td>
<td></td>
<td>• Personal fan heaters and fans are brought in to provide adequate heating and ventilation</td>
<td>• Continue to address environmental comfort as above</td>
</tr>
<tr>
<td>Form and materials</td>
<td></td>
<td>• Building is felt to be architecturally uninteresting</td>
<td>• If budget comes available, consider painting the external areas – gives a poor impression to students</td>
</tr>
<tr>
<td>Character and innovation</td>
<td>• Good relationship with North Campus steering group</td>
<td>• Main entrance, Foyer and staircases are depressing and unwelcoming</td>
<td>• Investigate possibility of obtaining artworks for the common areas. This can be done a minimal cost eg competitions for students, work with local schools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lack of informal space for staff and students</td>
<td>• Investigate redecoration of the foyer eg new notice boards, leaflets, artwork, plants</td>
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<td></td>
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<td></td>
<td>• Investigate the possibility of providing some informal space for students. If the top floors are going to be used, this is an important facility especially for foreign students who are new</td>
</tr>
</tbody>
</table>
to the country
## Appendix C : DQI Questions

<table>
<thead>
<tr>
<th>QUALITY DIMENSION</th>
<th>SECTION</th>
<th>NUM</th>
<th>QUESTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUNCTIONALITY</td>
<td>ACCESS</td>
<td>1</td>
<td>There is good access to public transport</td>
</tr>
<tr>
<td></td>
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<td>2</td>
<td>There is sufficient car parking</td>
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<td>3</td>
<td>The building provides good access for all</td>
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<td>4</td>
<td>The building caters for cyclists</td>
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<td></td>
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<td>5</td>
<td>The layout and landscape around the building provides safe access for people</td>
</tr>
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<td>6</td>
<td>There is safe and secure access for goods</td>
</tr>
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<td></td>
<td></td>
<td>7</td>
<td>The building layout is easily understood</td>
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<td></td>
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<td>8</td>
<td>It’s easy to find your way round the building</td>
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<td></td>
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<td>9</td>
<td>The signage is clear</td>
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<td></td>
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<td>10</td>
<td>The building caters for the need of people with impaired sight</td>
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<td>11</td>
<td>The building caters for the needs of those people with impaired hearing</td>
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<td>12</td>
<td>The building is accessible to wheelchair users</td>
</tr>
<tr>
<td>SPACE</td>
<td></td>
<td>1</td>
<td>The building is the right size for its functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The building’s layout and the relationships between rooms work well</td>
</tr>
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<td></td>
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<td>3</td>
<td>The circulation space works well</td>
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<td>4</td>
<td>The ratio of usable space to the total area is good</td>
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<td></td>
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<td>5</td>
<td>The building’s layout provides a good balance of communal and private spaces</td>
</tr>
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<td></td>
<td></td>
<td>6</td>
<td>There is adequate storage space</td>
</tr>
<tr>
<td>USES</td>
<td></td>
<td>1</td>
<td>The building easily accommodates the users’ needs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The building contributes to the efficiency of the organisation</td>
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<td>3</td>
<td>The building enhances the activity of people who use it regularly</td>
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<td>4</td>
<td>The building provides good security</td>
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<td>5</td>
<td>The building is adaptable to changing needs</td>
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<td>6</td>
<td>The lighting allows for different user requirements</td>
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<td>7</td>
<td>The layout allows for changes of use</td>
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<td>8</td>
<td>The heating, ventilation and IT installations allow for changes of use</td>
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<td>9</td>
<td>The structure allows for changes of use</td>
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<tr>
<td>QUALITY DIMENSION</td>
<td>SECTION</td>
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<td>QUESTION</td>
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<tr>
<td>BUILD QUALITY</td>
<td>PERFORMANCE</td>
<td>1</td>
<td>The building is easy to clean</td>
</tr>
<tr>
<td></td>
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<td>2</td>
<td>The building withstands wear and tear in use</td>
</tr>
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<td>3</td>
<td>The building is easily maintained</td>
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<td>4</td>
<td>The building design has responded to the site microclimate</td>
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<td>5</td>
<td>The building will weather well</td>
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<td>6</td>
<td>The building's structure is efficient</td>
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<td>7</td>
<td>The building's finishes are durable</td>
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<td></td>
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<td>8</td>
<td>There is sufficient daylight in the building</td>
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<td>9</td>
<td>The artificial lighting levels in the building are sufficient</td>
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<td>10</td>
<td>The thermal climate in the building is appropriate to its use</td>
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<td>11</td>
<td>The acoustics quality is appropriate to its use</td>
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<td>12</td>
<td>The air quality is appropriate to its use</td>
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<td></td>
<td>13</td>
<td>The building is easy to operate</td>
</tr>
<tr>
<td></td>
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<td>14</td>
<td>The building produces a low number of complaints / faults reported by users</td>
</tr>
<tr>
<td>ENGINEERING</td>
<td></td>
<td>1</td>
<td>The building is efficient in its use of energy and water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The components in the building are easily replaced when necessary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>The engineering systems work well</td>
</tr>
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<td>4</td>
<td>The engineering systems are easy to operate</td>
</tr>
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<td>5</td>
<td>The engineering systems operate quietly</td>
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<tr>
<td></td>
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<td>6</td>
<td>The building and engineering systems minimise CO2 emissions</td>
</tr>
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<td></td>
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<td>7</td>
<td>The requirement for heating is minimised by the design of the building</td>
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<td>8</td>
<td>The requirement for mechanical ventilation is minimised by the design of the building</td>
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<td>9</td>
<td>The requirement for cooling is minimised by the design of the building</td>
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<td>10</td>
<td>The requirement for building controls systems are minimized by the design of the building</td>
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<td></td>
<td>11</td>
<td>The building controls systems work well</td>
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<td></td>
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<td>12</td>
<td>There is a clear fire safety strategy</td>
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<td>13</td>
<td>Engineering systems are well co-ordinated</td>
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<td>14</td>
<td>The building is healthy to use</td>
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<td>15</td>
<td>The building is safe to use</td>
</tr>
<tr>
<td>CONSTRUCTION</td>
<td></td>
<td>1</td>
<td>The materials are appropriate for the building's purpose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The methods and materials used in construction have been well thought through</td>
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<td>3</td>
<td>The building has been designed so that it can be safely constructed</td>
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<td>4</td>
<td>The building is designed for demolition and recyclability</td>
</tr>
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<td></td>
<td></td>
<td>5</td>
<td>The layout, structure and engineering systems are well integrated</td>
</tr>
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<td></td>
<td></td>
<td>6</td>
<td>The building's fittings and finishes are well integrated</td>
</tr>
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<td></td>
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<td>7</td>
<td>Future climate change has been considered in the design of the building</td>
</tr>
<tr>
<td>QUALITY DIMENSION</td>
<td>SECTION</td>
<td>NUMBER</td>
<td>QUESTION</td>
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<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IMPACT</td>
<td>URBAN &amp; SOCIAL INTEGRATION</td>
<td>1</td>
<td>The building is sited well in relation to its context</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The area immediately outside is pleasant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>The landscape around the building contributes to the neighbourhood</td>
</tr>
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<td>4</td>
<td>The building is well located in relation to local facilities</td>
</tr>
<tr>
<td></td>
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<td>5</td>
<td>The people in the neighbourhood like the building</td>
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<td></td>
<td></td>
<td>6</td>
<td>The building contributes to the neighbourhood</td>
</tr>
<tr>
<td></td>
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<td>7</td>
<td>The building stimulates social and economic regeneration</td>
</tr>
<tr>
<td>INTERNAL ENVIRONMENT</td>
<td></td>
<td>1</td>
<td>The building is a pleasure to use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The building does not feel cramped or overcrowded</td>
</tr>
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<td></td>
<td>3</td>
<td>The building reduces stress for users</td>
</tr>
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<td></td>
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<td>4</td>
<td>The circulation spaces and common areas are enjoyable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>The natural light in the building is of high quality</td>
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<td>6</td>
<td>The artificial light in the building is of high quality</td>
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<td>7</td>
<td>The indoor temperature of the building is comfortable in all seasons</td>
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<td></td>
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<td>8</td>
<td>The indoor air quality is pleasant</td>
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<td>9</td>
<td>The building has good acoustics</td>
</tr>
<tr>
<td></td>
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<td>10</td>
<td>The building provides good views</td>
</tr>
<tr>
<td>FORM &amp; MATERIALS</td>
<td></td>
<td>1</td>
<td>The shape of the building is pleasing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The building is well composed</td>
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<td>3</td>
<td>The building takes advantage of its orientation on site</td>
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<td>4</td>
<td>The form and materials are well detailed</td>
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<tr>
<td></td>
<td></td>
<td>5</td>
<td>The materials used in the building add to its quality</td>
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<td></td>
<td></td>
<td>6</td>
<td>The use of colour and texture enhances enjoyment of the building</td>
</tr>
<tr>
<td>CHARACTER &amp; INNOVATION</td>
<td></td>
<td>1</td>
<td>The building provides a sense of security</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>The building lifts the spirits</td>
</tr>
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<td></td>
<td></td>
<td>3</td>
<td>Visitors like coming here</td>
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<td></td>
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<td>4</td>
<td>The building reinforces the image of the occupier's organisation</td>
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<td></td>
<td></td>
<td>5</td>
<td>The building is widely acclaimed for its quality</td>
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<td></td>
<td></td>
<td>6</td>
<td>The building has character</td>
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<td>7</td>
<td>The building makes you think</td>
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<td></td>
<td></td>
<td>8</td>
<td>There is clear vision behind the building</td>
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<tr>
<td></td>
<td></td>
<td>9</td>
<td>The building's design and construction contributes to development of new knowledge</td>
</tr>
</tbody>
</table>