

**UNIVERSITY OF CAMBRIDGE
BUILDINGS AND ENVIRONMENT COMMITTEE**

The 9th meeting of the Computer Laboratory Buildings and Environment Committee will be held on Thursday 13 December 2018 at 14:00 in Room SW00.

Committee Members: Dr Piete Brooks
Mr Ian Burton-Palmer
Miss Claire Chapman (Secretary)
Mr Brian Jones
Professor Ian Leslie
Professor Simon Moore (Chair)
Mr Martin McDonnell
Mrs Caroline Stewart
Dr Graham Titmus

AGENDA

1. Apologies for Absence

Dr Graham Titmus

2. Minutes of the Previous Meeting

The minutes from the meeting held on 12 September 2018 are attached (2018-12-02)

3. Matters Arising

Matters arising from the previous minutes are included in Agenda items below.

4. Reducing Energy Consumption

i. Crane to remove the chiller in SE18 once room cleared

Date when the chiller clearing will take place and anticipated date of refit (IBP & MJM)
(Spec Sheet 020 02/11/2018)

ii. Type and design of a new Chiller

Proposed specification of suggested chiller (IBP)

5. Passive Cooling

i. Access Hatches Quotation for Stairways

Quote for motorised hatches (IBP) (Spec Sheet 022 22/10/2018)

ii. Curtain wall window installation

a. Update on inserting windows into the Atrium from SW02 (IBP)
(Spec Sheet 024 08/11/2018)

b. Fixing current Lighting in SW02 (IML and BDJ)

6. Building Matters

i. Fitting mains extensions from the projection booth to power cameras

Chasing up of outstanding quotes (IBP)

ii. Kitchenette refurbishments

Update if any kitchenette needs to be refurbished urgently (IBP)

iii. Lighting Update

- o Lighting in the Street (SWM and IML)

iv. Sourcing Office LED Lighting

Approval from Andy Hopper to use the ceiling that was adapted for BAT system (CS)

v. Employing cleaners directly rather than having a cleaning contract.

- a. Reply back from DAMTP regarding employing cleaners directly (CS)
- b. Current Contract Cleaning Costs (2018-12-06vb) (IBP)

vi. Cycle Park Report

Cargo bike stands quote (IBP)

vii. Green Impact Suggestion

Installation of hot cup in each kitchenette (IBP)

viii. Intel Lab Ceiling (bowing panel)

Update (IBP)

ix. Vent Leak on 2nd Floor

BBC Fire update (MJM)

x. The refurbishing of SC30 Print Room to a Store Room

Proposed design and update of quote received (IBP)

xi. The Fire Strategy for the Building

EM met with the Fire Consultant on 24 October – any further update? (MJM)

xii. SW20 Powerbox in Intel Lab

Rewiring of box to ensure all cables are inside (BDJ and IML)

xiii. Office Recycling

Office bins update (IBP)

EM advises four streams of waste (The existing bins in the kitchen will remain)

- 1) Mixed recycling
- 2) Mixed non-recycling
- 3) Food
- 4) Glass (not required in bin stations near office space)

Do Members agree with providing these 4 bins in the service stations?

.

xiv. **Signage in the Department**

Email from Andy Rice (CS)

xv. **Solar Panels (PV's) for the roof**

The HoD has agreed to use Lab funds towards the solar installation.
Specification (2018-12-06xv) (IBP)

xvi. **Dataset of Sensors for William Gates Building**

Email from Bentley Systems (IBP)

7. AV Matters

BDJ to report.

8. Any Other Business

a. Electricity Devolution - update from Sally Pidgeon (IML)

9. Date of next meeting

The next meeting of the Committee will be arranged for February by Doodle Poll.

**UNIVERSITY OF CAMBRIDGE
BUILDINGS AND ENVIRONMENT COMMITTEE**

Minutes of the 8th meeting of the Computer Laboratory Buildings and Environment Committee
held on Wednesday 12 September 2018 at 10:00am in Room SW00.

Present: Mr Ian Burton-Palmer (IBP)
Miss Claire Chapman (Secretary) (CLC)
Professor Ian Leslie (IML)
Professor Simon Moore (Chair) (SWM)
Mr Martin McDonnell (MJM)
Mrs Caroline Stewart (CS)
Dr Graham Titmus (GT)

The Committee welcomed Professor Simon Moore as the new Chair of the Committee

1. Apologies for Absence

Dr Piete Brooks
Mr Brian Jones

2. Minutes of the Previous Meeting

The minutes from the meeting held on 22 June 2018 were approved.

3. Matters Arising

Matters arising from the previous minutes are included in Agenda items below.

- i. IML requested that *Electricity Devolution* is added to Item 9. Any Other Business

4. Reducing Energy Consumption

i. Clearing of SE14, SE18 and SE21 (GT & CS)

- o ***Fitting of chilled beam in SE21 before converting to office space (IBP)***

IML advised that it would not be necessary to fit a chilled beam, as the office has an opening window and there should not be enough computers in the room to overheat it. It was agreed to monitor this when the room is in use and to action only if it is felt a chilled beam is needed.

ii. Crane to remove the chiller in SE18 once room cleared (IBP & GT)

GT reported that SE18 is almost cleared. It was felt that a realistic timeframe for using the room would be December 2018. Adcock's will do the decommissioning of the air conditioning unit and arrange for a crane to be booked, MJM will then do the refit. CS suggested that the room may be better used as lab space for Rafal Mantiuk but this is something that needs further consideration and discussion with the occupants of SS and SC corridors.

Action: GT, IBP, CS and MJM

iii. Type and design of a new Chiller

IBP had obtained two energy certificates and reported that in 2017 our usage was 98 kWh/m²/year and in 2018 it was 102 kWh/m²/year. IML did not consider the certificates to provide very meaningful information as the variation in usage was so small. IML agreed to liaise with EM regarding the proposed specification for the proposed chiller and will circulate information to committee members for comments.

Action: IML

5. Passive Cooling

i. Access Hatches Quotation for Stairways *Trial run of opening the roof vents (BDJ & MJM)*

The trial run of opening the roof vents in July 2018 resulted in a 2°C drop in temperature. IML reported that passive cooling does reduce the running costs, but we need further experimentation in particularly hot temperatures to discover what works best and what adaptations to make. It was agreed that any design of new hatches should include motorised openings to cope with rainfall.

IBP reported that the chilled beam is currently running at 18°C in order to trial run the new chiller. IBP had obtained a quote for motorised hatches but the committee decided to defer the decision until the next meeting.

ii. Curtain wall window installation *Update of windows to manual opening (IBP)*

IBP reported that the cost to change all the windows below to manual opening would be £117,000.

SW00 all top level windows (x 2 high)
SW01 all top level windows
SW02 all top level windows
SW04 all top level windows

Addendum:

Lise Gough has requested if windows can be inserted into the SW02 wall (looking into the Atrium/courtyard) so that natural daylight can be introduced into the room. IBP reported that this is a supporting wall, but this matter will be discussed outside of the committee by SWM, GT and IBP in order to prioritise this work.

Action: SWM, GT and IBP

6. Building Matters

i. Fitting mains extensions from the projection booth to power cameras (IBP)

BDJ has marked up where the electric points should be fitted. MJM will fit these points once all quotes have been received. IBP will chase the outstanding quotes.

Action: IBP & MJM

ii. Kitchenette refurbishments

It was agreed that IBP will report at the next meeting if there are any kitchenettes which need to be refurbished urgently.

Action: IBP

iii. Trial run of 1 LED and BSS report (BDJ & IML)

o Readdressing SW02 poor lighting

IML reported that 1 LED unit has been fitted in SW02. He felt the lighting is effective but it produces a glare, which should be easily resolved with the addition of a diffuser. CLC reported that BDJ has made 18 LED sets (*BDJ redacted the initial number from 24 sets to 18 sets*). It was agreed CLC should contact BDJ to ascertain their location as the committee felt as a short term solution they should be fitted before the start of term. IBP stated that EM should fit them to ensure all the necessary regulations are obtained.

Action: CLC and IBP

iv. Sourcing Office LED Lighting – Has the HoD granted approval for work to go ahead? (CS)

IBP said that the trial carried out on the GE Corridor has been successful with all lighting and emergency lights working. It would cost approximately £30,000 to install LED lighting in the SN corridor. CS said that she still needed to seek Andy Hopper's permission as the ceiling that was adapted for the BAT system needed to be used.

Action: CS

v. Employing cleaners directly rather than having a cleaning contract.

CS reported that the HoD agreed that the decision should be made by the Committee. CS said she will contact DAMTP and Physics who are reported to employ their own cleaners to obtain their advice on how well this works and will report back at the next meeting.

Action: CS

vi. Cycle Park Report

CS reported that this is on hold due to the proposed redevelopment of the cycle path on JJ Thomson Avenue.

The Committee agreed that we should still provide provision for cargo bike stands and asked IBP to obtain quotes for erecting some stands under the roof canopy near the student entrance to the building.

Action: IBP

vii. Green Impact Suggestion

To install a hot cup in each kitchenette

IBP reported that hot cup machines for all the kitchenettes had been purchased. It was agreed that we should initially do a trial run on the 1st floor and remove each kettle so that solely hot cups in each kitchenette are provided. If no complaints are received, then we will extend this throughout the building. CLC suggested that a poster promoting the efficiency and environmental benefits of the hot cups should be displayed in each kitchenette as this may help ward off complaints.

Action: IBP

viii. Intel Lab Ceiling (bowing panel)

IBP is monitoring the panel every week and no movement has been found. He will continue to take a weekly measurement.

Action: IBP

ix. Vent Leak on 2nd Floor

BBC Fire are meant to be resolving this. MJM will chase them up and give a report at the next meeting.

Action: MJM

x. The refurbishing of SC30 Print Room to a Store Room (IBP)

IBP has received 1 quote and will chase the other 2 companies. IBP agreed to let SWM have a copy of the proposed design.

Action: IBP

xi. The Fire Strategy - proposed date when EM will be rewriting the Fire Strategy for the building

MJM has not received any response to his enquiry to EM and will chase them for a proposed date.

Action: MJM

xii. Electrical Shutdown

The committee agreed that the shutdown should take place at 0800 on Tuesday 18 December 2018.

xiii. Office Recycling

HoD proposal to have office bins with lids and labelled accordingly

IBP reported that the cost of 3 separate bins in each office would be ~£20,000 and would also incur extra labour to empty each bin.

IML suggested removing all bins from offices and having 3 separately labelled bins in each alcove. It was agreed the kitchenettes are too small to accommodate 3 bins.

SWM proposed that this issue should be raised at the Wednesday Staff Meeting to obtain feedback before action is taken.

Action: CS & SWM

7. AV Matters

- i. No Business

8. Committee Budget

i. Charge code for committee

CS reported that it would be preferable for expenditure to be approved as items were approved by the Committee. She could approve smaller works but any items requiring significant expenditure should be approved by the HoD.

9. Any Other Business

i. Watering of plants in courtyard – EM guidance on gardening maintenance in hot weather (IBP)

IBP reported that he has dismantled the irrigation system and this item can therefore be removed from the agenda.

ii. Electricity Devolution

IML reported that the pilot scheme in 2017 was not continued due to lack of communication about what information was required. IML reported that he felt we should opt in to the proposed ghost scheme, working with the baseline that had already been agreed. IML agreed to discuss this with Sally Pidgeon.

Action: IML

iii. Solar Panels on Roof

This item will be added to the next agenda and IML will give a report.

Action: CLC

iv. SW20 Powerbox in Intel Lab

IBP reported that the wiring outside of the powerbox is an electrical hazard. PB and IML are involved with this and it was agreed we should ask BDJ if he can rewire the box so all cables are inside the box.

Action: BDJ and IML

10. Date of next meeting

The next meeting of the Committee will be arranged for December by Doodle Poll as CS noted that SWM is on sabbatical leave in Lent 2019.

Specifications Sheet for works to be undertaken at

The William Gates Building/W046

15 JJ Thomson Avenue

Cambridge

CB3 0FD

Spec Sheet 020 02/11/2018

Specifications for Removal and Decommissioning of Air Conditioning from SE18 and Roof Mounted Units from GN09 at the same time

1. The main works will be to de-gas & de-commission the A/C units that are currently sitting in SE18. Fitted in 2009. The works will be to remove both the indoor units inside SE18 and the roof-top units sitting on the roof of the building just above SE18.
Each of the three indoor units had to be delivered by crane to the Second Floor South Balcony and then moved on wheels into SE18. So it will require a reversal of the procedures to get the A/C units back out again.
2. At the same time that these large units are being removed, we would like four (4) other heat exchangers to be removed from the roof of the building. These are older units fitted in 1999 as construction was completed. They are also quite a bit smaller than any of the A/C units from SE18 so I am hoping that the crane will not have to re-site to be able to pick them up and remove them from the roof. This together with the removal of a small standalone A/C system from SE23 will form most of the removals/decommissioning works.
3. These works should also include the removal and disposal of these old units by Skilled Air Conditioning Contractors as well as the collection and capture of the gases from these units.

4. An assessment of the works can be assisted by the Facilities Manager who was on site when the units were delivered to site in 2009, so he will be able to explain the procedures that need to be checked before the crane is instructed. Crane works may be included in the quote for the works, if this is possible.
5. Risk Assessments and Method Statements should be provided before any works are due to take place on site at the William Gates Building.
6. All works are to take place with the following people notified in advance;

Tim Jones / James MacKenzie / Chris Cornell / Andrew Kerley

Please contact Ian Burton-Palmer if you have any questions about the works as set-out in these specifications.

Tel 01223 763662

07775 780625

Specifications Sheet for works to be undertaken at

The William Gates Building/W046

15 JJ Thomson Avenue

Cambridge

CB3 0FD

Spec Sheet 022 22/10/2018

Specifications for Fitting Electrical Controls
to the
Windows on Each Balcony
at
the Rear of the Building

1. Fit an electrically operated motor to each of the three (3) windows that currently have opening windows fitted on each of the three (3) Balconies.
2. These should be controlled by sensors that are monitoring the temperatures along each of the Corridors with one (1) sensor approximately half way down the corridor so that an even coverage of the temperatures are used in the calculations.
3. Each of the sensors should be connected to a BMS/Trend or the existing Honeywell System so that the operations can be seen and identified as working or not, or even controlled independently from the BMS System.

4. The calculation for the way in which each unit works should be divided into 2 set-points and dwell periods for the opening and closing of each window.
5. Each window should open half way as the temperatures reach 23 degrees.
6. Each window should open fully as the temperatures reach 25 degrees.
7. A dwell period should be introduced so that they do not close until the temperature drops by two (2) degrees. So as the temperature reaches 23 degrees from 25 degrees, they will close to half way. As the temperature reaches 21 degrees they will close fully.
8. These settings or set-points should work well with the existing systems and set-points for heating and cooling around the building.
9. I am only aware of one Contractor who is able to make the windows work in such a way at the moment, so to gather three quotes for these works I will be talking to Estates about how to go about gaining three quotes for this sort of work.
10. Provided all this is acceptable to the Buildings Committee I'll be talking to the Surveyor to find out more about the types of permissions we need to proceed.

Please contact Ian Burton-Palmer if you have any questions about the works as set-out in these specifications.

Tel 01223 763662 or e-mail ib253@cam.ac.uk

07775 780625

Specifications Sheet for works to be undertaken at

The William Gates Building/W046

15 JJ Thomson Avenue

Cambridge

CB3 0FD

Spec Sheet 024 08/11/2018

Creation of Windows into the Atrium

From SW02

1. Having spoken to Lise I am sure that I understand what is required to improve the room. Lise really wants more light/natural light to enter SW02 and this will help to improve the atmosphere of this area of the Department for the mphil users of the room.
2. The windows are proposed to be the same sizes as the existing windows in the courtyards that can be seen from SW02. So as we walk along the walkway on the second floor the natural line of the windows that are proposed, would follow the same line as the existing windows that are visible, making the creation of these extra windows look like they should have always been in place.
3. The construction will involve Estates Surveying Team as always, and I will be guided by them provided the Specifications are approved by the Buildings Committee.
4. The glass will be a half-hour fire retardant glass on the inside of the room. However, the glass that could be fitted to the outer or Atrium side of the windows, could be a section of glass that we have in stock as spares, so some savings could be made. Each of these outer sections of glass is double glazed so with three section of glass included this would help to reduce any sound carrying through into SW02.

5. The wall will have to be scanned for services before we make any changes. This is to ensure that we do not disturb any existing services as well as ensuring that we construct the windows well away from the main beams holding up the glulam beams.
6. An exact height of the windows needs to be configured and British Gypsum Advice will need to be sought regarding the construction of the brace that will need to be built to ensure the integrity of the rest of the wall from the top of the windows to the existing roof level.
7. Once all is agreed, tender processed and the contractor instructed, they will be advised about construction of the window frames to match the existing both inside and out, as well as making good the walls upon completion of the project.
8. Part of the Specifications are that Standard Window Blinds can be fitted to the windows so that in times that the sunshine can obscure the visibility of screens inside SW02, blinds can be lowered, just as they do in the rest of the buildings offices.
9. This project will require the approval of the Buildings Committee and the Specification need to be approved by EM as well as confirmation of funding before anything can be started.

Please contact Ian Burton-Palmer if you have any questions about the works as set-out in these specifications.

Tel 01223 763662

07775 780625

Section 6 Pricing Schedules- NLW April 2019

Contract No UCAM 006/15

- 1 The University does not normally enter into post tender discussions on price.
- 2 Tenderers must price for everything necessary for the supply of goods or services including without limitation any necessary training.
- 3 To enable the University to have the full benefit of the goods and/or services, any discounts, trade allowance of every kind and the time required for delivery should also be stated.
- 4 A separate Pricing Schedule should be completed where alternative options, equipment, goods or services are being offered.

6a) Summary of Prices								
Every item shall be priced in sterling (GBP) and the submission totalled.								
	Hours per day	Rate of pay per hour	Employers NI&Nest Pension/Sick Pay per week	Holiday pay cost per week	Employee total cost per week	Number of staff at this grade	Total cost per week	Total cost per 4 week period
Daytime Cleaning Operative	8	£8.22	£17.65	£35.18	£381.63	1	£381.63	£1,530.62
Evening Cleaning Operative	3	£8.22	£6.61	£13.19	£143.10	6	£858.60	£3,443.64
Site Supervisor	3	£9.58	£7.71	£15.37	£166.78	1	£166.78	£668.91
Other	-	-	-	-	-	-	-	-

Cleaning Materials - cost per 4 week period (these should be detailed in Section 6e)	£161.94
Cleaning Consumables - cost per 4 week period (these should be detailed in Section 6f)	£594.68
Equipment - cost allowance per 4 week period (these should be detailed in Section 3g)	£124.23

Other items - cost / allowance per 4week period (these should be detailed in Section 3h)	0.00
Administration / Management per 4 week period	£388.46
Profit per 4 week period	£155.99
Total cost per 4 week period	£7,068.47
Total Annual Cost	£91,890.11

PV's for the roof of the WGB

The works to replace the roof membrane and several timbers/glulam beams is about to take place. 2020/2021? This work is sponsored by EM and arranged by EM from funding arranged by EM.

They are asking the Department if it would like to fit PV's to the roof shortly after the major works to the roof and timbers are completed. The reason they ask this is because in order to fit the low profile PV units the fittings will have to be incorporated into the new roof membrane.

The first proposal is to have 112 PV's mounted onto the high level roof at a cost of around 40 – 50k.

As a secondary fitting, we could have another 112 PV's fitted onto the roof of each of the Corridors. The disadvantage of doing this at a later stage is that the switch-gear will need to be changed and updated again because it is dealing with a larger load. The switch-gear is a large part of the cost. It may work out cheaper to fit all PV's at the same time and fit the correctly loaded switch-gear at the same time, rather than try to split the system into two halves and incur the extra charges for labour and parts. We also have to allow time for planning for the extra corridor mounted PV's because they will not be quite the same fitting at low-profile and will stick-up at an angle and will be visible from the surrounding area. Planning takes between 6 – 9 weeks. If it gains planning permissions we could then double the amount of PV's fitted here. The estimated cost for doing the first and second fitting (224 PV's fitted) would be in the region of 90 – 100k.

The time frame for any payback is worked out on a 10 – 12 year payback period.

EM are asking if the Department would be interested, and have the funding for such a project.

The power from these panels would be used locally. It is not possible to store or to transfer power back to the grid at this time. So in effect the savings made would reduce the amount of power drawn from our own Transformer because all the power from the panels goes directly to our Transformer. The more panels we fit the more power we save.

A 30kWp (kW peak) PV array on the roof here (112 panels) would give 27,000kWh of electricity per year, which equates to £3,240 in monetary terms that the Department would not have buy from the grid. By fitting 224 panels this figure would double to around the £6,500 figure.

30kWp of PV is a tiny amount for such a large building. The peak daily power consumption is typically around the 190kW. So we have a long way to go to get anywhere near our full consumption.