University College London Hospitals NHS
NHS Foundation Trust

Demolition of the existing buildings and redevelopment for a building of 6 storeys in height including ground and 3 storeys basement, for use a specialist head and neck facility (Class D1)

Former University College London (UCL) Student Union and Royal Ear Hospital, Huntley Street, Bloomsbury

# BREEAM Planning Report

February 2015

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# 1 Introduction

Arup have been appointed by University College London Hospitals (UCLH) NHS Foundation Trust to undertake the Building Research Establishment's Environmental assessment Method (BREEAM) services for their proposed new Outpatient Hospital facility.

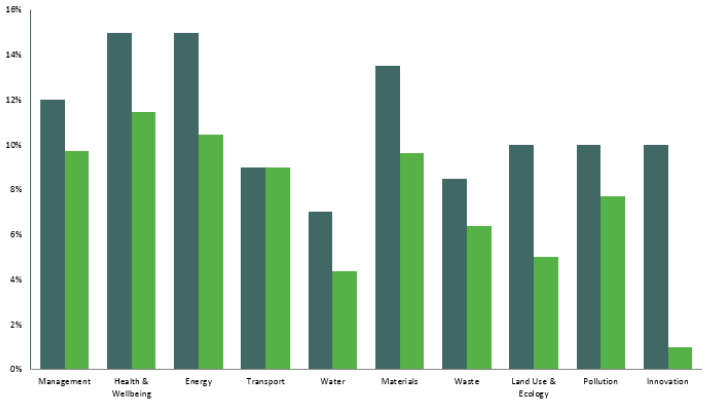
An initial workshop was held on 20th May 2014 with key members of the project team to determine which credits were likely to be achievable for the project. This was followed by a further workshop held on 29th January 2015, which updated the targeted credits, based on design progression.

This report sets out those credits and notes the assumptions made at this early design stage. It provides a route to the target BREEAM rating of "Excellent" which would require a score of 70% or above.

Some of the targeted credits are acknowledged as being difficult for the project and these will be carefully monitored as the design progresses into Scheme Design. At the beginning of Scheme Design, owners of each credit should be determined, to ensure that targeted credits are incorporated into the design going forward.

The project has been assessed under BREEAM New Construction (Healthcare) 2014.

The current predicted likely score for the project is 73.73% ("Excellent"). The graph overleaf shows how the project is performing against each of the BREEAM categories. Details of each credit can be found overleaf.




| Environmental Section | No. credits available | Indicative no. credits Achieved | % credits achieved | Section Weighting | Indicative Section Score |
|---|---|---|---|---|---|
| Management | 21 | 17 | 81.0% | 12.0% | 9.7% |
| Health & Wellbeing | 17 | 13 | 76.5% | 15.0% | 11.5% |
| Energy | 23 | 16 | 69.6% | 15.0% | 10.4% |
| Transport | 10 | 10 | 100.0% | 9.0% | 9.0% |
| Water | 8 | 5 | 62.5% | 7.0% | 4.4% |
| Materials | 14 | 10 | 71.4% | 13.5% | 9.6% |
| Waste | 8 | 6 | 75.0% | 8.5% | 6.4% |
| Land Use & Ecology | 10 | 5 | 50.0% | 10.0% | 5.0% |
| Pollution | 13 | 10 | 76.9% | 10.0% | 7.7% |
| Innovation | 10 | 1 | 10.0% | 10.0% | 1.0% |

# 2 Time-Critical Credits

Under the new BREEAM 2014 New Construction Scheme, a number of credits are time-critical, and need to be addressed at certain stages of the design, in order to be awarded. For this project, these credits are as follows:

## 2.1 RIBA Stage 2

The following credits need to be completed by the end of RIBA Stage 2:

**Ene04 Passive Design Analysis**

This credit requires the project team to carry out an analysis of the proposed building design/development to influence decisions made during Concept Design stage (RIBA Stage 2 or equivalent) and identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services.

The analysis should identify opportunities for the building to use passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption.

The design should incorporate the analysis and be able to demonstrate a reduction in the total energy demand of at least 5% of overall building energy demand and/or CO2 emissions.

*Responsibility: Mechanical Engineer with input from Architect.*

**Ene04 Low/Zero Carbon Technologies**

This credit requires a feasibility study to be carried out by an energy specialist to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development.

A local LZC technology/technologies must then be specified for the building/development in line with the recommendations of this feasibility study and this method of supply results in a 5% (minimum) reduction in regulated carbon dioxide emissions.

*Responsibility: Mechanical Engineer.*

**Wst05 Adaptation to Climate Change**

This credit requires the design team to conduct a climate change adaptation strategy appraisal for structural and fabric resilience. The team should carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages:

- Hazard identification
- Hazard assessment
- Risk estimation

- Risk evaluation
- Risk management.

*Responsibility: Architect and Structural Engineer.*

**Wst06 Functional Adaptability**

This credit requires a building-specific functional adaptation strategy to be undertaken by the client and design team, which includes recommendations for measures to be incorporated to facilitate future adaptation.
The proposed functional adaptation measures must then be adopted in the design by Technical Design stage (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor.

*Responsibility: Architect.*

## 2.2 RIBA Stage 3

The following credits need to be completed by the end of RIBA Stage 3:

**Hea02 Indoor Air Quality Plan**

This credit requires an indoor air quality plan to be produced, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan must consider the following:

- Removal of contaminant sources
- Dilution and control of contaminant sources
- Procedures for pre-occupancy flush out
- Third party testing and analysis
- Maintaining indoor air quality in-use

*Responsibility: Mechanical Engineer with input from Architect.*

**Hea04 Thermal Comfort**

This credit requires thermal comfort modelling to be carried out using software in accordance with CIBSE Applications Manual AM11 *Building energy and environmental modelling*. The software used to carry out the simulation at the detailed design stage must provide full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11). The modelling must demonstrate that:

- For air conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type).

- For naturally ventilated/free running buildings, winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type).
- The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort; avoiding overheating in European buildings

The thermal modelling must also demonstrate that the relevant requirements set out above are achieved for a projected climate change environment.

Where thermal comfort criteria are not met for the projected climate change environment, the project team must demonstrate how the building could easily adapted in future using passive design solutions in order to subsequently meet the requirements.

*Responsibility: Mechanical Engineer.*

# 3 Detailed Credit Review

The following pages detail the performance and assumptions for each credit.