BURO HAPPOLD

Haringey Civic Centre
Sustainability and BREEAM Strategy Report

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1 Sustainability and BREEAM strategy

1.1 Executive Summary

Sustainability is a key driver for Haringey. Contributing to a sustainable future is one of the key five points of the client's brief and is the bed rock of Haringey Borough's policies.

This report details the sustainability and BREEAM strategy for the Haringey Civic Centre refurbishment and New Annex building. This Sustainability Statement considers the various sustainability policy requirements and targets for development and describes the strategies proposed to deliver a sustainable development. Key strategies to achieve the various targets and requirements and deliver sustainable outcomes over the lifecycle of the project are detailed below following Haringey's 'Going Green' strategy:

1. Improving the urban environment

a. The development classifies as less vulnerable in terms of flood risk. The site lies in Flood Zones 1, which is defined as having low risk of flooding. The flood risk assessment shows that the combined discharge of foul and surface water from the proposed development is a reduction from the existing combined rate. The risk of surface water flooding and flooding from combined sewers is therefore considered to be low with the proposed foul and surface water drainage strategy. In addition, it is considered that the attenuation to restrict surface water discharge to match the greenfield run-off rates will offer a degree of betterment to the existing condition of the site.

2. Protecting the natural environment

a. The proposed development has potential in around the local landscape to protect the natural environment through the enhancement of the biodiversity. The development includes habitat creation in the courtyard, rain gardens, the woodland garden and green roofs. Indicative planting mixes have been proposed with species either native and/or attractive to wildlife, particularly those species currently identified to be threatened.

3. Managing resources efficiently

a. A strategy has been developed to promote resource efficient construction; facilitate reuse and recyclability; use materials with low embodied carbon & water; use responsibly sourced materials; optimise durability and lifespan; and design flexibility.

b. A strategy has been developed to reduce water demand through water efficiency measures. The development is targeting 5 credits for BREEAM issue Wat 01, achieved through the use of efficient water fittings. The use of metering not only allows water consumption to be monitored but indicates leakage or excessive use due to malfunctioning fittings.

c. A strategy for waste reduction and promotion of recycling has been developed which follows a waste hierarchy to minimise waste and promote recycling during operation and construction. Options for prevention and reduction, as well as an increase in recycling, in an office environment have been identified. Construction waste has also been considered, to maximise re-use where possible.

4. Leading by example

a. Sustainable targets have been developed and taken from the client brief to ensure this development has net zero carbon at the focus of the design and whole life carbon is considered in the design process.

b. The design includes measures that will help mitigation of and adaptation to climate change. Mitigation measures include energy efficiency; approaching waste using a circular economy model; reducing embodied carbon; low energy lighting; and sustainable transport strategies. Measures to adapt to future climate change include planned assessment of the risk of overheating in higher temperatures.

5. Ensuring sustainable design and construction

a. An energy strategy has been developed and is detailed in the separate Energy statement. It follows the GLA energy hierarchy; first applying lean measures such as consideration of highly efficient fabric and low air tightness of the building to reduce energy consumption, before then applying efficient systems and renewable technologies. The development is driving towards a Net Zero Carbon target. The New Annex achieves a carbon dioxide emissions reduction of 52% below the Baseline. This is a significant reduction, exceeding the current London Plan target of a 35% reduction through on-site measures. The existing building refurbishment design has been compared to the current building performance and improves by 80%, as an exemplar example of retrofitting.

6. Promoting sustainable travel

a. The development has excellent public transport links and compliant cycle parking and facilities. A transport report has been produced as part of the planning package to define and demonstrate the sustainable transport initiatives that the development is committed to.

7. Raising awareness and involvement

a. A BREEAM UK Bespoke Assessment has been chosen as the preferred approach to address the implementation of sustainability measures into the project. This was driven by the more complex nature of the Civic Centre development including both refurbishment and extension elements. At this stage the BREEAM strategy has been carried out demonstrating that an 'Outstanding' score of 89.97% should be readily achievable for the building by targeting the credits outlined as 'low risk'. Another 3.99% of credits are rated as having a 'high risk'. These credits are being investigated further for feasibility with the aim of adding to our buffer above BREEAM 'Outstanding'.

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1.2 Sustainability Policy

1.2.1 Policy Overview

Strategic planning in London is a shared responsibility of the Mayor of London, London Boroughs, and the Corporation of the City of London. The London Plan is the spatial development strategy for London, produced by the Greater London Authority on behalf of the Mayor of London. Every London Borough Local Plan must be in general conformity with the London Plan. The Site is in the London Borough of Haringey and as such is subject to their planning policy and guidance. For sustainability, a key guidance document is the Haringey's development plan. Haringey's development plan is currently made up of the Strategic Policies, Development Management Policies, Site Allocations and Tottenham Area Action Plan, alongside the London Plan. The council is currently preparing two additional plans, the Wood Green Area Action Plan, and the North London Waste Plan, and once adopted will form part of the development plan.

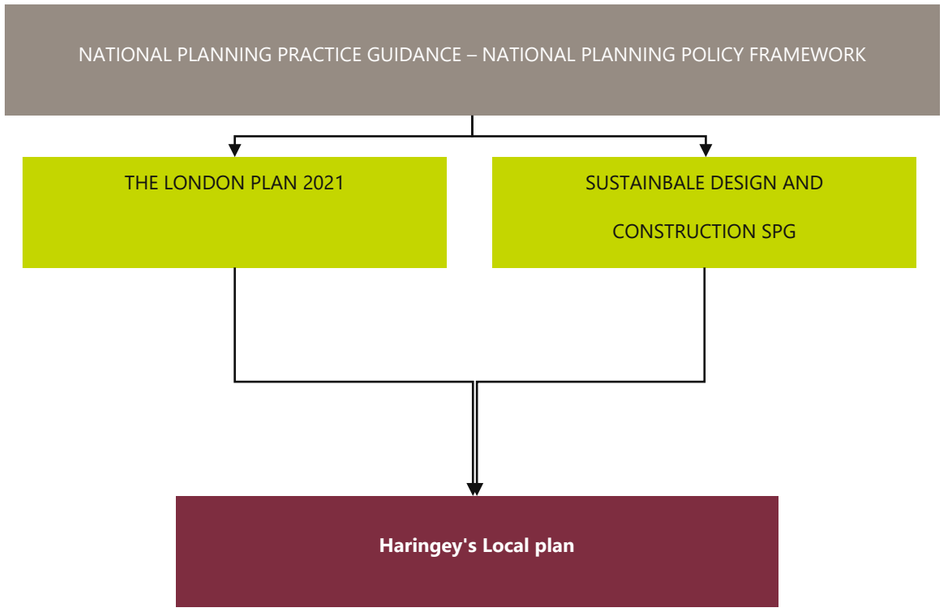

Figure 1—1 Summary of planning policy framework of the GLA and London Borough of Haringey

A New London Plan was published by the Mayor in March 2021, with the New London Plan policies have been incorporated for this energy strategy. Please refer to the following sections for details on the New London Plan policies considered for the Haringey civic centre refurbishment project.

1.2.2 National Policy

1.2.2.1 The United Nations Paris Climate Agreement

The Paris Agreement is a major international climate action agreement to which the UK is signatory. The 196 countries under the agreement have committed to limit global warming to 2°C over pre-industrial levels and aim to safely adapt to any consequences of climate change. The UK ratified this in 2016.

1.2.2.2 Climate Change Act

The Climate Change Act 2008 established a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% below 1990 levels by 2050. To drive progress and set the UK on a pathway towards this target, the Act introduced a system of carbon budgets which provide legally binding limits on the amount of emissions that may be produced in successive five-year periods, beginning in 2008.

The first three carbon budgets were set in law in May 2009 and require emissions to be reduced by at least 34% below base year levels in 2020. The fourth carbon budget, covering the period 2023–27, was set in law in June 2011 and requires emissions to be reduced by 50% below 1990 levels.

The fifth carbon budget was set in 2016. It limits UK greenhouse gas emissions from all sources, excluding international aviation and shipping, to 1,725 MtCO2 between 2028 and 2032. This is equivalent to a 57% reduction in annual UK emissions over this period on average, relative to 1990 levels.

1.2.2.3 Electricity grid decarbonisation

The UK became the first major economy in the world to pass laws to end its contribution to global warming by 2050. The target will require the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels.

The carbon intensity of electricity in the UK has been reducing from 0.519 kg CO_2/ kWh to 0.233 kg CO_2/ kWh as per SAP methodologies 2012 and SAP 10. This is due to the closure of coal fired power stations and the increase in renewable energy. As a result, electricity is becoming a more feasible lower carbon fuel source compared to traditional gas combustion. This is also resulting in Gas fired CHP engines not providing the long-term carbon savings shown previously and going forward will be a high carbon technology based on Part L. These changes result in a difference in Part L carbon reductions shown by recent developments and for new ones coming forward now.

London Plan Policy is looking to push towards the future of low carbon heating, and therefore the GLA ask for the SAP 10 carbon factors to be used as these provide the most accurate representation of the latest carbon intensity of the grid.

1.2.3 Regional Policy

The Mayor of London formally adopted the London Plan on March 4th, 2021. This new London Plan now forms part of the development plan, against which development proposals in London are assessed against.

Key Policies surrounding sustainability are summarised below.

- Policy SI1 Improving air quality
- Policy SI2 Minimising greenhouse gas emissions
  - A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major developments. Non-residential development should achieve 15 per cent through energy efficiency ("Lean") measures.
  - The GLA requires the zero-carbon target to be achieved with a minimum 35% savings on-site, beyond the notional Part L 2013 baseline. The remaining carbon emissions (typically 65%) are offset through a cash in lieu payment to Haringey or offset through off-site measures, where possible. The money is used to fund carbon reduction projects in the Haringey boundary. This payment has to account for 30 years of carbon emissions at a fixed rate of cost and carbon intensity.
- Policy SI3 Energy infrastructure

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1.2.4 Local Policy – LBH Development Plan

The LBH local plan currently encompasses two main documents to set out a number of policies applicable to developments in the Haringey area. The local plan sets out goals across all elements of sustainability and energy spectrum. These policies are typically in alignment with the New London Plan (2021).

1.2.4.1 Strategic Policies 2013 – 2026

- Strategic Policy SP4
  - From 2011 onwards all new non-residential development shall be built to at least BREEAM "very good" standard and should aim to achieve BREEAM "excellent" or the current nationally agreed standard. All new non-residential development shall be zero carbon from 2019. *
  - All new developments are required, where viable, to achieve a reduction in predicted carbon dioxide emissions of 20% from onsite renewable energy regeneration, which can include connections to local sources of decentralised renewable energy.
- Strategic Policy SP5
- Strategic Policy SP6
- Strategic Policy SP7

1.2.4.2 Development Management DPD 2017

- Development Management Policy DM 9
- Development Management Policy DM 21
- Development Management Policy DM 22
- Development Management Policy DM 23
- Other development Management Policies (related to environmental sustainability)
  - DM 24 Managing and reducing flood risk
  - DM 25 Sustainable drainage systems
  - DM 26 Critical drainage systems
  - DM 27 Protecting and improving groundwater quality and quantity
  - DM 28 Watercourses and flood defences
  - DM 29 On-site management of waste water and water supply
  - DM 30 New waste facilities

1.2.4.3 Supplementary Planning Documents (SPDs)

The Local Plan alongside the London Plan are the key planning documents for Haringey. Much of the detail to support Local Plan policies is contained in accompanying documents called Supplementary Planning Documents (SPDs).

Supplementary planning documents expand on the council's adopted policies to provide more detailed information than can be contained in the policies themselves. They give guidance to the public, applicants and developers when making planning applications.

1.2.4.4 'Going green' Haringey's Greenest Borough Strategy 2008 – 2018

Seven priorities with related outcomes have been identified to help Haringey city council to achieve their vision.

1. Improving the urban environment

a. Safe and sustainable streets, buildings and urban spaces which foster a sense of local pride and that people want to use.

2. Protecting the natural environment

a. Valued and protected green spaces and natural habitats.

3. Managing environmental resources efficiently

a. Reduced consumption and pollution of natural resources.

4. Leading by example

a. Environmentally sustainable public services.

5. Ensuring sustainable design and construction

a. Lower carbon emissions from homes and buildings while providing thermal comfort.

6. Promoting sustainable travel

a. Improved, safe, accessible travel with reduced environmental impact

7. Raising awareness and involvement

a. Empowered local communities that create an environmentally sustainable future

1.2.4.5 London Borough of Haringey Zero by 2050

The Mayor of London has stated his ambition for London to be zero carbon by 2050. Haringey is clear in its determination to lead among London boroughs in delivering that vision.

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1.3 Leading By Example – Project targets

1.3.1 Project context

The project includes a refurbishment of the listed civic centre building and the development of a new annexe. These connect via the west wing of the civic centre and an additional link towards the north of the buildings.

The client aspires to develop a zero-carbon building without the use of off-site carbon offsets. Therefore, the passive design and building services strategies have been developed to push the sustainability and low energy credentials as far as possible. Additionally, BREEAM credits are a significant driver in the MEP services design conditions and standards.

The existing civic centre has many listed features including the overall design of the façade. Whilst some interventions are possible and will result in a significant improvement in occupant comfort, energy performance and carbon emissions, Buro Happold understand that this will be challenged by conservation requirements. Sustainability has been a key informer in conversations on Heritage and balancing the two areas is paramount to a successful scheme. This does mean that for the existing building, the upgraded building fabric will not perform as well as the new build annexe, which will incorporate a London Energy Transformation Initiative (LETI) standard façade design. However, retaining, refurbishing, and improving the existing building is a far more sustainable practice compared to demolishing and replacing it with an embodied carbon intensive new build and so should be noted in any wider sustainability discussion.

The different characteristics of the two buildings, and the listed nature of much of the civic centre necessitates different HVAC strategies for each building. For instance, the annexe building's façade can be optimised to provide good daylighting, minimise overheating and deliver ventilation through efficient system design – this is a very low energy approach. Whereas the civic centre's listed façade precludes some changes including the optimisation of glazing, hence the MEP systems must respond with a greater extent and a higher energy approach. Furthermore, the spatial constraints in the civic centre limit the size of MEP installations which consequently limits plant efficiencies.

1.3.2 Energy and Carbon targets

1.3.2.1 Energy performance definitions

As yet there is no single, authoritative definition of the various classification levels for very low energy buildings. Definitions for the Civic centre and new annex project have been developed based on consideration of the London Plan, UK Green Building Council (UKGBC), Royal Institute of British Architects (RIBA), and Low Energy Transformation Initiative (LETI) definitions. These have been discussed with Haringey's carbon officer and reviewed to form the updated briefing document.

Table 1—1 Haringey Civic Centre and New annex development key sustainability targets

Target	Existing Civic Centre	New Annex
Net Zero Carbon Target	Net Zero 'London Plan' (regulated carbon). Net Zero carbon – Operational (regulated and unregulated) by 2027 (or construction completion)	
Offsetting - Mandatory	London Plan 'Offsetting': cash in lieu payment or funds towards a carbon reduction project to cover at least 80% of regulated carbon (see on site reductions % improvement on Part L in 'Regulated Carbon'). This will be based on £95/ tonne CO2 which is current price. Exact figure will depend on planning scheme analysis and price of carbon at the submission date.	
Net Zero Carbon – Operation (UKGBC)	Net Zero Carbon - Operation (UKGBC) - "When the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset."	
Offsetting – best practice	Annual purchase of off-site renewable energy generation (with additionality) to match regulated and unregulated operational energy use. [Assumes the following has taken place: Set an energy in-use target related to industry benchmarks. Commit to providing a minimum % of energy through on-site renewables (see below)]	
Net Zero Carbon Construction (UKGBC)	Net Zero Carbon - Construction (UKGBC) - "When the amount of carbon emissions associated with a building's product and construction stages up to practical completion is zero or negative, through the use of offsets or the net export of on-site renewable energy."	
Offsetting – best practice	One off payment for offsetting can be made in relation to Upfront Carbon emissions (A1-A5). Scheme to meet qualities described in UKGBC Renewable Energy Procurement and Carbon Offsetting guidance 2021. [Assumes the following has taken place: Set an embodied carbon target related to industry benchmarks. Commit to a post completion, third party verified embodied carbon assessment following practical completion.]	
Total embodied carbon limits (life cycle stages A-C excluding B6 and B7)	Campus wide target: RIBA 2030 Climate Challenge Target 2030 (New build office) < 750kgCO2e/m2. New build target: RIBA 2030 Climate Challenge Target 2025 (New build office) < 970kgCO2e/m2.	
Part L (2021) analysis - overall	Minimum 35% improvement over Part L2B (2021) target from Haringey Planning.	40% or over improvement over Part L (2021). This fulfils the GLA requirement for a minimum 35% reduction against Part L (2021).
Part L (2021) analysis - through energy efficiency measures only	Up to 15% improvement over Part L2B (2021)	To meet the GLA requirement for a minimum 15% reduction against Part L (2021) for a new build.
Site waste management plan	Condition survey to be undertaken prior to any strip out and responsible disposal plan scheduled including target % for landfill diversion as minimum.	n/a
Energy in use target (unregulated & regulated energy)	RIBA 2030 Climate Challenge V1 2019 Target Current Benchmarks (non-domestic) < 225 kWh/m2/yr	UKGBC Energy performance targets for net zero carbon operational energy 2025-2030 (maximum 90kWhr/sqm/ year)
Renewable energy (generation from ASHP & PV)	Minimum 20% renewable generation on site in compliance with planning policy	
External Envelope U-Value (w/m2K)	Minimum BR ADL 2B Req. (see table within 'MEP Basis of Design P03' (06.10.2022)) * To be based on conversations with conservation officer.	External wall- 0.15, Roof - 0.11, Exposed and ground floors - 0.12, windows (double) - 1.2
Air permeability (m3/hr/m2 @50Pa)	5	2.5

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1.4 Improving the urban environment -Flood Risk Assessment

The flood risk mitigation strategy has been developed according to best practice approaches to align with GLA London Plan Policies, and BREEAM. It considers the issues relating to flood risk and drainage associated with the development proposals. The purpose of this assessment is to determine how the development proposal affects flood risk both to the site and the surrounding areas and ensure the development will be safe for its lifetime taking into account the vulnerability of its users. This is in accordance with national guidance and local guidance provided by the London Borough of Haringey. The development classifies as less vulnerable in terms of flood risk. The site lies in Flood Zones 1, which is defined as having low risk of flooding. The flood risk assessment shows that the combined discharge of foul and surface water from the proposed development is a reduction from the existing combined rate. The risk of surface water flooding and flooding from combined sewers is therefore considered to be low with the proposed foul and surface water drainage strategy. In addition, it is considered that the attenuation to restrict surface water discharge to match the greenfield run-off rates will offer a degree of betterment to the existing condition of the site. For full details of flood risk and drainage refer to the Flood Risk Assessment.

1.5 Protecting the natural environment - Biodiversity

The proposed development has potential in around the local landscape to protect the natural environment through the enhancement of the biodiversity.

The key areas focussed on for planting are detailed below. Indicative planting mixes have been proposed. Species will be either native and/or attractive to wildlife, particularly those species currently identified to be threatened.

- The courtyard
  - This will include 6 trees, along with planters. These will likely be relocated existing memorial cherry trees.
- Rain gardens
  - Rain gardens have been proposed to the front of the Civic Centre and along the entrance of the Annexe. These will include a variety of grasses and perennials which will filter the rainwater.
  - A swale alongside the plane in Trinity Road is included which aids in the mitigation of flooding in severe weather conditions.
- Woodland garden
  - Retaining the existing variety of trees and supplement them with copse planting and a mixed understory of shrubs, perennials, grasses and ferns.
  - Retaining all healthy existing trees saves 30 tonnes of carbon and could add up to 60 tonnes when reaching full maturity. The new potential of carbon capture is generated by planting 14 trees.
  - The lawn will be frames by additional screen planting
- Green roofs
  - The green roofs will maximise species diversity through habitat features such as rope coils and sand lenses. Although inaccessible, these roofs provide a significant level of visual amenity to users on higher floors. They are located on the sub-station, bin store and generator.

The Urban Greening Factor will exceed the threshold of 0.3, the level now required for new commercial projects under the Mayors London Plan. The project is also seeking to achieve the 10% Biodiversity Nett Gain. Further information can be found in the Landscape and Ecology Report.

1.6 Managing resources efficiently

1.6.1 Materials Strategy

The material strategy focusses on:

- Reducing material consumption and waste
- Increase reuse and recycled content
- Facilitating reuse and recyclability at end of life
- Using materials and products with lower embodied carbon and embodied water
- Selecting materials that do not have any scarcity or source security issues
- Optimising durability and lifespan
- Designing in flexibility to adapt to changing needs

Where possible, material selection will be in accordance with the above. Each stage of the material hierarchy will be followed to minimise material use and the associated carbon emissions for the developments on site. Material efficiency is being reviewed by the whole design team at each stage. The materials strategy will be developed as the design progresses.

The concrete mix assumes a minimum cement replacement of 50% in elements. For PT slabs this will have some impact on the tensioning sequencing, however from conversations with contractors Buro Happold understand a 50% replacement rate is achievable, hence the current embodied carbon analysis is based on this 50% replacement assumption.

1.6.2 Water Strategy

The water management strategy is based on the premise that water should be used efficiently in order to minimise stress on water supply and reduce the associated energy consumption and carbon emissions from mains water treatment and supply. The proposed strategy shown in Figure 1—2 has been developed in accordance with BREEAM, and GLA London Plan Policies 5.13 and 5.15. The development is targeting 5 credits for BREEAM issue Wat 01, achieved through the use of efficient water fittings. The use of metering not only allows water consumption to be monitored but indicates leakage or excessive use due to malfunctioning fittings.

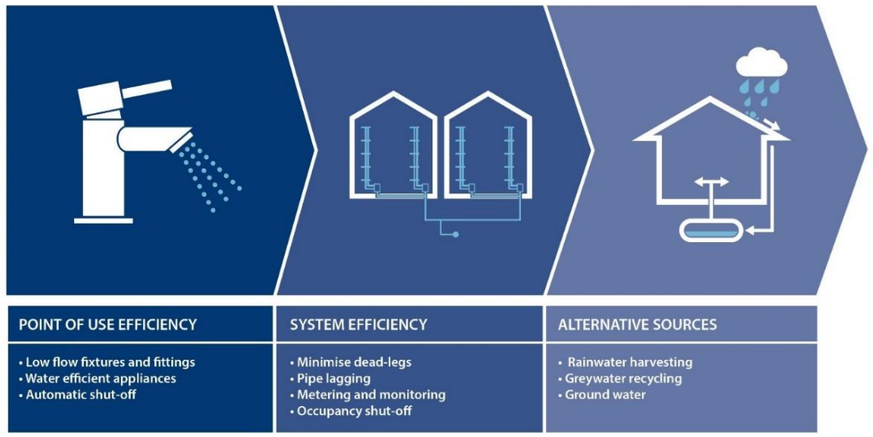

Figure 1—2 Water Hierarchy

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1.6.3 Waste strategy

A strategy for waste reduction and promotion of recycling has been developed which follows a waste hierarchy to minimise waste and promote recycling during operation and construction. Options for prevention and reduction, as well as an increase in recycling, in an office environment have been identified.

Haringey Civic Centre will prioritise the management of waste according to the principles of the waste hierarchy shown in Figure 1—3. The development will prevent and reduce waste generation in the first instance, before re-using, recycling or recovering value from discarded material. Only after these options have been deemed unfeasible will the safe disposal of waste in landfill be considered.

In line with the London Plan, the proposed development will also promote a circular economy as shown in Figure 1—4 and will aim to keep products and materials at their highest use value for as long as possible. The development will also aim to align with the London Plan targets of ensuring that zero biodegradable or recyclable waste is sent to landfill by 2026 and that at least 65% of operational waste is recycled by 2030.

More information can be found in the Operational Waste management Strategy Produced for the planning submission.

Figure 1—3 The waste hierarchy

Figure 1—4 Principles of a circular economy

1.7 Ensuring sustainable design and construction

An energy strategy has been developed and is detailed in the Energy statement. It follows the GLA energy hierarchy detailing how the New Annex and Existing Civic Centre will undergo a number of key measures, in line with the London Plan energy hierarchy and policy SI2.

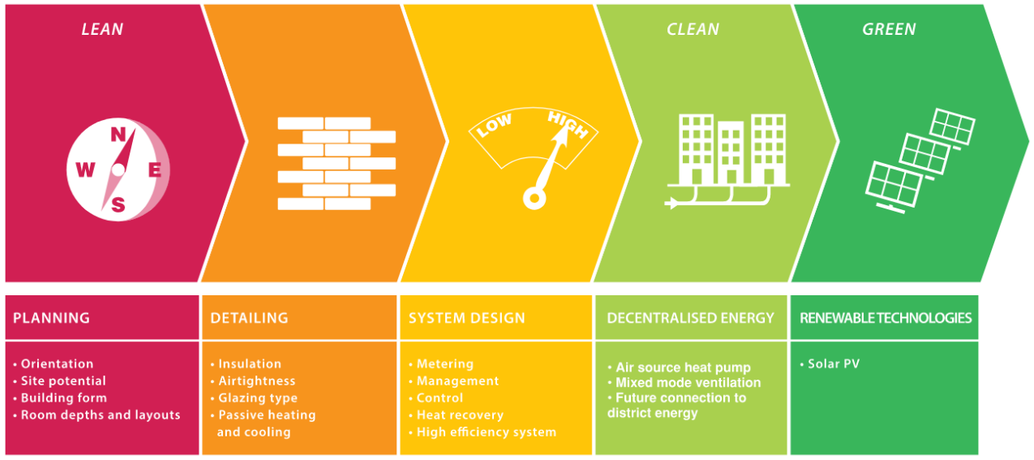

Figure 1—5 Energy Strategy

The key measures within the design strategy for the development to reducing carbon emissions in operation are set out below. By implementing this strategy, the development is compliant with the Building Regulations Part L notional building through Lean measures alone and exceeds the on-site carbon reduction target of 35% through supplementary Clean and Green measures.

The New Annex achieves a 47% improvement over the Notional Part L building. Additionally, the retrofit of the existing building improves the performance of that building by 80%

Table 1—2 Energy hierarchy design measures

Energy hierarchy step	Design measures
Lean	Façade configuration and specification designed to balance winter passive solar gains but avoid summer overheating
	Building fabric specification lower than Part L notional building and targeting LETI standards in the new building
	Low air permeability targeted
Clean	Installation of Air Source Heat Pumps for space heating, cooling and domestic hot water
Green	Photovoltaic arrays proposed on roof areas wherever feasible for renewable electricity generation
Net Zero	Residual regulated carbon emissions will be offset as per GLA London plan to achieve net zero regulated emissions
Be Seen	The metering strategy for all buildings will be designed in line with building regulations and GLA's 'Be Seen' guidance to ensure the building energy consumption can be interrogated and controlled

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1.7.1 Part L results

1.7.1.1 Overview

The Building Regulations Part L governs the conservation of fuel and power in both new construction and refurbishment of the UK building stock. Compliance with Building Regulations is a regulatory requirement for all new developments, and carbon emissions of a development comparative to compliance with Part L is the key performance indicator for many carbon targets, including those set out in the London Plan.

The Haringey civic centre is a grade II listed building undergoing a major refurbishment connecting to a new building.

The relevant Part L document is ADL V2: Building Regulation Approved Document Part L Volume 2: Buildings other than dwellings

The project was measured against the current Part L (2021). In line with the New London Plan policy S12.

1.7.1.2 New Annex

Intermediate targets for the new building are:

- A minimum on-site reduction of at least 35%,
- A minimum 15% through energy efficiency measures.

Results for the New Annex

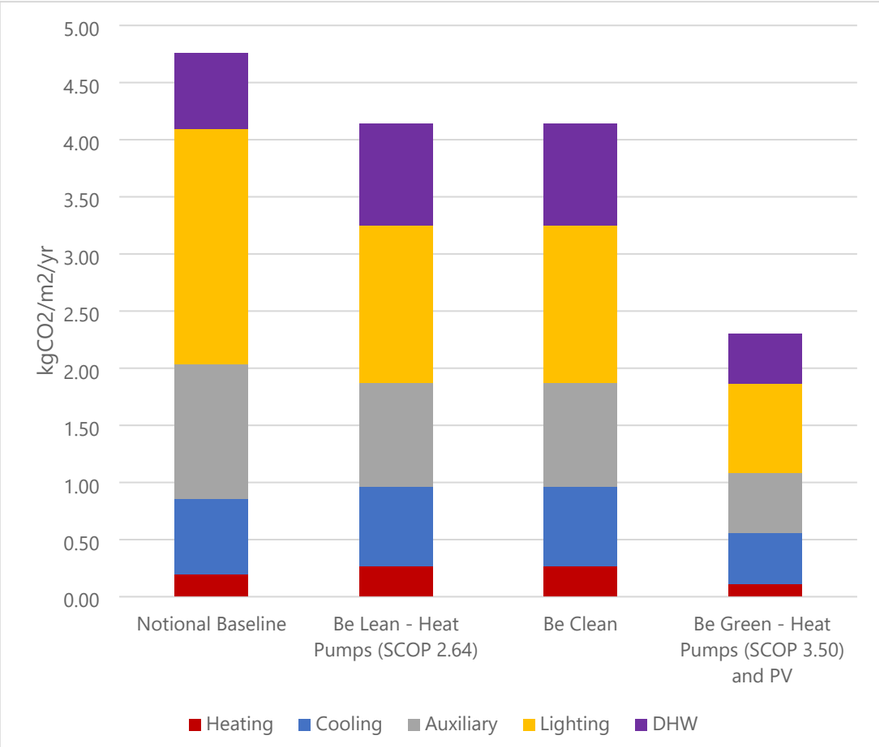

Figure 1—6 New Annex Part L results

1.7.1.3 Existing Civic Centre

The London Plan energy assessment guidance requires an estimation of the existing building CO_2 emissions and for the refurbishment to be compared in performance.

The existing baseline has been calculated using notional standards, existing building layout and form and estimated U values based on a façade survey conducted in 2021.

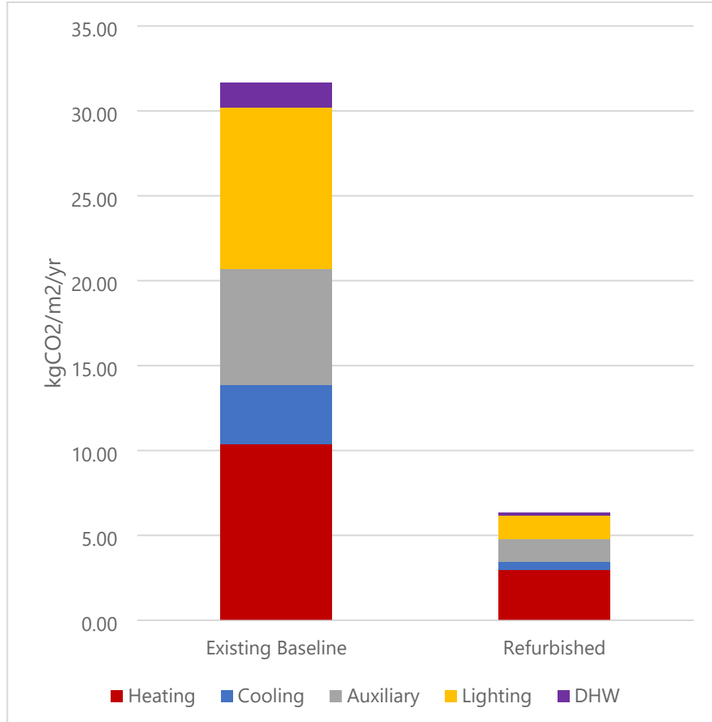

Figure 1—7 Existing Civic Centre Part L results

More details on the inputs and strategy can be found in the Energy statement.

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1.7.2 Renewable energy

Following the LZC study at stage 2, Solar Photovoltaics were decided as the most appropriate renewable energy solution for this development.

In order to reduce CO_2 emissions as far as practically possible, the PV cells extent needs to be maximised. The PV extent must be sensitive to planning limits and conservation requirements. The architect has outlined areas that are acceptable within these constraints; this is shown in Figure 1—8.

Due to heritage, all areas must be low profile (e.g. with 12 degree tilt) to ensure reduced visibility from sensitive sight lines, which reduces efficiency. Some PV is positioned in a canopy over the roof plant, which will be supported by a secondary steel frame. This is a contractor design portion, but costs are included for this at the current stage.

The Part L carbon analysis includes for the renewable benefit of all given areas below. The area of panels has been based on the Bauder Solar System design, specifically the JA Solar JAM60-S20-385Wp modules, with usable area calculated based on shape and size of array, following the Bauder Solar system design. Based on this system, there is an array of 368 panels across the whole development with a kilowatt peak power of about 140kWp. Our initial calculations show this achieving an output around 122,367 kWh per annum

Details of the PV contribution can be found in Table 1—3 and Table 1—4

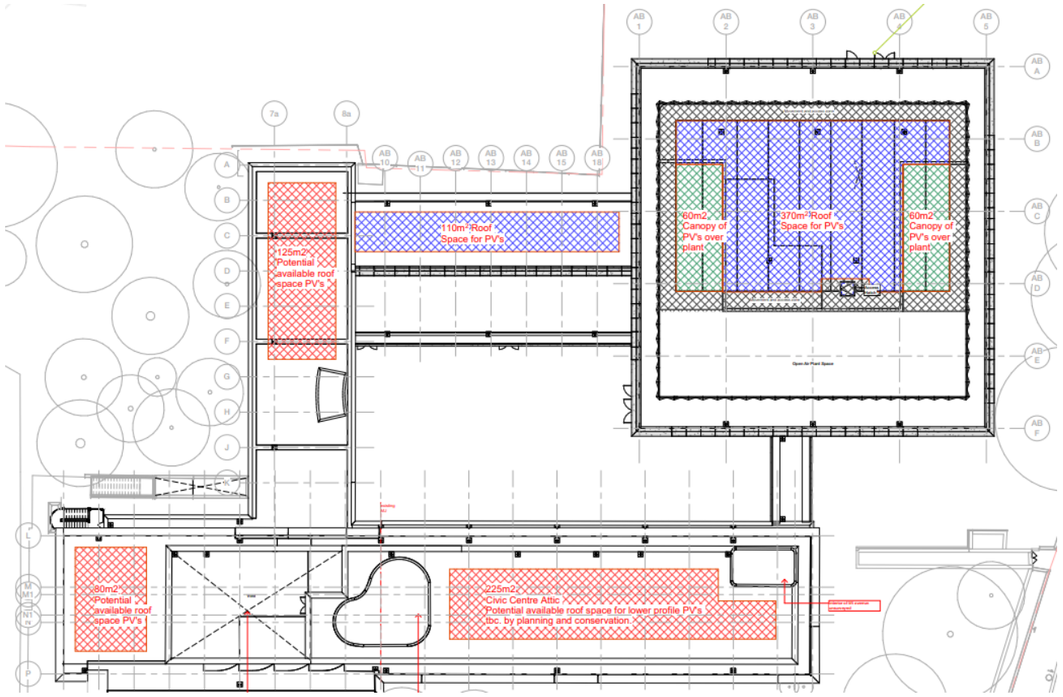

Figure 1—8 Architectural layout of Solar PV areas

Table 1—3 PV details

Location	Orientation	Area total (m²)	Assumed area of panels (m²)	Number of panels	Panel Tilt	Panel efficiency	Panel (Wp)	Array power (kWp)
New Annex Main roof	S	370	222	119	12 deg	20.7%	385	45.8
New Annex Plant canopy north	S	60	46.1	24	12 deg	20.7%	385	9.2
New Annex Plant canopy south	S	60	46.1	24	12 deg	20.7%	385	9.2
New Annex Wing Roof	W	110	84.5	45	12 deg	20.7%	385	17.3
Existing Civic Centre Link Roof	S	125	96.1	51	12 deg	20.7%	385	19.6
Existing Civic Centre south array	S	80	61.5	33	12 deg	20.7%	385	12.7
Existing Civic Centre north array	W	225	135	72	12 deg	20.7%	385	27.7
Total Number of Panels	**368**							
Total Power required	**141.7 kWp**							

Table 1—4 PV contribution

	Assessed floor area (m2)	Energy Production from PV (kWh/m2)	Energy Production from PV (kWh)
Existing Civic Centre	5,572	9.2	50,979
New Annex	5,207	13.7	71,388
Total			**122,367**

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1.7.3 Operational Energy

1.7.3.1 Introduction

Buro Happold have been commissioned to carry out a prediction of operational energy consumption using advance simulation modelling in accordance with CIBSE TM54 requirements for the Haringey Civic Centre buildings located at 255 High Rd, London N22 8LE. In total, 10,376 m^2 Gross Internal Area (GIA) air-conditioned office buildings with a civic chamber in the existing building.

Both buildings are fully electric and fossil fuel free. The targets that Haringey Civic Centre is seeking to achieve are an EUI of 90kWh/m^2 in the annexe building and 225kWh/m^2 in the existing civic centre when refurbished.

1.7.3.2 Results

The findings of the operational energy modelling show a predicted EUI of 80-103kWh/m^2 for the annexe building and 147-186 kWh/m^2 for the existing Civic Centre. This range includes an allowance for non-ideal operation of the building during occupancy.

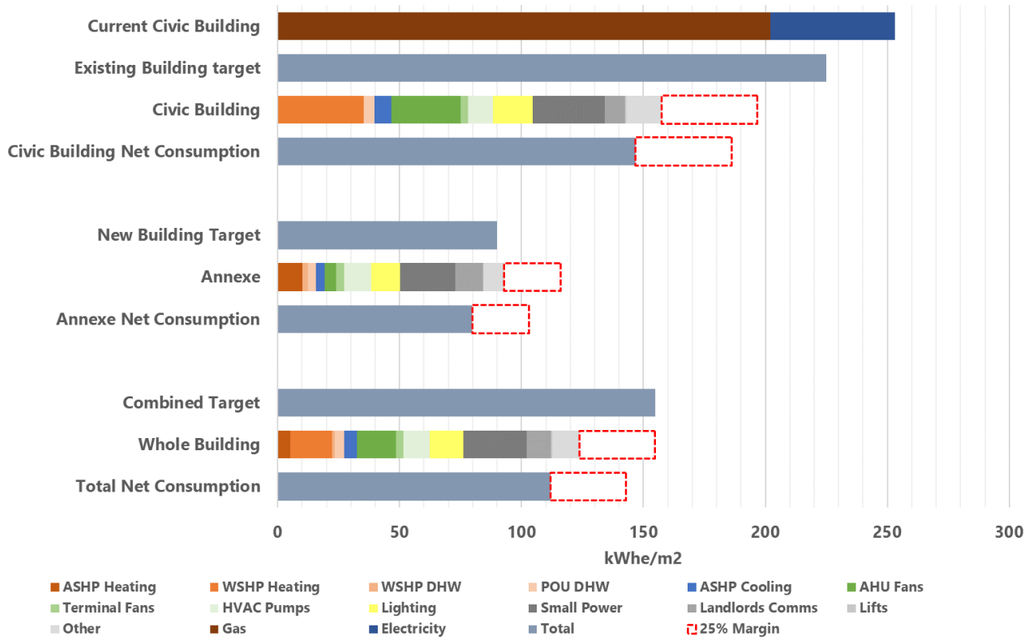

Figure 1—9 Estimated Annual Energy Consumption

Full details of the operational energy simulation can be found in the Haringey Civic Centre TM54 Operational Energy Report P02 as part of the Energy Statement

1.8 Promoting sustainable travel

The development has excellent public transport links and compliant cycle parking and facilities. A transport report has been produced as part of the planning Transport Assessment package to define and demonstrate the sustainable transport initiatives that the development is committed to. A full review of Existing transport provision has been undertaken, alongside looking at future cycle and car parking provision. Best practice transport design has been adopted, particularly with regard to access, parking and servicing. Finally, a description of the evolving access arrangements for pedestrians, cyclists, vehicles and servicing can also be found in the Planning Transport Assessment.

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1.9 BREEAM

1.9.1 Executive Summary

A BREEAM UK Bespoke Stage 3 assessment is currently underway at Haringey Civic Centre. The assessment is a combination of RFO and New Construction 2014 criteria in line with the nature of the project. The detailed BREEAM strategy can be found in Appendix A.

The Haringey Local Plan requires new non-residential projects to achieve a minimum rating of BREEAM '**Very good**' and should aim for BREEAM '**Excellent**'. The Client Brief targets BREEAM '**Outstanding'.**

The BREEAM strategy demonstrates that a BREEAM 'Outstanding' score should be readily achievable for the Haringey Civic Centre project with 89.97% of the BREEAM credits targeted. Note that the individual targeted credits may vary between the Planning Report and final certification score and due to the bespoke nature of the assessment certain credit weightings may change.

Lastly, certain credits in the assessment scheme require documented evidence and design team confirmation prior to the completion of RIBA Stage 2. These credits have been discussed with the design team and the stage 2 evidence provided.

Table 1—5 BREEAM Score Summary

BREEAM SCORE SUMMARY		
REQUIRED SCORE	70%	Excellent
LOW RISK SCORE	89.97%	Outstanding
HIGH RISK SCORE	93.96%	Outstanding
ACHIEVED SCORE	26.50%	Unclassified

1.9.2 BREEAM Introduction

To provide an assessment of the Haringey Civic Centre development a BREEAM strategy has been developed following a bespoke assessment comprising criteria as applicable to the design from **BREEAM UK Refurbishment and Fit-out 2014 Non-domestic Buildings and BREEAM UK New Construction Non-Domestic Buildings 2014 methodologies.** BREEAM (the Building Research Establishment Environmental Assessment Methodology) sets the standard for best practice in sustainable building design, construction and operation and has become one of the most comprehensive and widely recognised measures of a building's environmental performance. The BREEAM rating is awarded based on the total number of credits achieved, as shown in below. According to the Haringey Local Plan (2013-2026), Haringey Council require a minimum of BREEAM '**Very Good**' to be achieved for non-residential new construction developments.

Table 1—6 BREEAM rating benchmarks

Outstanding	Excellent	Very Good	Good	Pass
≥ 85%	≥ 70%	≥ 55%	≥ 45%	≥ 30%

1.9.3 BREEAM Strategy

The figures below summarise the BREEAM pre-assessment score and scores by category respectively the Haringey Civic Centre development. As shown, the BREEAM strategy has been carried out demonstrating that an Outstanding score of 89.97% should be readily achievable by targeting the credits outlined as 'low risk'. Another 3.99% of credits are rated as having a 'high risk'. These credits should be investigated further with the aim of bolstering our buffer score above our current BREEAM 'Outstanding' rating.

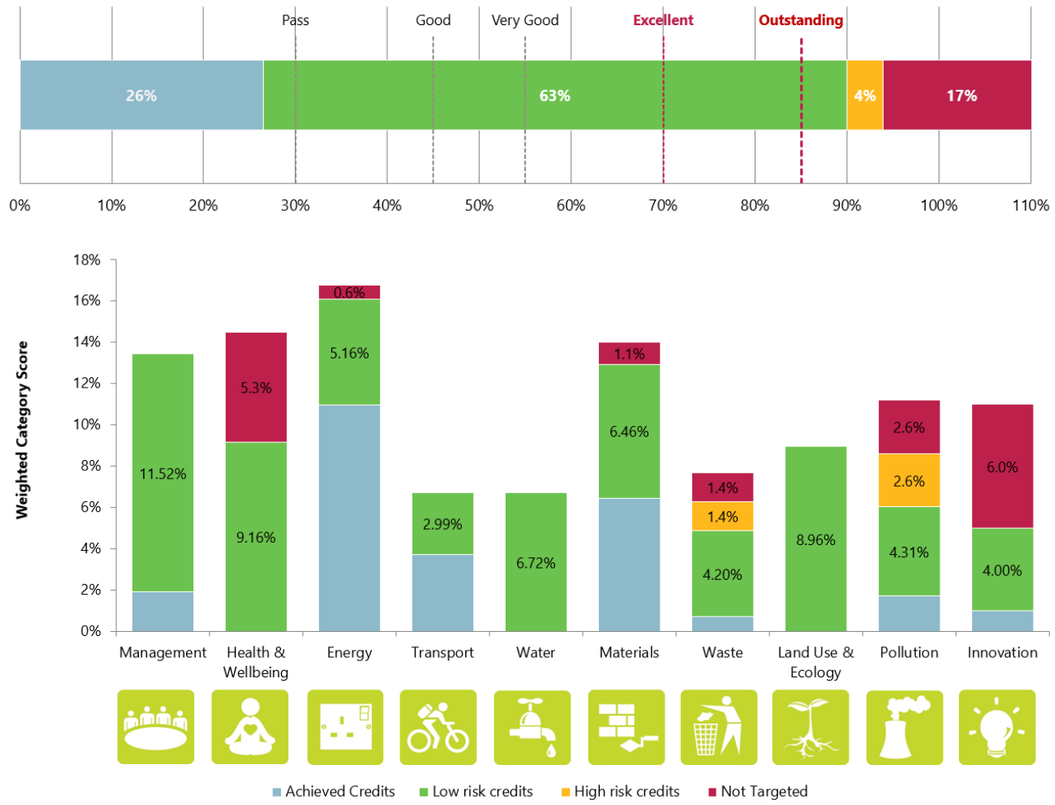

Figure 1—10 BREEAM Strategy Score

The key for the pre-assessment scoring is as follows:

- **Achieved credits** – Credits have been fully evidenced.
- **Targeted credits** – Credits are not yet fully evidenced; however, an initial review suggests they should be readily achievable with minimal associated risk.
- **Targeted credits (medium risk)** – Further analysis would be needed to understand if these credits are achievable. These credits are anticipated as feasible.
- **Potential credits (challenging / high risk** – As above, except it is anticipated that these credits would not be feasible.
- **Credit is not possible** – Credit is deemed very challenging to achieve and/or identified to be not feasible.

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1.9.4 BREEAM Uplift Items

Table 1—7 BREEAM uplift items

BREEAM Credit	Action	Ownership	Percentage Score	Cost Estimate (excluding insurance)	Risk
Wst 01 – Project Waste Management	Reuse and direct recycling of materials – inert materials (bricks, slabs, tiles etc), metal, composites, plasterboard, furniture, timber, mineral fibre, vinyl flooring, carpet tiles, packaging, insulation and fixtures/fittings	Design Team	**0.7%**	None	There is a sliding scale of compliance here where we plug information into a BRE tool. We might gather the information and find we do not achieve the second credit
Wst 01 – Project Waste Management	Construction resource efficiency. Current target is 3.1 tonnes **OR** 9.4 m^3 per 100m^2 area. We could aim for an extra credit here and target 1.6 tonnes **OR** 4.3 m^3 per 100m^2 area.	Contractor	**0.7%**	None	Tricky to rely on as we won't know how we perform until post construction
Wst 02 – Recycled Aggregates	Use of recycled, secondary aggregates and reuse of aggregates in situ	Contractor, BH Structures	**0.7%**	No significant	There is a sliding scale of compliance here where we plug information into a BRE tool. We might gather the information and find we still score zero
Pol 02 – Nox Emissions	Heating and hot water system to achieve sustainable NOx emission levels. Typically using heat pumps powered by grid electricity achieve zero credits in this issue. Alternate calculations to be completed by BH	BH MEP	**0.86% to 2.58%**	None	Unlikely to yield any credits
Innovation Credit – Sustainable Lighting Drivers	Complete the BRE Innovation application	Faithful & Gould	**1%**	None	

There are several BREEAM credits that are currently marked as potential and as such are under consideration by the design team. These credits are outlined in the above table along with the actions required to achieve, which member of the design team is responsible for the action, how the credit is weighted in terms BREEAM percentage, an estimated cost and the projected risks involved. These credits are currently under review with the aim to target several to increase our BREEAM buffer over the 85% Outstanding rating.

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Appendix A BREEAM Tracker

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BREEAM UK Bespoke 2014 Tracker

BURO HAPPOLD

BUROHAPPOLD ENGINEERING

Project name: Haringey Civic centre refurb + new office annexe
Project code: 0044501
BRE Ref.: -
Assessment stage: Pre-assessment
Project stage: Stage 2: Concept
Revision: 8
Revision date: 8 March 2023

BREEAM SCORE SUMMARY		
REQUIRED SCORE	70%	Excellent
LOW RISK SCORE	89.97%	Outstanding
HIGH RISK SCORE	93.96%	Outstanding
ACHIEVED SCORE	26.50%	Unclassified

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
MANAGEMENT												
Man 01 - Project Brief and Design	**Credit Aim:** To recognise and encourage an integrated design process that optimised building performance.											
	Stakeholder Consultation - Project Delivery	Stage 2	1	0.64%		1				Project manager	Collate information from project delivery stakeholder consultations (e.g. minutes, responsibility matrix) and demonstrate the impact on the design brief.	Stage 2
	Stakeholder Consultation - Third Parties	Stage 2	1	0.64%		1				Montagu Evans	Collate information from third party stakeholder consultations with compliant content and demonstrating the impact on the design brief. **01.04.22** Received steering group evidence from Hawkins Brown **06.04.22** Received civic centre member forum evidence	Stage 2
	Sustainability Champion (design)	Stage 1	1	0.64%					1	BH S&P	BREEAM Champion (BREEAM AP) appointed for Stage 1 only.	Stage 1
	Sustainability Champion (monitoring progress)	Stage 2-4	1	0.64%		1				BH S&P	BREEAM Champion (BREEAM AP) appointed for Stages 2-4.	Stage 4
Man 02 - Life Cycle Cost and Service Life Planning	**Credit Aim:** To deliver whole life value from investment and promote economic sustainability by recognising and encouraging the use and sharing of life cycle costing and service life to improve design, specification and through-life maintenance and operation.											
	Elemental Life Cycle Cost (LCC)	Stage 2	2	1.28%					2	F&G	Entire asset elemental life cycle cost (LCC) plan.	End of Stage 2
	Component Level LCC Plan	Stage 4	1	0.64%		1				F&G	LCC option appraisal in line with PD 156865:2008 at stage 4.	End of Stage 4
	Capital Cost Reporting		1	0.64%		1				F&G	Letter confirming the predicted capital cost for the building in pounds per square metre (£k/m2).	
Man 03 - Responsible Construction Practices	**Credit Aim:** To recognise and encourage construction sites which are managed in an environmentally and socially considerate, responsible and accountable manner.											
	Pre-Requisite: Responsibly sourced timber		Yes/No	-		Yes				Contractor	Letter confirming all timber and timber-based products used on the project will be 'Legally harvested and traded timber'.	Upon Appointment/ End of Stage 4
	Environmental Management System		1	0.64%		1				Contractor	Provide principal contractor's ISO 14001/EMAS certificate OR evidence showing compliance with BS8555:2003. Best practice pollution prevention policies and procedures on-site in accordance with PPG6.	Upon Appointment/ End of Stage 4
	Sustainability Champion (Construction Stage)	Stages 5-6	1	0.64%		1				Contractor	Letter confirming a Sustainability Champion has been appointed to monitor progress against the agreed BREEAM performance targets at Stages 5-6. Principal contractor's contract notes the requirement to meet the BREEAM performance target.	Upon Appointment/ End of Stage 4
	Considerate Construction		2	1.28%		2				Contractor	1 credit required for Excellent: CCS score between 25 and 34 and a score of at least 5 in each of the five section. 2 credits required for Outstanding: CCS score between 35 and 39 and a score of at least 7 in each of the five section.	Upon Appointment/ End of Stage 4
	Monitoring of Construction-site impacts		2	1.28%		2				Contractor	Letter confirming the appointment of the responsible person for monitoring energy and water consumption and monitoring transport fuel consumption on site throughout the development.	Upon Appointment/ End of Stage 4
	Exemplary Level Criteria		1	1.00%		1				Contractor	Letter of commitment stating a score of 40 on the CCS overall, with a minimum score of 7 in each section will be achieved.	

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
Man 04 - Commissioning and Handover		**Credit Aim:** To encourage a properly planned handover and commissioning process that reflects the needs of the building occupants.										
Commissioning and Testing Schedule			1	0.64%		1				**Contractor**	Schedule is in place for relevant base build commissioning and recommissioning to appropriate standards, a team member is appointed responsible for monitoring this, contractor responsible for allowing budget and time in their program to complete this.	End of Stage 4
Commissioning Building Services		Stage 3-4	1	0.64%		1				**Contractor**	Specialist commissioning manager appointed (Likely to be confirmed at Stage 4) to contribute to design reviews, giving advice on commissionability of services.	End of Stage 4
Testing and Inspecting Building Fabric			1	0.64%		1				**Contractor**	Letter confirming thermographic surveys, airtightness testing and visual inspections will be undertaken at appropriate times during the refurbishment, by a Suitably Qualified Professional. Any defects identified will be rectified prior to building handover and close out.	End of Stage 4
Handover			1	0.64%		1				**Contractor**	Building User Guide (BUG) required for Excellent and above. Letter of commitment is required confirming: - A Building User Guide will be provided, - A training schedule will be prepared for building occupiers/premises managers.	
Man 05 - Aftercare		**Credit Aim:** To provide post-handover aftercare to the building owner/occupants during the first year of occupation to ensure the building operates and adapts, where relevant, in accordance with the design intent and operational demands.										
Aftercare support			1	0.64%		1				**Contractor**	Letter confirming there will be operational infrastructure and resources in place to provide Aftercare Support. Aftercare team/individual introduction with occupier/management, onsite facilities management training, aftercare for the first month of occupation (e.g.. Onsite weekly, to review how building is being used), longer term aftercare support for 12 months (e.g.. helpline), collection and monitoring of energy and water consumption for 12 months.	Upon Appointment/ End of Stage 4
Seasonal Commissioning			1	0.64%		1				**Contractor**	Minimum requirement for Excellent and above Commissioning over 12-month period, testing services under full loads (weather, occupancy), recommissioning if necessary.	Upon Appointment/ End of Stage 4
Post-Occupancy Evaluation			1	0.64%		1				**Haringey city council**	Letter confirming Post Occupancy Evaluation will be undertaken after 1 year, and, for an additional exemplary credit, Water and Energy Use will be monitored and measured over the first three years of occupation.	End of Stage 4
Exemplary Level Criteria			1	1.00%		1				**Haringey city council**	**Credit not targeted** Extended POE for 3 years of occupation.	End of Stage 4
HEALTH & WELLBEING												
Hea 01 - Visual comfort		**Credit Aim:** To ensure daylighting, artificial lighting and occupant controls are considered at the design stage to ensure best practice visual performance and comfort for building occupants.										
Glare Control			1	0.76%		1				**BH S&P** **Hawkins Brown**	1- The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures 2- The glare control strategy avoids increasing lighting energy consumption, by ensuring that: The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the façade: AND The use or location of shading does not conflict with the operation of lighting control systems.	End of Stage 4
Daylighting			3	2.29%		1		2		**BH S&P** **Hawkins Brown**	Daylight Calculations to confirm if there will be sufficient daylight in the relevant areas to meet the required criteria (including any space in the basement occupied for longer than 30'). - 60-80% of existing areas to 2% daylight factor - 80% of new areas to 2% daylight factor	End of Stage 4

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
View Out			2	1.53%				2		Hawkins Brown	Marked plans showing that 95% of the floor area in occupied spaces is within 7m of a wall which has a window or permanent opening that provides an adequate view out.	End of Stage 4
Internal and External Lighting Levels, Zoning and Controls			1	0.76%		1				BH MEP	MEP specifications, Internal/external lighting schedule, Lighting control schematic.	End of Stage 4
Exemplary Level Criteria			1	1.00%				1		-	**Credit not targeted** Higher daylight distribution than credit Hea 01-daylight	
Hea 02 - Indoor air quality		**Credit Aim:** To recognise and encourage a healthy internal environment through the specification and installation of appropriate ventilation, equipment and finishes.										
Indoor Air Quality Plan			1	0.76%		1				Environmental Consultant	Indoor air quality plan in place for design, construction and occupation of building.	End of Stage 4
Ventilation			1	0.76%				1		BH MEP	Intakes and exhausts potentially too close to each other to achieve this.	
VOC emission levels (products)			1	0.76%		1				Hawkins Brown	All decorative paints and varnishes specified meet the VOC criteria by product type.	
VOC emission levels (post-construction)			1	0.76%				1		Contractor	Formaldehyde concentration test post-construction.	
Potential for Natural Ventilation			1	0.76%				1		BH MEP	**Credit not targeted** Building to be designed to be capable of providing fresh air entirely via a natural ventilation strategy.	
Exemplary Level Criteria			2	2.00%				2		-	**Credit not targeted** Ultra low VOC products**.**	
Hea 03 - Safe Containment in Laboratories		**Credit Aim:** To recognise and encourage a healthy internal environment through the safe containment and removal of pollutants.									Issue not applicable - no laboratories present.	
Laboratory containment devices and containment areas		Stage 3	1	0.00%	1					-	N/A - no laboratories present.	
Buildings with containment level 2 and 3 laboratory			1	0.00%	1					-	N/A - no laboratories present.	
Hea 04 - Thermal Comfort		**Credit Aim**: To ensure that the appropriate thermal comfort levels are achieved through design, and controls are selected to maintain a thermally comfortable environment for occupants within the building.										
Thermal Modelling			1	0.76%		1				BH S&P	TM 52 overheating assessment and CIBSE guide A thermal comfort temperature band.	End of Stage 4
Adaptability - For a Projected Climate Change Scenario			1	0.76%		1				BH S&P		
Thermal Zoning and Controls			1	0.76%		1				BH MEP	Temperature control strategy based on thermal comfort analysis, how you zone the temperature control (e.g.. Core/perimeter of building), degree of occupant control.	End of Stage 4
Hea 05 - Acoustic performance		**Credit Aim:** To ensure the buildings' acoustic performance including sound insulation meet the appropriate standards for its purpose.										
Acoustic performance standards and testing			3	2.29%		3				Acoustician	The building meets the appropriate acoustic performance standards and testing requirements. Acoustic specialist required.	End of Stage 4
Hea 06 - Safety and security		**Credit Aim:** To recognise and encourage effective design measures that promote low risk, safe and secure access to and use of the building.										
Security of Site and Building		Stage 2	1	0.76%		1				BH Security	A Suitably Qualified Security Specialist (SQSS) conducts an evidence based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The SQSS develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). 22.02.22 - SNA received from BH Security - Recommendations outlined	End of Stage 2
ENERGY												
Ene 01 - Reduction of CO_2 emissions		**Credit Aim:** To recognise and encourage buildings designed to minimise operational energy demand, consumption and CO2 emissions.										
Option 1: Whole building energy model (up to 15 credits)			15	9.67%					15	BH S&P	6 credits required for Excellent / 10 credits required for Outstanding For this assessment CN6 'Extensions to existing buildings and newly constructed thermal elements' applies. The building shall be assessed on the basis of a single energy model and credits awarded on the basis of the RFO methodology.	End of Stage 4

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
Historic buildings - specialist study (2 credits)		Stage 2							0	Montagu Evans	By the end of stage 2, Suitably Qualified Heritage Conservation Specialist to investigate the implications of improving building fabric and services performance while minimising the potential negative impacts of both the historic character of the building, the condition of the building fabric and indoor air quality. - FD Received 04.03.22	End of Stage 2
Exemplary Level Criteria			5	5.00%		2		3		BH S&P	The building achieves an EPRNDR ≥ 0.9 and zero net regulated CO2emissions.	
Ene 02 - Energy monitoring		**Credit Aim:** To recognise and encourage the installation of energy sub-metering that facilitates the monitoring of operational energy consumption.										
Sub-Metering of Major Energy Consuming Systems			1	0.64%		1				BH MEP / Contractor	Minimum requirement for Very Good and above. Sub-metering drawing & specification showing least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories e.g. heating, hot water, cooling, ventilation etc.	End of Stage 4
Sub-Metering of High Energy Load and Tenancy Areas			1	0.64%		1				BH MEP / Contractor	Drawing & specification showing sub-metering by tenancy areas.	End of Stage 4
Ene 03 - External lighting		**Credit Aim:** To recognise and encourage the specification of energy-efficient light fittings for external areas of the development.										
External Lighting - Energy efficient specification			1	0.64%		1				BH MEP	MEP specifications, external lighting schedule, luminaire schedule showing external light fittings will have at least 60 lum/circuit Watt and turn off during day.	End of Stage 4
Ene 04 - Low Carbon Design		**Credit Aim:** To reduce carbon emissions and atmospheric pollution by encouraging local energy generation from renewable sources to supply a significant proportion of the energy demand.										
Passive Design Analysis		Stage 2	1	0.64%					1	BH S&P	Analysis of the existing building fabric, form, site location and outline scheme design to influence decisions made during the Concept Design stage (RIBA Stage 2 or equivalent) and identifies opportunities for the implementation of passive design solutions and retrofit measures that reduce demands for energy consuming building services. - Included in Stage 2 planning report	End of Stage 2
Free Cooling		Stage 2	1	0.64%				1		BH S&P	**Credit not targeted** The free cooling should apply to all occupied spaces in the building. Small IT rooms and lift motor rooms are excluded. Mechanical ventilation may only be used for small areas, e.g. for kitchenettes and toilets. (CN 3.2).	
Low and Zero Carbon Feasibility Study		Stage 2	1	0.64%					1	BH S&P	Feasibility study provided. Drawing & specification of low or zero carbon (LZC) energy sources. - Included in Stage 2 planning report	End of Stage 4
Ene 05 - Energy efficient cold storage		**Credit Aim:** To recognise and encourage the installation of energy efficient refrigeration systems, therefore reducing operational greenhouse gas emissions resulting from the system's energy use.									Issue not applicable - no commercial/industrial sized refrigeration connected to building cooling systems.	
Refrigeration Energy Consumption			1	0.00%	1					-	N/A - no commercial/industrial sized refrigeration present.	
Indirect Greenhouse Gas Emissions			1	0.00%	1					-	N/A - no commercial/industrial sized refrigeration present.	
Ene 06 - Energy efficient transportation systems		**Credit Aim:** To recognise and encourage the specification of energy-efficient transportation systems.										
Energy Consumption			1	0.64%		1				Lift consultant	An Analysis of transportation is required which determines the optimum number and size of lifts, showing energy consumption in line with BS EN ISO 25745, At least two types of system have to be considered Transportation system with the lowest energy consumption is specified The use of regenerative drives should be considered	End of Stage 4
Energy Efficient Features			2	1.29%		2				Lift consultant / BH MEP	Newly specified lifts included in scope - lifts with energy efficient features required by BREEAM to be specified. The lift needs to operate in standby condition during off-peak periods, the lift care lighting and display lighting provides an average efficiency of > 55 lamp lumens/circuit Watt, the lift uses the drive controller capable of variable speed, variable-voltage and variable -frequency of the drive	End of Stage 4
Ene 07 - Energy efficient laboratory systems		**Credit Aim:** To recognise and encourage laboratory areas that are designed to minimise the CO2 emissions associated with their operational energy consumption.									Issue not applicable - no laboratories present.	
Pre-Requisite			Yes/No	-	N/A					-	N/A - No laboratories present.	0
Design Specification		Stage 1	1	0.00%	1					-	N/A - No laboratories present.	Stage 1
Best Practise Energy Efficiency Measures			4	0.00%	4					-	N/A - No laboratories present.	0
Ene 08 - Energy efficient equipment		**Credit Aim:** To recognise and encourage procurement of energy-efficient equipment to ensure optimum performance and energy savings in operation.										

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
Energy Efficient Equipment			2	1.29%		2				Haringey city council	Letter confirming that small power and plug-in equipment will be procured accordance with the Government Buying Standards or has been awarded an Energy Star rating.	End of Stage 4
Ene 09 Drying space		**Credit Aim:** To provide a reduced energy means of drying clothes.									Issue not applicable - not a residential building.	
Drying Space			1	0.00%	1					-	N/A - No residential areas present.	0
TRANSPORT												
Tra 01 - Public Transport Accessibility		**Credit Aim:** To recognise and encourage development in proximity of good public transport networks, thereby helping to reduce transport-related pollution and congestion.										
Sustainable transport solutions			5	3.73%					5	BH S&P	PTAL report shows 23.16 Accessibility Index	
Tra 02 - Proximity to Amenities		**Credit Aim:** To encourage and reward a building that is located in close proximity to local amenities, thereby reducing the need for extended travel or multiple trips.										
Proximity to Amenities			2	0.75%	1	1				Hawkins Brown	Mark-up showing distances to 3 local amenities (food, cash, leisure centre etc.).	End of Stage 4
Tra 03 - Cyclist Facilities		**Credit Aim:** To encourage building users to cycle by ensuring adequate provision of cyclist facilities.										
Cycle Storage			1	0.75%		1				Hawkins Brown	Provision of 1 compliant cycle storage per 10 users. (36 spaces)	End of Stage 4
Cyclist Facilities			1	0.75%		1				Hawkins Brown	At least two of the following types of compliant cyclist facilities: Showers, Changing facilities, Lockers, Drying spaces.	
Tra 04 - Maximum Car Parking Capacity		**Credit Aim:** To encourage the use of alternative means of transport to the building other than the private car, thereby helping to reduce transport related emissions and traffic congestion associated with the building's operation.										
Car parking capacity			2	0.00%	2					-	Only applicable to change of use refurbishment projects.	
Tra 05 - Travel plan		**Credit Aim:** To recognise the consideration given to accommodating a range of travel options for building users, thereby encouraging the reduction of user reliance on forms of travel that have the highest environmental impact.										
Travel plan			1	0.75%		1				Transport consultant / Haringey city council	Travel plan and Transport Assessment/Statement.	End of Stage 4
WATER												
Wat 01 - Water Consumption		**Credit Aim:** To reduce the consumption of potable water for sanitary use in new buildings from all sources through the use of water efficient components and water recycling systems.										
Minimising water consumption			5	3.73%		5				Hawkins Brown / BH MEP	1 credit required for Good and above, 2 credits required for Outstanding. Assess this issue using the standard Wat 01 calculator.	End of Stage 4
Exemplary Level Criteria			1	1.00%				1		BH MEP	**Credit not targeted** Ultra low water use fixture and recycled water required.	
Wat 02 - Water Monitoring		**Credit Aim:** To ensure water consumption can be monitored and managed and therefore encourage reductions in water consumption.										
Water Monitoring			1	0.75%		1				BH MEP	Mains water supply metering required for Good and above MEP specification, water sub-metering schematic showing Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible pulsed sub-meters or have water monitoring equipment integral to the plant or area.	End of Stage 4
Wat 03 - Water Leak Detection		**Credit Aim:** To reduce the impact of water leaks that may otherwise go undetected.										
Leak Detection System - mains water supply			1	0.75%		1				BH MEP	Schematic drawing and manufacturer's sheets showing a leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter will be installed.	End of Stage 4
Flow control devices to WC areas			1	0.75%		1				BH MEP	Schematic drawing and manufacturer's sheets to show that flow control devices will be installed to the communal WC facilities.	End of Stage 4
Wat 04 - Water Efficient Equipment		**Credit Aim:** To reduce unregulated water consumption by encouraging specification of water efficient equipment.										
Water Efficient Equipment			1	0.75%		1				BH MEP	Letter confirming of no unregulated water (irrigation)	End of Stage 4
MATERIALS												
Mat 01 - Environmental Impact of Materials		**Credit Aim:** To recognise and encourage the use of construction materials with a low environmental impact (including embodied carbon) over the full life cycle of the building.										

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
Option 1: Project lifecycle assessment study (up to 6 credits)			6	6.46%					6	Hawkins Brown, BH Structures	The BREEAM RFO manual should be used for the refurbishment area and the BREEAM NC manual should be used for the new build. The tool will perform an area weighting to determine the number of credits achieved for the project. ALTERNATIVELY The whole project can be assessed under the BREEAM RFO criteria. Only Option 1: Project Lifecycle Assessment Study is available. **17.03.22** FD receive the Mat 01 report and supporting evidnece from Hawkins Brown - compliant	End of Stage 4
Exemplary Level Criteria			1	1.00%					1	TBC	Embodied carbon assessment.	End of Stage 4
Mat 03 - Responsible sourcing of materials		**Credit Aim:** To recognise and encourage the specification of responsibly sourced materials for key building elements.										
Pre-Requisite: Responsible sourced timber			Yes/No	-		Yes				Contractor	Minimum requirement for any rating Letter confirming all timber for the base build will be procured in line with the UK Government's Timber Procurement Policy.	Upon Appointment
Sustainable Procurement Plan			1	1.08%		1				Contractor	A plan that sets out a clear framework for the responsible sourcing of materials to guide procurement throughout a project	End of Stage 4
Responsible Sourcing of Materials			3	3.23%		2		1		Contractor	Specifications for all relevant materials to include compliance to Responsible Sourcing Materials. Responsible sourcing calculations for all materials. Volumes of all materials to be entered into schedule for Mat 3 Table. Certificates (BES 6001 / FSC) for any specified manufacture.	End of Stage 4
Exemplary Level Criteria			1	1.00%				1		Hawkins Brown	**Credit not targeted** At least 70% of the available Responsible sourcing of materials (RSM) points are achieved.	
Mat 04 - Insulation		**Credit Aim:** To recognise and encourage the use of thermal insulation which has a low embodied environmental impact relative to its thermal properties and has been responsibly sourced.										
Embodied impact of insulation			1	1.08%		1				BH MEP	Building Services Insulation drawings and supporting schedule showing new insulation Volumes and green guide ratings.	End of Stage 4
										Hawkins Brown	Drawings, build ups and supporting schedule showing new insulation areas and green guide ratings.	End of Stage 4
										Hawkins Brown	Facade Drawings and supporting schedule showing new insulation areas and green guide ratings.	End of Stage 4
Mat 05 - Designing for Durability and Resilience		**Credit Aim:** To recognise and encourage adequate protection of exposed elements of the building and landscape, therefore minimising the frequency of replacement and maximising materials optimisation.										
Protecting Vulnerable Parts of the Building From Damage Protecting Parts of the Building from Material Degradation			1	1.08%		1				Hawkins Brown, BH Structures, BH MEP	Drawings and specifications confirming measures to protect building from internal/external damage Mat 05 template	End of Stage 4
Mat 06- Material Efficiency		**Credit Aim:** To recognise and encourage adequate protection of exposed elements of the building and landscape, therefore minimising the frequency of replacement and maximising materials optimisation.										
Material Efficiency		Stage 1-6	1	1.08%		1				Hawkins Brown, BH Structures, BH MEP	Opportunities have been identified, and appropriate measures investigated and implemented within the scope of refurbishment or fit-out works, to optimise the use of materials through building design, procurement, refurbishment, maintenance and end of life **23.03.22** FD received evidence complying with the RIBA stage 1-3 requirements. We should now show that the design is developed and implemented.	Stage 1-6
WASTE												
Wst 01 - Project Waste Management		**Credit Aim:** To promote resource efficiency via the effective management and reduction of construction waste.										
Pre-refurbishment audit		Stage 2	1	0.70%		1				Demolition contractor	**Pre-Demolition Audit** These credits are applicable to refurbishment areas only.	
Reuse and direct recycling of materials			2	1.40%		1	1			Hawkins Brown	**Credit not targeted.** These credits are applicable to refurbishment areas only.	
Construction Resource Efficiency			3	2.10%		1	1	1		Contractor	1 credit required for Outstanding: Site Waste Management Plan. Less than 3.5 tonnes per 100m2 (gross internal floor area) of non-hazardous waste to be generated.	
Diversion of Resources from Landfill			1	0.70%		1				Contractor	85% of non-hazardous construction waste and 92% of demolition waste to be diverted from Landfill.	End of Stage 4
Exemplary Level Criteria			1	1.00%				1		Contractor	**Credit not targeted**	

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
Wst 02 - Recycled Aggregates		**Credit Aim:** To recognise and encourage the use of recycled and secondary aggregates, thereby reducing the demand for virgin material and optimising material efficiency in construction.										
Recycled Aggregates for high grade use			1	0.70%				1		**BH Structures, Contractor**	This credit is only applicable to the new building. Volume of concrete being used to be confirmed.	
Exemplary Level Criteria			1	1.00%				1		**Contractor**		
Wst 03 - Operational waste		**Credit Aim:** To recognise and encourage the provision of dedicated storage facilities for a building's operational-related recyclable waste streams, so that this waste is diverted from landfill or incineration.										
Operational Waste			1	0.70%					1	**Contractor**	Minimum requirement for Excellent and above Drawings showing dedicated space provided for segregation and storage of recyclable waste. Minimum space allowance (CN7). Labelling of area, composting waste, drainage/outlet.	End of Stage 4
Wst 04 - Speculative Floor and Ceiling Finishes		**Credit Aim:** To encourage the specification and fitting of floor and ceiling finishes selected by the building occupant and therefore avoid unnecessary waste of materials.										
Eliminate speculative floor and ceiling finishes in tenant areas			1	0.00%	1					**Owner**	Letter confirming that Interior finishes will only be installed in show area only OR selected by the end user occupant.	End of Stage 4
Wst 05 - Adaptation to Climate Change		**Credit Aim:** To encourage the specification and fitting of floor and ceiling finishes selected by the building occupant and therefore avoid unnecessary waste of materials.										
Adaptation to Climate Change - Structural and Fabric Resilience		**Stage 2**	1	0.70%		1				**Hawkins Brown, BH Structures, BH MEP**	Climate change risk assessment - Sections to be filled in be the relevant team members. Stage 2 complete **15.03.22** Received compliant Wst 05 evidence for BH MEP **23.03.22** Received complant Wst 05 evidnece for Hawkins Brown / BH Structures	End of Stage 4
Exemplary Level Criteria			1	1.00%				1		**Hawkins Brown, BH Structures, BH MEP**	Dependent on the following being achieved - Achievement of the Structural and Fabric Resilience credit. - Hea 04 Credit 2 - At least eight Ene 01 credits have been achieved - The passive design analysis credit of Ene 04 had been achieved -Mat 05 material degradation criteria has been achieved - For Pol 03 a minimum of one credit is achieved for Flood Risk and **two credits for Surface Water Run-Off**	End of Stage 4
Wst 06 - Functional Adaptability		**Credit Aim:** To encourage the specification and fitting of floor and ceiling finishes selected by the building occupant and therefore avoid unnecessary waste of materials.										
Functional adaptability strategy		**Stage 2 Stage 4**	1	0.70%		1				**Hawkins Brown, BH Structures, BH MEP**	- Relevant sections of the Functional adaptation strategy study template to be updated by each member of the project team at stage 2 and 4. - Plans and specifications showing functional adaptation measures. Adaptability, Accessibility, Expandability - Stage 2 complete **23.03.22** Received complant Wst 06 evidnece for Hawkins Brown / BH Structures and MEP	End of Stage 4
LAND USE & ECOLOGY												
LE01 - Site Selection		**N/A**: This issue is not applicable to BREEAM UK RFO 2014										
LE02 - Ecological Value of Site and Protection of Ecological Features		**Credit Aim:** To encourage development on land that already has limited value to wildlife and to protect existing ecological features from substantial damage during site preparation and completion of construction works.										
Protection of existing ecological features			1	2.24%		1				**Greengage, Contractor**	All existing features of ecological value are adequately protected from damage during clearance, site preparation and refurbishment or fit-out activities in line with BS42020: 2013	
LE03 - Minimising Impact on Existing Site Ecology		**N/A**: This issue is not applicable to BREEAM UK RFO 2014										
LE04 - Enhancing Site Ecology		**Credit Aim**: To encourage actions taken to enhance the ecological value of the site as a result of development.									Issue not applicable for Part 2, 3 or 4 assessments	

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
Ecologist's Report and Recommendations		Stage 1 Stage 2	1	2.24%		1				Greengage, Churchman, Contractor	Ecology Report with appropriate recommendations for the enhancement of the site's ecology Recommendations of the Ecology Report for the enhancement of site ecology implemented in the design Letter confirming that 4 of the 6 ecologist recommendations will be implement on site. Therefore if roof garden is no longer feasible, this is ok as long as other recommendations are picked up. **04.03.22** FD emailed Loes Koopmans (Churchman) asking for Ecology Report **21.03.22** FD emailed Loes Koopmans discussing BREEAM criteria - 2014 Received compliant Ecology Report - Need evidence for ecological enhancement, Green roof, planting, grassland, wildflower meadow, bird boxes, bat boxes, invertebrate habitats 26.10.22 - DTM - ecology report now out of date for planning - update incoming	Stage 1 Stage 2
LE05 - Long Term Impact on Biodiversity		**Credit Aim:** To minimise the long term impact of the development on the site and the surrounding area's biodiversity.										
Long Term Impact on Biodiversity			2	4.48%		2				Greengage, Churchman, Contractor	Landscape and habitat management plan in accordance with BS 42020:2013 Additional measures carried out on site	
POLLUTION												
Pol 01 - Impact of Refrigerants		**Credit Aim:** To reduce the level of greenhouse gas emissions arising from the leakage of refrigerants from building										
Refrigerant Pre-Requisite			Yes/No	-		Yes				BH MEP	Electric compressors to comply with BS EN 378:2008, systems containing ammonia comply with code of practice Final equipment selection by BH MEP at S4	End of Stage 4
Impact of Refrigerant			2	1.72%		1		1		BH MEP	1 credit: DELC CO(2e) <=1000 2 credits: DELC CO(2e) <=100 or GWP <=10 Final equipment selection by BH MEP - R410a has a GWP of 0	End of Stage 4
Leak detection and containment			1	0.86%		1				BH MEP	System to continuously monitor leaks, automatically isolate remaining charge	End of Stage 4
Pol 02 - NOx Emissions		**Credit Aim:** To encourage the supply of heat and/or cooling from a system that minimises NOx emissions, and therefore reduces pollution of the local environment.										
NOx emissions			3	2.58%			3			BH MEP	Heating and hot water system to achieve NOx emission level ≤ 100 mg/kWh or ≤ 70 mg/kWh or ≤ 40 mg/kWh. **22.09.22** - Typically using heat pumps powered by grid electricity achieve zero credits in this issue as the BRE stipulates that we must use 617 mg/kWh in line with compliance note CN10. Methodology sent to Damien Wines to calculate performance - should undertake end of Stage 3	End of Stage 4
Pol 03 - Surface Water Run Off		**Credit Aim:** To avoid, reduce and delay the discharge of rainfall to public sewers and watercourses, therefore minimising the risk of localised flooding on and off site, watercourse pollution and other environmental damage.										
Flood Risk Management			2	1.72%					2	BH Civil	Flood risk zone 1	End of Stage 4
Surface Water Run Off - neutral impact			1	0.86%		1				BH Civil, Hawkins Brown	Drawings showing that there is no increase in the impermeable surfaces as a result of the refurbish.	End of Stage 4
Surface Water Run Off - reducing run-off			1	0.86%				1		BH Civil, Hawkins Brown	**Credit not targeted** Would need to show that we are reducing peak and volume run-off by 50%	
Minimising Watercourse Pollution			1	0.86%				1		BH Civil	**Credit not targeted** No discharge from site for rainfall up to 5mm, appropriate SuDS techniques in place to manage potential pollution, drainage plan available for occupiers, maintenance agreements for SuDs in place.	
Exemplary Level Criteria			1	1.00%				1		-	**Credit not targeted** Exemplary level of surface water run-off	
Pol 04 - Reduction of Night Time Light Pollution		**Credit Aim:** To ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.										

Credit Ref:	Issues/Credits (Minimum requirements shown in red)	RIBA Stage Deadline	Available Credits	% Score Value	Not Applicable	Targeted Credits	Potential Credits	Not Targeted	Achieved Credits	Ownership	Comments	Evidence required by
Reduction of Night Time Light Pollution			1	0.86%		1				BH MEP	Applicable if external lighting is within the scope If no need for external lighting, credit can be achieved. All external lighting (apart from security) can be automatically switched off between 23:00-07:00, security lighting in line with ILP Guidance notes 2011.	End of Stage 4
Pol 05 -Reduction of Noise Pollution		**Credit Aim:** To reduce the likelihood of noise from the new development affecting nearby noise-sensitive buildings.										
Reduction of Noise Pollution			1	0.86%		1				Acoustician	Noise impact assessment in compliance with BS 7445, conducted to test background noise levels at nearest/most sensitive development, noise level measured again for proposed building at same site to show a difference of no greater than +5dB during day and +3dB during night. The existing background noise level should not include existing plant associated with the assessed building (criterion 2.a.i). Both existing and newly specified externally mounted plant should be considered within the noise impact assessment as part of the 'rating noise level' (criterion 2.a.ii).	End of Stage 4
INNOVATION												
Inn 01 - Innovation[1]		**Credit Aim:** To support innovation within the construction industry through the recognition of sustainability related										
Exemplary performance innovation credits			17	10.00%	0	4	0	6	1	-	See exemplary performance credits targeted above.	End of Stage 4
Approved Innovations			0							-	Confirm scope for approved innovations	

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