NEW CITY COURT

Sustainability Strategy
CHAPMAN BDSP

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EXECUTIVE SUMMARY

This Sustainability Strategy has been developed to detail the sustainability features of the proposed Development of New City Court, 4 - 26 St Thomas Street, London, SE1 9RS (the 'Development'/ the 'Site') and demonstrate how they relate to the following guidance documents:

- National Planning Policy Framework (2018);
- The London Plan (2016);
- London Mayor's Supplementary Planning Guidance on Sustainable Design and Construction (2014);
- Southwark Council Policies;
- BREEAM Assessment Tools (2014 & 2018).

The above mentioned documents have been used to guide the Development's commitment to sustainability. In line with the Southwark Council Core Strategy, New City Court is targeting BREEAM 'Very Good' for the Retail and Offices refurbishments and BREEAM "Excellent" for the Offices and Retail assets assessed under BREEAM New Construction.

This Sustainability Strategy encompasses a wide range of issues, from demonstrating responsible land use to measures for adapting to and mitigating the effects of climate change. Other focuses include energy efficiency and low carbon systems to reduce carbon dioxide emissions, sustainable construction processes, materials & maximisation of recycling opportunities, water efficiency, flood risk, pollution, sustainable transport, accessibility and ecology.

The main sustainability features of the schemes include:

ENERGY

An optimised energy efficient design will minimise the energy demand of the Development through the incorporation of suitable passive design measures, followed by proposed enhancements to the fabric efficiency (where possible), and efficient building services and control systems. Photovoltaics (PV) are also being installed to provide a proportion of the electricity demand of the scheme.

CLIMATE CHANGE

The design proposals incorporate climate change mitigation and adaptation features. The former includes the reduction of fossil fuel consumption through the client's commitment to a robust energy strategy as highlighted above. Adaptation features for the predicted drier and hotter summers consist of an optimised design minimising overheating risk, combined with the specification of water efficient fittings and irrigation strategy. The proposed green areas and landscaped roof areas will also contribute to reducing the 'urban island' effect and will positively impact on the building users' wellbeing by providing shade and rising air humidity in hot summer days.

The drainage strategy for the scheme will ensure the proposed Development does not increase flood risk elsewhere. Sustainable drainage systems (SUDs) such as blue roofs and greywater recycling will be specified to reduce the peak surface water discharge from the proposed Development, reducing the risk of flooding from sewer to the Site and other properties downstream. The proposed building design has also taken into consideration the existing soil characteristics to make sure the foundations are designed to withstand heavier rainfalls as well as long periods of dry weather.

WATER, FLOOD RISK & DRAINAGE

The design will incorporate flood resistance and resilience measures. In order to ensure that the existing peak surface water discharge is decreased. Sustainable Drainage Systems (SUDs) as permavoid permeable paving at ground floor and blue roof on the tower are being proposed for the Site. Please refer to the Flood Risk Assessment document being included with this planning application.

The scheme will also incorporate water efficient fittings targeting a 50% water demand reduction against non-domestic baselines. Additional features include for the non-domestic assets the specification of greywater recycling, water meters with pulsed output, flow control devices in high demand areas and a major leak detection system. Water efficient irrigation systems will also be specified for the scheme.

SUSTAINABLE CONSTRUCTION PROCESS / MATERIALS & RECYCLING

The adopted approach will aim at minimising the carbon footprint and environmental impact of New City Court construction processes. The Site will be registered under the Considerate Constructor Scheme to commit to best practice management, including the monitoring and mitigation of local habitat, air and water pollution. A Resource Management Plan will be developed for the scheme. On-Site waste will be minimised, and a high proportion of the waste that is produced will be diverted from landfill.

Responsible sourcing of materials from suppliers that operate an Environmental Management System will be prioritised. 100% of all timber included in the construction of floors, roofs, walls and staircase will be legally harvested and traded timber. Where possible the team will aim to use A and A+ rated in the BRE's Green Guide to Specification materials as these have the lowest environmental impact. The proposed Development will incorporate durability and protection measures to prevent damage to vulnerable parts of the internal and external building and landscaping elements. Building elements will incorporate appropriate design and specification measures to limit material degradation due to environmental factors. The design of the proposed Development has been devised with consideration and implementation of measures to accommodate future changes to the use of the building and its systems over its lifespan. Material efficiency has also been reviewed since early stages to ensure the use of materials was optimised for the scheme.

The Development will minimise operational waste sent to landfill, committing to run a compliant recycling scheme with waste being sorted post collection. All dedicated storage will be clearly labelled to assist segregation, storage and collection of the recyclable waste streams.

POLLUTION

The scheme is committed to minimising its noise, light and air pollution impact.

The noise level from the proposed project (as measured from the nearest or most exposed noise-sensitive Development) is targeted to be no greater than +5dB during the day and +3dB at night.

Measures to minimise noise and air (dust) pollution will also be implemented by the contractor on Site during construction. Please refer to the Construction Management Plan document that is being included with this planning application .

Light pollution from the scheme will be minimised through careful lighting design and compliance with the ILP Guidance notes for the reduction of obtrusive light (2011).
Emissions from the boilers and hot water generators will be minimised to ensure concentrations are below the air

quality neutral thresholds.

The provision of cycle storage spaces, the minimisation of car parking space and the provision of electric car / service vehicle charging points (2 no. accessible parking bays) will help to limit the use of cars and reduce the emissions of carbon dioxide and nitrous oxides.

LANDSCAPE & BIODIVERSITY

A Preliminary Ecological Appraisal confirmed that the Site and Zone of Influence (ZoI) do not support any 'Important Ecological Features' (IEF's) that would likely be significantly affected by the proposed Development.

All relevant EU and UK legislation relating to protection and enhancement of ecology will be complied with and the contractors will be required to minimise the ecological impact of construction activities.

An elevated garden is a core part of the scheme which provides a range of habitats and enhances biodiversity on Site. All soft landscaping will be fully irrigated to encourage healthy plant growth. A Landscape Management Plan will be produced and handed over to the scheme's occupants.

Furthermore, the ground floor landscape also enhances Site biodiversity. Please refer to the landscape and biodiversity sections of the Landscape Strategy report.

SUSTAINABLE TRANSPORT

The Site has a Public Transport Accessibility Level (PTAL) value of 6b (Best), thanks to its close proximity to London Bridge station with easy access to the Underground and rail. Creating new links into the Site from the tube and easing congestion.

ENVIRONMENTAL CERTIFICATION: BREEAM STRATEGY

The New City Court scheme will be assessed against:

- BREEAM New Construction (NC) 2018 – Retail;
- BREEAM New Construction (NC) 2018 – Office;
- BREEAM Non-Domestic Refurbishment and Fit-Out (RFO) 2014 - Retail;
- BREEAM Non-Domestic Refurbishment and Fit-Out (RFO) 2014 - Office;

Detailed BREEAM Pre-Assessments have been carried out for the Retail and Offices assets. Each of the BREEAM criteria was fully discussed at a number of BREEAM workshops led by a BREEAM Assessor/ Accredited Professional within the chapmanbdsp environmental team and attended by the project team. These meetings ensured that all members of the Development team have a full understanding of the successful integration of the BREEAM credits and process into their design.

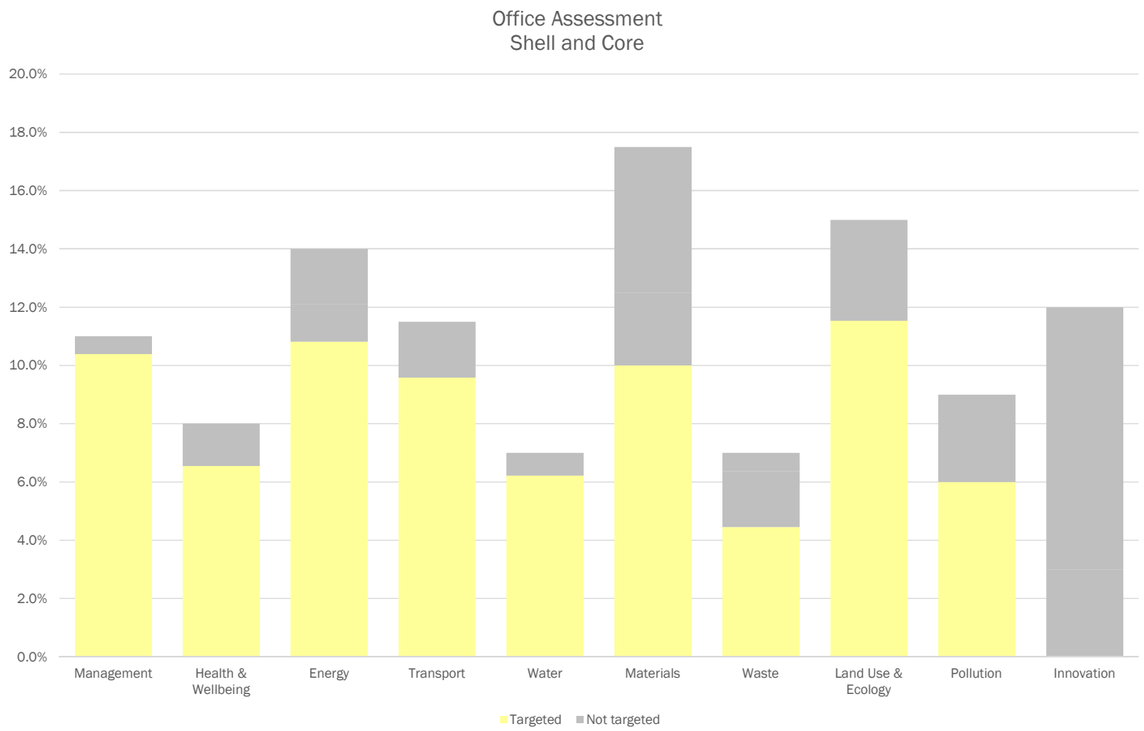
The current prediction is that an 'Excellent' rating is likely to be achieved for the assets assessed under the BREEAM UK Retail and Offices New Construction 2018 schemes; ie. the tower and Keats House. The assets within the Georgian Terrace are assessed under the BREEAM Refurbishment and Fit-Out 2014 scheme, targeting BREEAM very good due to the grade II listed nature of the building. The current predicted score for each certification scheme is:

- Offices New Construction 2018 S&C: 75.6%;
- Retail New Construction 2018 S&C: 73.7%;
- Offices Non-Domestic Refurbishment & Fit-out: 66.09%;
- Retail Non-Domestic Refurbishment & Fit-out: 64.72%.

The BREEAM pre-assessments of the Site demonstrate that the design will holistically incorporate sustainable principles into the full range of sustainability aspects covered by BREEAM: management, health & wellbeing, energy, transport, water, materials, waste, land use & ecology and pollution.

The BREEAM Assessor/BREEAM Accredited Professional has been and will continue to form an integral part of the design team as a consistent point for reference. Experience has proved that this approach offers the surest route to a successful BREEAM certification and holistic sustainable design.

The team has also reviewed the WELL v2 criteria to ensure that the early stage works do not compromise the potential to obtain WELL certification for the scheme in the future. The aspiration is to ensure that the design stays WELL-enabled as the design progresses forward.



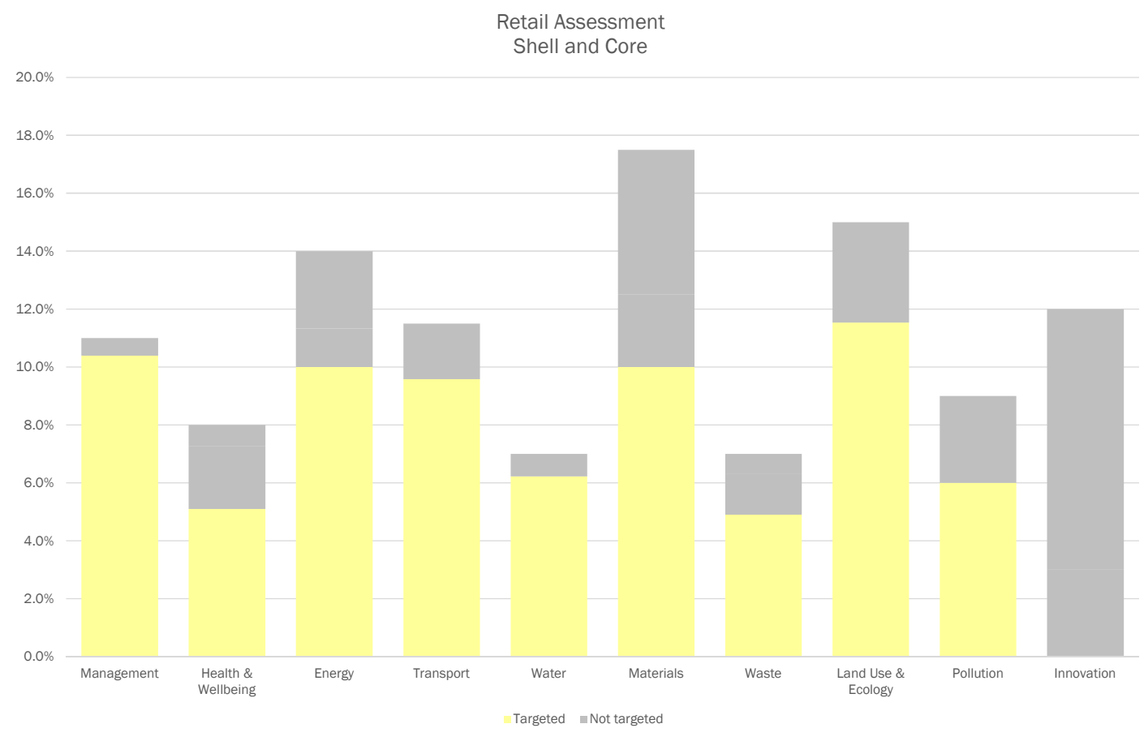
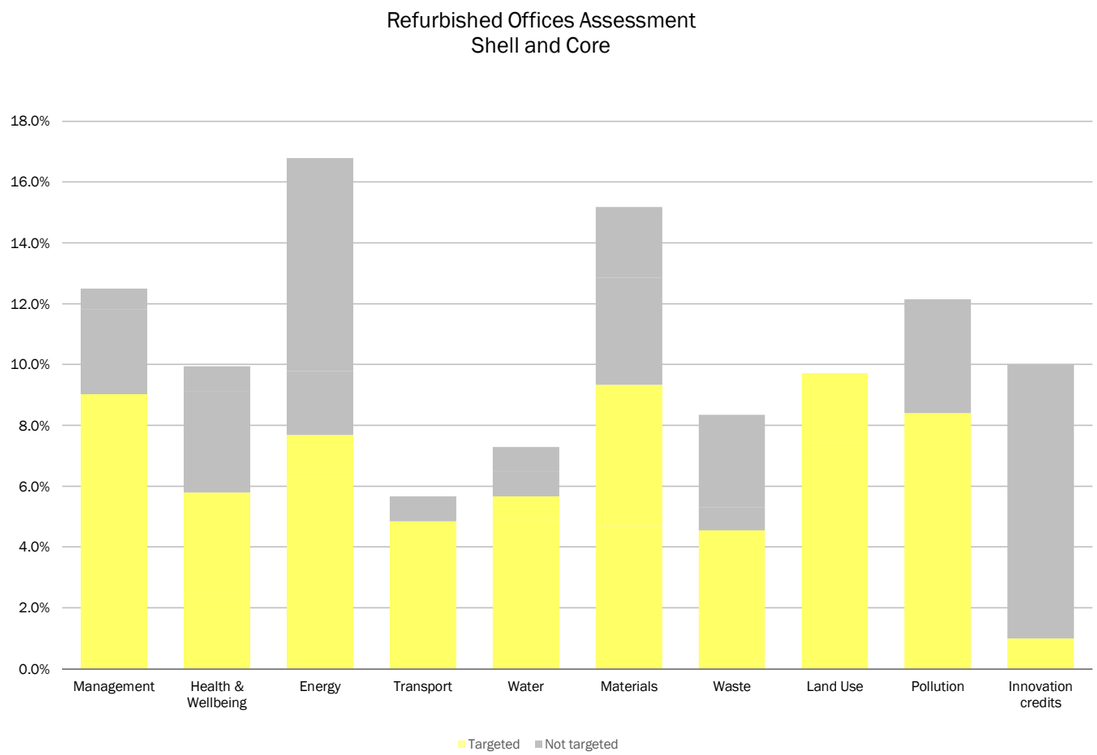


Figure 1: BREEAM Pre-assessment scores for New City Court new build assets (tower and Keats House)



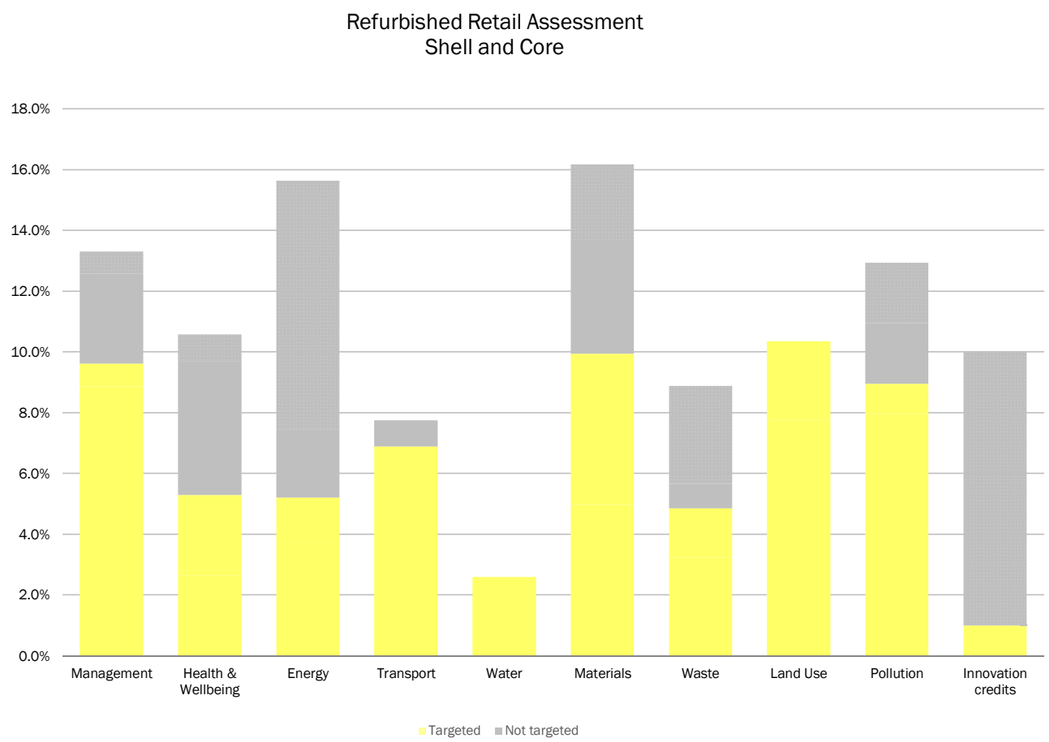


Figure 2: BREEAM Pre-assessment scores for New City Court Refurbishment assets (Georgian Terrace)

1. INTRODUCTION

Chapmanbdsp has been commissioned to provide a Sustainability Strategy in support of the planning application for the proposed Development at New City Court, in Southwark Council, London.

1.2 PROPOSED DEVELOPMENT

The proposed design consists of a comprehensive redevelopment of the site to include demolition of existing 1980s office buildings and erection of a 37-storey building (including ground and mezzanine) of a maximum height of 144m (AOD), restoration and refurbishment of existing listed terrace, and redevelopment of Keats House with retention of existing façade to provide a total of 46,374 sqm of Class B1 office floorspace, 765 sqm of Class A1 retail floorspace, 1,139 sqm of Class A3 retail floorspace, 615 sqm of leisure floorspace (Class D2), 719 sqm hub space (Class B1/ D2) and a 825 sqm elevated public garden, associated public realm and highways improvements, new station entrance, cycling parking, car parking, servicing, refuse and plant areas, and all ancillary or associated works. Please see below the Area Schedule of the Development:

Floor	Area (GIA sqm)
Main Building (Tower)	52,192
Keats House	609
Georgian Terrace	1,700

Table 1: Area Schedule of the Development

For further details please refer to the Design and Access Statement.

1.3 REPORT OBJECTIVES

The objectives of this report are to:

- Demonstrate how the proposed Development will meet the sustainability standards set by Southwark Council and the London Plan;
- Identify areas for consideration at the early stages of the project to facilitate the incorporation of the principles of sustainable design and construction into the design of the Development; and
- Summarise the result of the BREEAM pre-assessments exercise carried out for the scheme, detailing the commitments made by the client and the design team.

The sustainability strategy of the scheme has been developed in the context of the building's historic significance. The desire to optimise the environmental performance and sustainability of this building has been balanced with the need to preserve and enhance its architectural and heritage assets.

1.4 REPORT STRUCTURE

This introductory section is followed by a comprehensive review of national/regional/local policies on sustainability.

Section 3 summarises the results of the energy strategy.

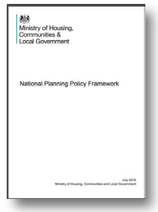
Sections 4 - 9 detail the sustainability strategy for the scheme related to Climate Change Mitigation & Adaptation, Water Efficiency, Flood Risk and SUDs, Pollution, Sustainable Construction Processes/ Materials & Recycling, Landscaping & Biodiversity and Sustainable Transport/Accessibility.

Section 10 summarises the results of the BREEAM pre-assessment exercise carried out for the scheme.

Section 11 provides a summary and conclusion on the Sustainability strategy for the scheme. The detailed BREEAM pre-assessments for the scheme can be found in the Appendices section of this report.

2. PLANNING POLICIES CONTEXT

2.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF) (2018)



The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. Taken together, these policies articulate the Government's vision of sustainable Development, which should be interpreted and applied locally to meet local aspirations. The ministerial foreword of this NPPF highlights that 'the purpose of planning is to help achieve sustainable Development'.

Sustainable Development is defined in the NPPF as comprising Developments 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' in line with the definition of the Brundtland Commission ('Our Common Future', 1987).

This Sustainability Assessment has been developed in line with the NPPF.

2.2 THE LONDON PLAN (2016)

This Spatial Development Strategy for Greater London includes objectives to reduce the capital's impact on, and exposure to, the effect of climate change. The most relevant policies for this Sustainability Assessment are:

POLICY 5.3: 'SUSTAINABLE DESIGN AND CONSTRUCTION'

The highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new Developments and to adapt to the effects of climate change over their lifetime. Developments should incorporate the following sustainable design principles:

- Minimising carbon dioxide emissions across the Site, including the building and services (such as heating and cooling systems);
- Avoiding internal overheating and contributing to the urban heat island effect;
- Efficient use of natural resources (including water), including making the most of natural systems both within and around buildings;
- Minimising pollution (including noise, air and urban runoff);
- Minimising the generation of waste and maximising reuse or recycling;
- Avoiding impacts from natural hazards (including flooding);
- Ensuring Developments are comfortable and secure for users, including avoiding the creation of adverse local climatic conditions;
- Securing sustainable procurement of materials, using local supplies where feasible, and promoting and protecting biodiversity and green infrastructure.

OTHER RELEVANT POLICIES:

The following other London Plan's policies are considered relevant for this Sustainability Assessment:

- Policy 5.2: 'Minimising Carbon Dioxide Emissions';
- Policy 5.4: 'Retrofitting';
- Policy 5.6: 'Decentralised Energy in Development Proposals';
- Policy 5.7: 'Renewable Energy';
- Policy 5.8: 'Innovative energy technologies';
- Policy 5.9: 'Overheating and Cooling';
- Policy 5.10: 'Urban Greening';
- Policy 5.11: 'Green roofs and Development Site environs';
- Policy 5.12: 'Flood Risk Management';
- Policy 5.13: 'Sustainable Drainage';
- Policy 5.16: 'Waste net self-sufficiency';
- Policy 5.17: 'Waste capacity';
- Policy 6.9: 'Cycling;
- Policy 6.10: 'Walking';
- Policy 7.1: 'Lifetime neighbourhoods';
- Policy 7.2: 'An Inclusive environment';
- Policy 7.4: 'Local Character';
- Policy 7.5: 'Public realm';
- Policy 7.6: 'Architecture';
- Policy 7.14: 'Improving Air Quality';
- Policy 7.15: 'Reducing and managing noise, improving and enhancing the acoustic environment and promoting appropriate soundscape';
- Policy 7.19: 'Biodiversity and Access to Nature'.

2.3 GREATER LONDON AUTHORITY (GLA) SUPPLEMENTARY PLANNING GUIDANCE (SPG) ON SUSTAINABLE DESIGN AND CONSTRUCTION (2014)

This Supplementary Planning Guidance (SPG) provides guidance on what measures developers can include in their building designs and operations to achieve the sustainability targets set out in the London Plan. This guidance document includes 3 main sections:

- Chapter 2: 'Resource Management';
- Chapter 3: 'Adapting to climate change and greening the city';
- Chapter 4: 'Pollution Management – Land, Air, Noise, Light and Water'.

2.4 SOUTHWARK COUNCIL - CORE STRATEGY 2011

The core strategy sets out our long term vision, spatial strategy and strategic policies with an implementation plan up until 2026 to deliver sustainable Development. The most relevant policy for this report is:

Strategic Policy 13: 'High Environmental Standards' Developments are required to meet the highest possible environmental standards, including targets based on the Code for Sustainable Homes and BREEAM; and any refurbishment should achieve BREEAM 'Very Good'. All other non-residential Development should achieve at least BREEAM "Excellent".

2.5 SOUTHWARK COUNCIL - NEW SOUTHWARK PLAN PREFERRED OPTION 2015

The Council is now reviewing the Southwark Plan and Core Strategy to prepare a local plan called the New Southwark Plan. This new plan will set out the regeneration strategy from 2017 to 2033 and will also be used to make decisions on planning applications. The preparation of the New Southwark Plan has now reached the 'Preferred Option' stage which follows Southwark's earlier 'Issues and Options' version of the plan and consultation which concluded in March 2015. The most relevant policy of the preferred option plan for this report is:

Policy DM55: 'Environmental Standards Policy' Planning permission will be granted for Development that:

- Achieves high standards of sustainable design and construction;
- Achieves a BREEAM rating of 'Excellent' for major non-residential and non-self-contained residential Development.

3. ENERGY

The overriding objective in the formulation of the energy strategy for the scheme has been to maximise the viable reductions in total carbon dioxide emissions of the New City Court project within the framework of the London Plan energy hierarchy (please refer to the Energy Assessment).

The Environmental and MEP design strategy aims to first minimise the energy demand through passive design and the selection of efficient building systems and controls. A Low and Zero Carbon (LZC) feasibility study has been carried out for the scheme and has concluded that the use of Photovoltaics (PV) panels is the most suitable technology for the scheme.

The whole Development reduction in carbon emissions for the three stages of the energy hierarchy are:

- 'Be Lean': 37.1 % CO_2 emissions reduction;
- 'Be Clean' and 'Be Green': 40.7 % CO_2 emissions reduction.

Following the London Plan Energy Hierarchy (please refer to Figure 3) the project was first assessed considering the building fabric and energy efficiency measures; 'Be Lean' case, and then taking into account the benefits of renewables; 'Be Green' case. A combined heat and power (CHP) system was considered for the scheme however it was not deemed feasible due to the low water heating base load of the scheme.

The London Plan's cooling hierarchy has been followed in order to reduce the reliance on air conditioning systems and minimise the risk of overheating.

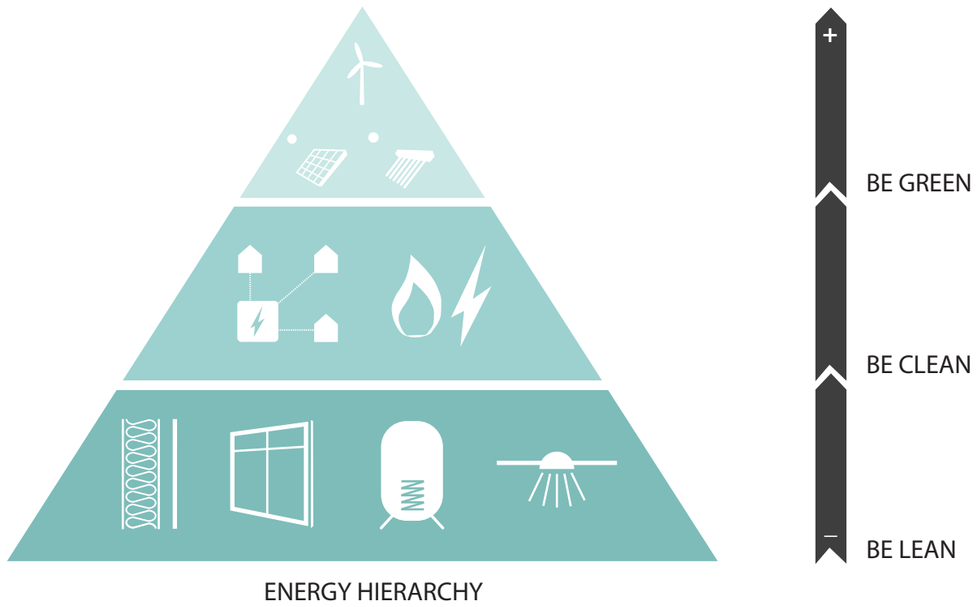


Figure 3: London Plan Energy Hierarchy

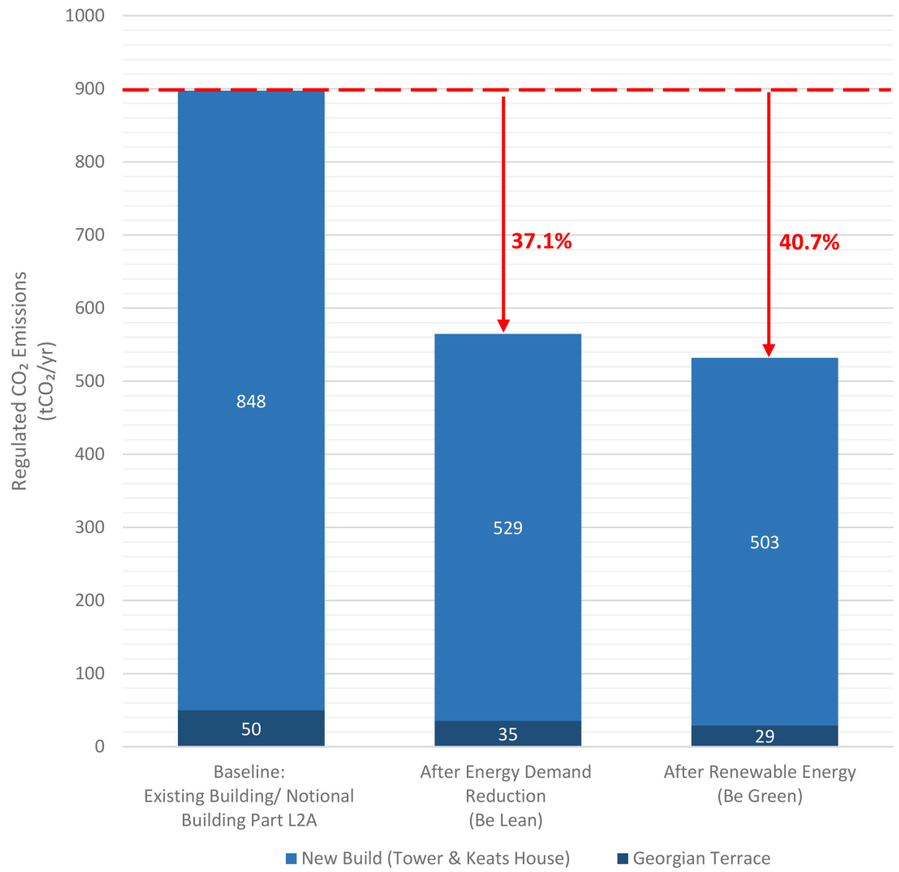


Figure 4: The Energy Hierarchy for the proposed Development

4. CLIMATE CHANGE

The GLA SPG on Sustainable Design and Construction – Chapter 3: 'Adapting to climate change and greening the city' provides guidance on how developers should incorporate climate change adaptation and greening priorities outlined in the London Plan.

Climate change brought about by man-made emissions of greenhouse gases has been identified as the greatest challenge facing human society at the beginning of the 21st century. The effects of climate change are complex, they include:

- Increased average temperatures;
- Rising sea levels;
- Increased precipitation;
- More frequent extreme weather.

Action to address climate change falls into two categories: mitigation and adaptation. Mitigation measures are designed to reduce greenhouse gas emissions to slow down or stop climate change, whilst adaptation measures are designed to adjust society and buildings to cope with climate changes that are already happening.

The design proposal incorporates the following climate change mitigation and adaptation features in line with the London Plan requirements:

4.1 CLIMATE CHANGE MITIGATION

The energy strategy of the scheme has considered measures to mitigate the effects of climate change through the specification of energy efficient systems and LZC (PV panels) to provide a proportion of the energy demand of the Development, hence reducing fossil fuel usage and greenhouse gas emissions.

The building is design ready to accommodate mixed mode operation if air quality/regulatory requirements are resolved.

The proposal for the photovoltaic strategy is an East-West facing installation as it has shown multiple benefits:

- The continuous PV layout reduces the risk of overshadowing from an adjacent PV array;
- The configuration allows for a higher PV density on a given area;
- The configuration resulted in a slight improvement over a south-facing PV layout fitted on the same area. Furthermore the system would allow the PVs to capture more solar energy earlier during the day and later during the afternoon than a conventional south-facing system. Hence the maximum output of the system avoids the energy 'spikes' available via the grid at midday, helping to smoothen the energy demand. This is a problem that was highlighted in Germany where there is a peak in energy provided at lunch time (but not much energy being generated at other times of the day) due to the south facing PV systems.

Please refer to New City Court Energy Statement report for details of the energy strategy proposed for the Development.

4.2 CLIMATE CHANGE ADAPTATION

The scheme has considered climate change adaptation measures in line with the targeted BREEAM 2018 New Construction (NC) Wst 05: 'Adaptation to climate change' credit. Please see below some of the proposed measures for the scheme:

ADAPTING TO HEAVIER RAINFALL

The proposed building design is taking into consideration the existing soil characteristics to make sure the foundations are designed to withstand heavier rainfalls as well as long periods of dry weather. This is particularly important for clay soils which form most of London geology.

ADAPTING TO DRIER AND HOTTER SUMMERS

The energy strategy of the scheme has considered measures to adapt to the effects of climate change, in particular through an optimised design minimising risk of overheating (compliant with the London Plan Cooling Hierarchy). Thermal comfort studies in line with CIBSE Guide will be carried out for current and future climate to ensure the scheme does not overheat.

The proposed Development will significantly reduce its demand on mains water supply through the use of water efficient fittings.

Please refer to the Section 5 of this Sustainability Strategy (Water, Flood Risk & Drainage) for additional details on the water efficiency strategy of the scheme.

ADAPTING TO POSSIBLE HIGHER WIND SPEEDS

Robust, high quality, well-finished and soundly installed materials will be used in order to minimise potential impact from wind damage.

FURTHER INVESTIGATION

The design team is investigating how the project may operate in mixed-mode.

The design team is investigating the potential of harnessing renewable energy from the grid at night for storage and use during the day since during the night the electrical grid has a lower carbon intensity.

5. WATER, FLOOD RISK & DRAINAGE

Consideration has been made with regards to the conservation of water resources through water efficiency measures, in addition to the risk posed by flooding. This includes the use of Sustainable Urban Drainage Systems (SUDs) to reduce the risk of surface water flooding, in line with GLA SPG on Sustainable Design and Construction – Chapter 2: 'Resource Management', Chapter 3: 'Adapting to climate change and greening the city'., London Plan Policy 5.12: 'Flood Risk Management and Policy 5.13: 'Sustainable Drainage',

5.1 FLOOD RISK AND SUDS

In accordance with the National Planning Policy Framework, the Site would be categorised as lying within Flood Zone 3a - an area assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%). However, the Site benefits from the presence of flood defences along the River Thames.

The Site has been assessed as being at very low risk of flooding from rivers or tidal sources.

The Site has been assessed as being at low risk from surcharging sewers and groundwater sources.

The Site has been assessed as being at low risk from artificial sources. The Site has been assessed as being at flood risk from surface water flooding from King's Head Yard. It is recommended that the mitigation measures are implemented during the next design stage.

The proposed Development has an acceptable flood risk within the terms and requirements of the National Planning Policy Framework, subject to implementation of the mitigation measures outlined in this report.

A useful concept used in the Development of sustainable drainage systems is the SUDs management train (sometimes referred to as the treatment train). Just as in a natural catchment, drainage techniques can be used in series to change flow and quality characteristics of the runoff in stages. There are a variety of measures that can be implemented to achieve these goals:

- Site management / Prevention;
- Source control;
- Site control;
- Regional control.

Based on the above and in line with the London Plan and the Sustainable Drainage Manual published by the construction industry research and information association (CIRIA), the following drainage hierarchy has been considered when preparing the surface water disposal strategy:

1. Store water for later use
2. Use infiltration techniques such as porous surfaces in non-clay area
3. Attenuate rainwater in ponds or open water features for gradual release to a watercourse
4. Attenuate rainwater by storing in tanks or sealed water features for gradual release to a watercourse
5. Discharge rainwater direct to a watercourse
6. Discharge rainwater to a surface water drain
7. Discharge rainwater to a combined sewer

As highlighted in the Drainage Strategy, a number of SUDs have been evaluated.

It is proposed to provide a combination of permavoid on ground floor, blue roof on the tower and the attenuation tank to achieve a total volume of 190 m^3 in order to limit the discharge rate to 5 litres/sec from the Development. This discharge rate will be agreed with Thames Water by a way of submitting a pre-planning enquiry.

The proposed attenuation is integrated with permeable paving with tree planting and soil provision. This will allow infiltration of rainwater before any excess reaches the attenuation layer. These soil volumes also ensure the trees will grow to full potential sizes and longevity which is another benefit for climate change concerns.

A schematic drainage strategy is included in the Drainage Strategy report.

5.2 WATER EFFICIENCY

Water consumption in the UK has risen by more than 50% over the last 25 years. This represents a huge strain on natural water resources such as reservoirs and rivers, and has a knock-on effect on wetland habitats and ecosystems. Traditionally the response to increasing demand in the UK has been to build new reservoirs, but this is increasingly unacceptable from environmental and social points of view.

Water use can be minimised by installing water efficient equipment and appliances and increasing awareness of water consumption.

The scheme will incorporate water efficient fittings targeting to achieve the following BREEAM 'Wat 01' water credits' requirements:

- BREEAM New Construction: 4/5 credits;
- BREEAM Refurbishment & Fit-Out - Retail: 4/5 credits
  .

Water efficient fittings and appliances use significantly less water than their traditional counterparts by limiting water flow through pipes and fittings and by changing conventional design to more ergonomic. The water conservation strategy proposed for the scheme incorporates flexibility in the specification of water fittings and appliances, recognising the rapid industry progress in this field, and allowing the inclusion of new and innovative solutions where they are proven to offer:

- Occupant satisfaction;
- Technical Performance;
- Economic competitiveness.

Each meter (main and sub) will have pulsed output or other open protocol communication output to enable connection to appropriate utility monitoring and management system.

Flow control devices that regulate the supply of water to each WC area/facility according to demand will be installed (therefore minimising water leaks and wastage from sanitary fittings).

A greywater recycling system is being provided for toilet flushing and landscaping irrigation.

A major leak detection system will be installed.

Additionally, the proposed landscape design and associated irrigation strategy will be designed to be water efficient and will include drip-fed subsurface irrigation incorporating soil moisture sensors.

'Water efficiency' and irrigation – automated sub-surface irrigation typically reduces water consumption by 50% when compared with manual watering.

In addition to the water conservation measures detailed above, future occupants of the scheme will be encouraged to adopt a more responsible attitude to water use. They will be provided with a non-technical guide which details the operation and performance of the building, including information on water efficient fittings, recommendations for their most efficient usage, and details on external water use.

6. MATERIALS, WASTE & CONSTRUCTION PROCESSES

Preference has been given to the selection of sustainable materials with a low environmental impact over their life cycle (good Green Guide rating for the majority of the materials), as well as sustainable procurement and waste disposal. This review has been undertaken in the context of the GLA SPG on Sustainable Design and Construction – Chapter 2: 'Resource Management', London Plan Policy 5.16: 'Waste net self-sufficiency' and Policy 5.17: 'Waste capacity'

The environmental impact of construction activities will be minimised through the implementation of best practice measures detailed in the following sections:

6.1 SUSTAINABLE CONSTRUCTION

Sustainable construction practices include good Site management to encourage resource efficiency, increase materials recovery and avoid the disposal of waste to landfill.

As part of achieving a sustainable approach to construction, the main contractor will be encouraged to commit to reducing the impact of the construction processes on the environment. In line with the BREEAM New Construction (NC) 2014 requirements, the contractor will be required to register their activities with the Considerate Constructor Scheme (CCS) new Code of Considerate Practice (CCP) and to achieve a score of at least 40 points demonstrating that they will go beyond best practice Site management. A tier 7 main contractor is being selected and hence this target is expected to be achieved.

The contractor will also be required to monitor and mitigate construction Site impacts throughout the construction period (in particular: energy, water, transport of materials to the Site and waste from the Site). Best practice pollution prevention policies will be adopted in respect of air (dust) and water pollution arising from Site activities. To minimise air (dust) pollution, skips will be covered, dust generating Site activities will be dampened down and wet cutters will be used. Low emission and efficient equipment will be used on Site.

A Construction Management Plan will be in place prior to commencement of activities on Site. The construction management plan will appropriately demonstrate how the impacts of air/water pollution, noise and vibration will be mitigated during the construction of the Development. Where feasible timber used on Site will be reclaimed, re-used or responsibly sourced.

The contractors will be also required to minimise the ecological impact of construction activities (Please refer to Section 8 of this Sustainability Assessment for additional details on the measures which will be implemented).

6.2 CONSTRUCTION WASTE

A pre-demolition/refurbishment audit of existing buildings, structures or hard surfaces will be completed to determine if, reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high grade/value applications. The audit will cover:

- Identification of the key refurbishment/demolition materials;
- Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials in accordance with the waste hierarchy.

A Construction Management Plan will be developed for the scheme. On-Site waste will be minimised, and a high proportion of the waste that is produced will be diverted from landfill, through either;

- Re-use on Site (in situ or for new applications) or re-use on other Sites;
- Salvaged/reclaimed for re-use;
- Returned to the suppliers via 'take-back' schemes;
- Recovered and recycled using an approved waste management contractor.

Where it is not possible to reduce or re-use materials on Site, opportunities to recycle the materials off-Site will be explored, where feasible.

The following targets have been set for the amount of waste to be diverted from landfill (in the new-build part of the project):

- BREEAM New Construction 2018 target: 70% of volume (or 80% of tonnage) of non-demolition waste and 80% of volume (or 90% of tonnage) of demolition waste;

6.3 CONSTRUCTION MATERIALS

The proposed Development will give preference to the selection of sustainable materials and the minimisation of waste. The following measures will be considered to demonstrate that the materials specified are sourced, managed and used in a sustainable manner.

- The BRE's Green Guide to Specification will be used to determine the proposed materials' green rating and their impact on the environment. Where possible the team will aim to use A and A+ rated materials as these have the lowest environmental impact;
- The use of locally sourced materials will be prioritised, (where feasible) to reduce transport related emissions and to support local supply chains;
- Responsible sourcing of materials from suppliers that operate an Environmental Management System will be prioritised. 100% of all timber included in the construction of floors, roofs, walls and staircase will be legally harvested and traded timber (FSC or other certification) ;
- The use of insulation materials with low Global Warming Potential (GWP) will be prioritised;
- The use of high VOC content paints, sealants and all ozone depleting materials including insulation will be avoided;
- Materials will be specified to ensure they can be supplied for the scheme without leading to any critical supply issue due to scarcity of materials;
- Materials will be selected to ensure materials hazardous at end of life are avoided wherever possible. If not, a proper methodology for end of life disposal will be provided;
- Products that can be recycled at end of life will be preferred and selected wherever possible.

The proposed Development will incorporate durability and protection measures to prevent damage to vulnerable parts of the internal and external building and landscaping elements. Building elements will incorporate appropriate design and specification measures to limit material degradation due to environmental factors. The suitability of the materials is to be assessed, tested if necessary and specified accordingly based on the relevant Standards for their various properties to ensure their durability, commercial viability, appearance and performance. This will allow the achievement of BREEAM 2018 New Construction (NC) Mat 05: 'Designing for durability and resilience' credit's requirements.

Material efficiency has been considered since early design stages and a specific workshop was held to review and develop specific strategies to optimise material use in line with the BREEAM 2018 New Construction (NC) Mat 06: 'Material Efficiency' credit.

6.4 OPERATIONAL WASTE

A Waste Management Plan has been prepared in support of the planning application for New City Court.

The Development will be provided with adequate internal and external space for the storage of refuse and recyclable waste, in line with BREEAM requirements.

Separate waste stores will be provided. All dedicated storage will be clearly labelled to facilitate the segregation and collection of the recyclable waste streams.

7. POLLUTION

The Development has minimised its impact on noise, air and light pollution in line with the guidance of the GLA SPG on Sustainable Design and Construction – Chapter 4: 'Pollution Management', London Plan Policy 7.14: 'Improving Air Quality', Policy 7.15: 'Reducing and managing noise, improving and enhancing the acoustic environment and promoting appropriate soundscape'.

7.1 NOISE POLLUTION

The proposed Development is of very high quality, with a standard of accommodation above the baseline requirements suggested by Building Regulations or related British Standards. This is particularly relevant with regards to noise ingress. Furthermore the external noise levels are to comply with the Site and local planning requirements.

CONSTRUCTION PHASE NOISE POLLUTION

Measures to minimise noise pollution will also be implemented by the contractor on Site during construction. Please refer to the Construction Management Plan report that is being submitted with this planning application.

7.2 LIGHT POLLUTION

Light pollution from the scheme will be minimised through careful lighting design.

The external lighting will be designed in compliance with the guidance in the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. Lighting will be designed so that it is directed to where it is needed and does not spill into neighbouring residential properties or affect wildlife.

All external lighting specified for the scheme (except for safety and security lighting) will include appropriate controls to ensure they can be automatically switched off between 11pm and 7am. Safety and security lighting system will comply with the lower levels of lighting recommended during these hours in the ILP's Guidance notes. Where specified, illuminated advertisements will be designed in compliance with ILE Technical Report 5 – 'The Brightness of Illuminated Advertisements'.

7.3 AIR POLLUTION

An Air Quality Neutral Assessment has been prepared for the Site by Waterman in accordance with the requirements set out in the London Plan Policy 7.14 to support the planning application for the scheme. Air pollution will be minimised as far as is practicable using best available technology and transport planning and the use of photovoltaics and air source heat pumps. Emissions will be minimised to ensure concentrations are in line with the air quality requirements. Further details are provided in the Air Quality chapter in the Environmental Statement report.

Moreover, measures to minimise air pollution will be implemented by the contractor on Site during construction.

The minimisation of car parking spaces and the provision of cycle storage spaces, which will encourage the building users to use public transport and promote cycling, combined with the electric charging points, to encourage electrical vehicle use, will also help to reduce the emissions of carbon dioxide and nitrous oxides.

Futhermore, the inclusion of full-size trees that are detailed in the Landscape Strategy report are also expected to have a positive impact on the air quality of the Site.

8. LANDSCAPE & BIODIVERSITY

An Ecologist from Waterman has been appointed and undertaken a preliminary ecological appraisal.

8.1 ECOLOGICAL APPRAISAL

The Preliminary Ecological Appraisal has confirmed that the Site and Zone of Influence (ZoI) do not support any 'Important Ecological Features' (IEF's) that would likely be significantly affected by the proposed Development.

All relevant EU and UK legislation relating to protection and enhancement of ecology will be complied with and the contractors will be required to minimise the ecological impact of construction activities.

An elevated garden is a core part of the scheme which provides a range of habitats and enhances biodiversity on Site. All soft landscaping will be fully irrigated to encourage healthy plant growth. A Landscape Management Plan will be produced and handed over to the scheme's occupants.

8.2 CONSTRUCTION PHASE MITIGATION MEASURES

All relevant UK legislation relating to protection and enhancement of ecology will be complied with and the contractors will be required to minimise the ecological impact of construction activities. The following measures will be implemented:

- Nomination of a 'Biodiversity Champion' with the authority to influence Site activities;
- Training of all workforce on how to protect Site ecology;
- Record of actions taken to protect biodiversity;
- Works to be conducted at times to minimise ecological disturbance.

8.3 LANDSCAPING PROPOSAL

The landscaping proposal has been developed by MRG Studio. The aim has been to provide a landscape that:

- Enhances the urban experience through the proposal of a new public courtyard;
- Incorporates new planting at street level and the raised garden;
- Enhances biodiversity on Site.

Further detail is provided in the Landscape Strategy report.

9. SUSTAINABLE TRANSPORT & ACCESSIBILITY

Transport Assessment (TA) and Travel Plan (TP) have been prepared by TPP in support of the planning application for the Development.

Through the TA and TP, the Development aims to encourage future occupants and visitors to travel via sustainable means to the Site, thus reducing the dependency on travel by car. The TA and TP have been developed within the context of the GLA SPG on Sustainable Design and Construction – Chapter 2: 'Resource Management', the London Plan Policy 6.9: 'Cycling' and Policy 6.10: 'Walking'.

The Site has a Public Transport Accessibility Level (PTAL) value of 6b (Best), thanks to its close proximity to London Bridge station with easy access to the Underground and rail.

The Development seeks to enhance cycling provision in the area, and the London Plan has been appraised in order to determine the cycle parking levels proposed. Secure cycle storage will be an integral part of the Travel Plan measures.

Please note that eight BREEAM New Construction (NC) 2018 credits will be targeted for Tra 02: 'Sustainable Transport Measures.

Two accessible parking bays only are being provided to encourage the use of cycling, walking and public transport. Furthermore 1150 cycle spaces at B1 level are being provided.

10. BREEAM STRATEGY

10.1 INTRODUCTION

The New City Court scheme is targeting a BREEAM rating of 'Excellent' for the areas assessed under BREEAM New Construction (NC) 2018 and 'Very Good' for the areas assessed under BREEAM Non-Domestic Refurbishment and Fit-Out (RFO) 2014.

10.2 BACKGROUND

BREEAM (Building Research Establishment's Environmental Assessment Method) is the leading environmental assessment method for UK non-residential buildings. It sets the standard for best practice design and encourages and certifies the incorporation of best environmental practice within the building design and construction.

The BREEAM assessment process involves the evaluation of the buildings performance against the scheme and its criteria using an independent third party auditor: a BREEAM Assessor. The BREEAM certificate provides formal verification that the Assessor has completed an assessment of the building in accordance with the requirements of the scheme and its quality standards and procedures. A BREEAM certificate verifies that a building's BREEAM rating, at the time of certification, accurately reflected its performance against the BREEAM standards.

10.3 BREEAM SCHEMES - NEW CITY COURT

The New City Court scheme will be assessed against:

- BREEAM New Construction (NC) 2018 – Retail;
- BREEAM New Construction (NC) 2018 – Office;
- BREEAM Non-Domestic Refurbishment and Fit-Out (RFO) 2014 - Retail;
- BREEAM Non-Domestic Refurbishment and Fit-Out (RFO) 2014 - Office;

Detailed BREEAM Pre-Assessments have been carried out for the Retail and Offices assets. Each of the BREEAM criteria was fully discussed at a number of BREEAM workshops led by a BREEAM Assessor/ Accredited Professional within the ChapmanBDSP Environmental team and attended by the project team. These meetings ensured that all members of the Development team have a full understanding of the successful integration of the BREEAM credits and process into their design.

10.4 BREEAM CATEGORIES

The BREEAM standard assesses and awards credits based on the environmental performance within a framework of nine categories for BREEAM NC 2018 and BREEAM RFO 2014. These being:

- Management;
- Health and Wellbeing;
- Energy;
- Transport;
- Water;
- Materials;
- Waste;
- Land use and Ecology;
- Pollution.

BREEAM also awards additional credits in recognition of sustainability related benefits or performances that go beyond best practice. An additional 1% can be added to a building's overall score for each 'Innovation Credit' achieved up to a maximum of 10 credits for any one building. Innovation credits can be awarded regardless of the building's final BREEAM rating.

The categories within BREEAM are weighted according to their level of importance. Each category is allocated a different number of credits and therefore individual credits carry specific weightings, as a percentage of the total points score.

10.5 BREEAM LEVELS

During the assessment by an independent BREEAM Assessor the total number of credits awarded for each of the BREEAM categories is summed and the appropriate category weighting applied. Finally, the weighted score of each category is added together to produce a single environmental score. The BREEAM ratings are divided into five levels of compliance 'Pass', 'Good', 'Very Good', 'Excellent' and 'Outstanding'. The target for 'Very Good' is 55%. The target for 'Excellent' is 70%.

10.6 BREEAM MINIMUM STANDARDS

The BREEAM standard includes mandatory minimum performance standards which must be met in order to achieve the BREEAM rating sought.

The BREEAM rating can only be achieved if the mandatory issues achieve the minimum standards relevant to each scheme. All other credits are tradable (i.e. they are voluntary and a developer/designer can make choices on the most appropriate standards/credits for a given Site). It is these tradable credits that provide the flexibility within the BREEAM standard. Once all mandatory credits are achieved the developer is then free to make up the credits required for the target rating from the tradable credits, to give an overall score.

10.8 BREEAM PROCESS

BREEAM may be implemented at different stages of the design, construction and use of a building. BREEAM assessment of a new build, refurbishment or fit-out is split into three main stages.

- BREEAM Pre-Assessment at pre-planning stages which will form the basis for the inclusion of BREEAM principles and awareness in the whole design process;
- Assessment of the design and commitments against the BREEAM criteria– this leads to an Interim Certificate; and
- Review of the building during and post construction to ensure the design and commitments have been fully implemented in the building – this leads to a Final Certificate.

10.7 BREEAM PRE-ASSESSMENTS RESULTS

The current prediction is that an 'Excellent' rating is likely to be achieved for the assets assessed under the BREEAM UK New Construction 2018 scheme; ie. the tower and Keats House. The assets within the Georgian Terrace are assessed under the BREEAM Refurbishment and Fit-Out 2014 scheme, targeting BREEAM 'Very Good'. The current score for each certification scheme is:

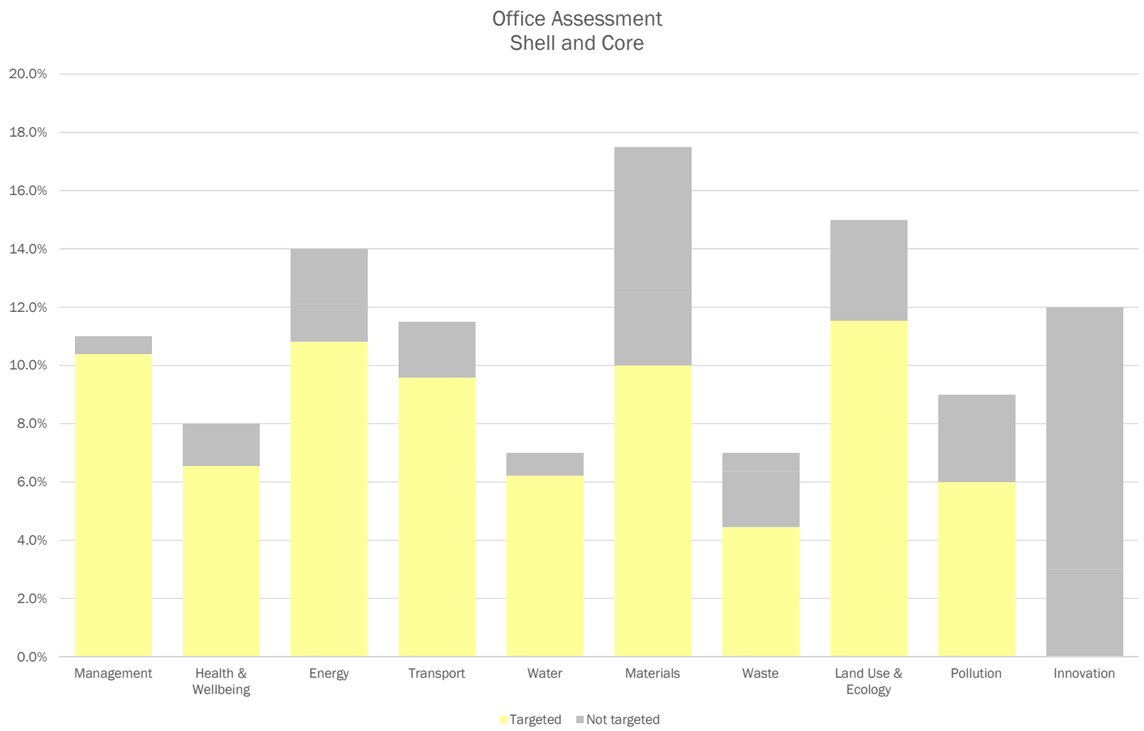
- Offices New Construction 2018 S&C: 75.6%;
- Retail New Construction 2018 S&C: 73.7%;
- Offices Non-Domestic Refurbishment & Fit-out: 66.09%;
- Retail Non-Domestic Refurbishment & Fit-out: 64.72%.

The BREEAM Assessor/BREEAM Accredited Professional has been and will continue to form an integral part of the design team as a consistent point for reference. Experience has proved that this approach offers the surest route to a successful BREEAM certification and holistic sustainable design.

10.9 CONCLUSION – NEXT STEPS

The BREEAM pre-assessments of New City Court demonstrate that the design will holistically incorporate sustainable principles into the full range of sustainability aspects covered by BREEAM: management, health & wellbeing, energy, transport, water, materials, waste, land use & ecology and pollution.

Formal assessments will take place once the tender documentation is produced and will require submission of a full evidence bundle from the client and the design team to show compliance with the credits.



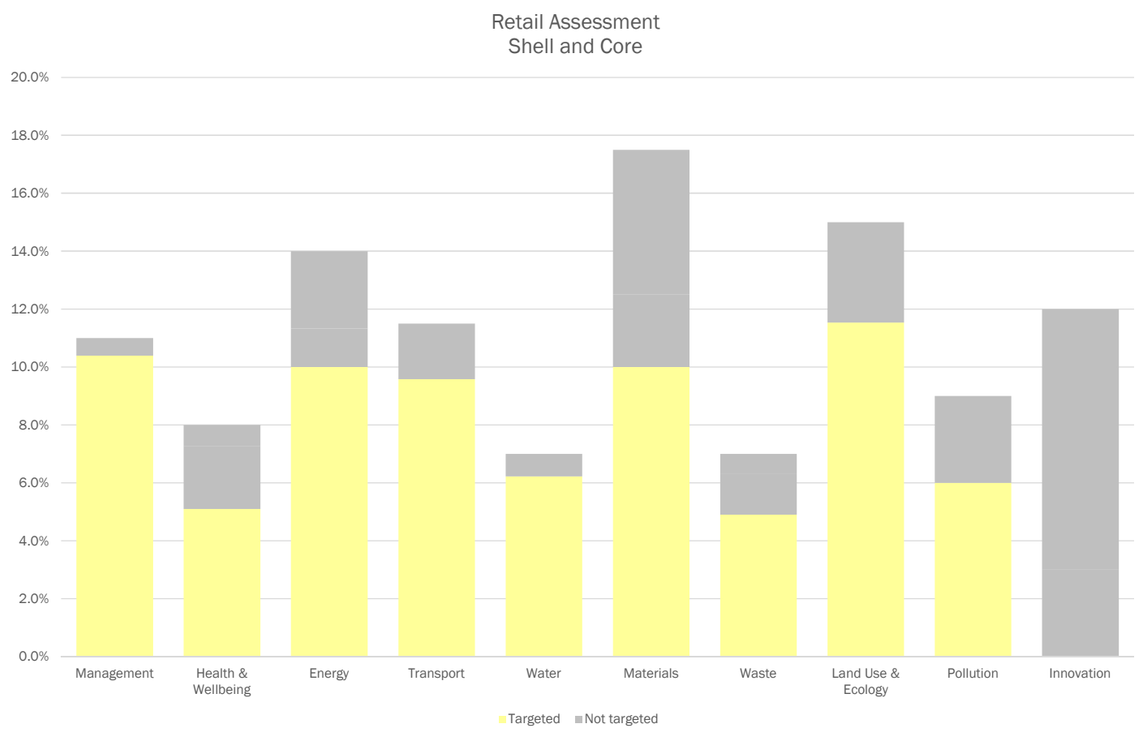
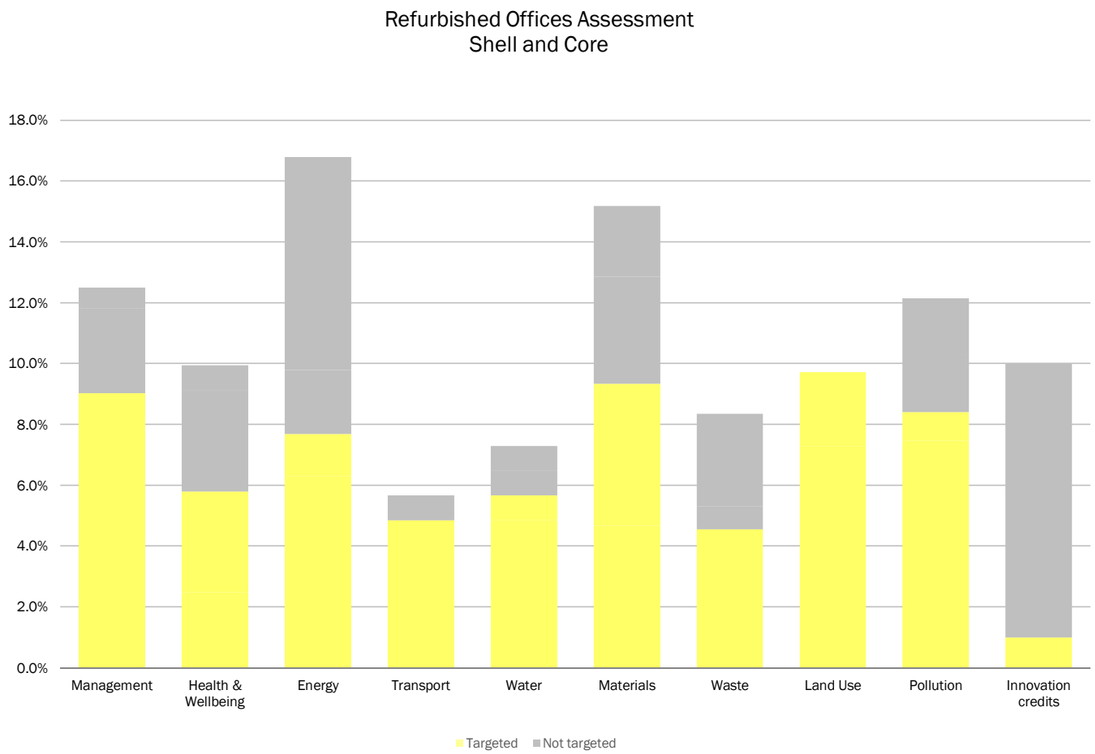


Figure 5: BREEAM Pre-assessment scores for New City Court new build assets (tower and Keats House)



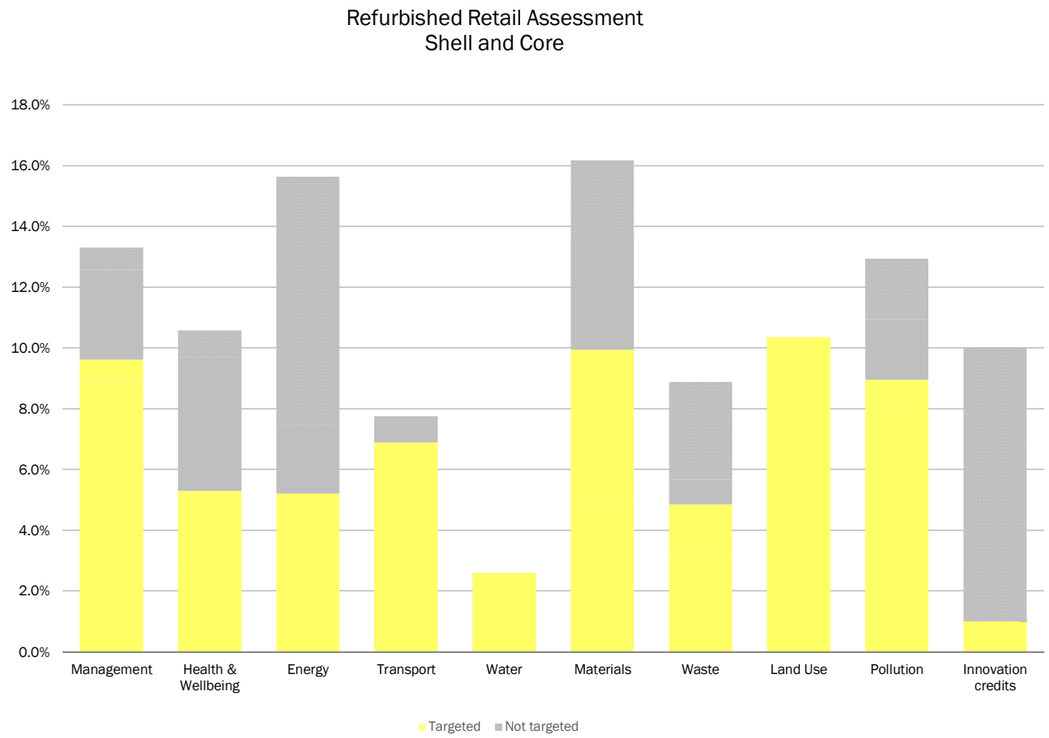


Figure 6: BREEAM Pre-assessment scores for New City Court Refurbishment assets (Georgian Terrace)

11. CONCLUSION

This report has been developed to detail the sustainability features of the Development and demonstrates how they relate to the relevant planning policy documents including the London Plan, the GLA Supplementary Planning Document (SPD) and the Southwark Council Core Strategy.

The above mentioned documents have been used to guide the Development's commitment to sustainability. Each of the BREEAM and Greater London Authority (GLA)/Southwark sustainability criteria was discussed during different workshops for the scheme. These meetings ensured that all members of the Development team have a full understanding of the successful integration of the relevant sustainable requirements into their design.

The New City Court scheme is targeting a BREEAM rating of 'Excellent' for the New-Build assets and 'Very Good' for the Refurbishment assets in line with Southwark policy. The BREEAM Assessor/BREEAM Accredited Professional has been and will continue to form an integral part of the design team and a consistent point for reference, review and questions. Experience has proved that this approach offers the surest route to a successful BREEAM certification and holistic sustainable design.

The Sustainability Strategy for New City Court demonstrates that the design will holistically incorporate sustainable principles into the full range of sustainability aspects covered by BREEAM, the GLA and Southwark planning documents: Energy, Climate Change, Water, Flood Risk & Drainage, Sustainable Construction Process, Materials & Recycling, Landscaping & Biodiversity, Pollution, Accessibility & Sustainable Transport.

APPENDIX A:
BREEAM
NEW CONSTRUCTION 2018
PRE-ASSESSMENTS

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
	Management												
Man 01 Project brief and design	**Project delivery planning** **1** Prior to completion of the **Concept Design**, the project delivery stakeholders meet to identify and define for each key phase of project delivery: 1.a: Roles 1.b: Responsibilities 1.c: Contributions. **2** Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project: 2.a: End user requirements 2.b: Aims of the design and design strategy 2.c: Particular installation and construction requirements or limitations 2.d: Occupiers' budget and technical expertise in maintaining any proposed systems 2.e: Maintainability and adaptability of the proposals 2.f: Operational energy (see Ene 01 Reduction of energy use and carbon emissions) 2.g: Requirements for the production of project and end user documentation 2.h: Requirements for commissioning, training and aftercare support. Where the building occupants are not known, the list of considerations above still applies. The appropriate project delivery stakeholder considers each item, based on likely scenarios of building occupancy. **3** The project team demonstrates how the project delivery stakeholders' contributions and the consultation process outcomes influence the following: 3.a: Initial Project Brief 3.b: Project Execution Plan 3.c: Communication Strategy 3.d: Concept Design.								1	1	1	1	
	Stakeholder consultation (interested parties) **4** Prior to completion of the **Concept Design**, the design team consult with all interested parties on matters that cover the minimum consultation content. **5** Demonstrate how the stakeholder contributions and consultation exercise outcomes influence the Initial Project Brief and Concept Design. **6** Prior to completion of the detailed design (**RIBA Stage 4**, Technical Design or equivalent), all interested parties give and receive consultation feedback. *Additionally for Education, Healthcare, Law courts and Major transportation hub building types only:* **7** An independent party carries out the consultation exercise. The Design Quality Indicator (DQI) and the Achieving Excellence Design Evaluation Toolkit (AEDET) could be used as methods to assess the design quality of buildings.								1		1		
	Prerequisite for BREEAM AP (Concept and Developed Design) **8** The project team, including the client, formally agree strategic performance targets early in the design process (with the support of the BREEAM AP where appointed).								-	-	-	-	
	BREEAM AP (Concept Design) **9** Involve a BREEAM AP in the project at an appropriate time and level to: 9.a: Work with the project team, including the client, to consider the links between BREEAM issues and assist them in maximising the project's overall performance against BREEAM, from their appointment and throughout Concept Design. 9.b: Monitor progress against the performance targets agreed under criterion 8 throughout all stages after their appointment where decisions critically impact BREEAM performance. 9.c: Proactively identify risks and opportunities related to the achievement of the targets agreed under criterion 8. 9.d: Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. 9.e: Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team.			Maximise Project Performance	Maximise Project Performance				1	1	1	1	
	BREEAM AP (Developed Design) **10** Criteria 8 and 9 are achieved. **11** Involve the BREEAM AP in the project at an appropriate time and level to: 11.a: Work with the project team, including the client, to consider the links between BREEAM issues and to assist them in maximising the project's overall performance against BREEAM throughout Developed Design. 11.b: Monitor progress against the performance targets agreed under criterion 8 throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance. 11.c: Proactively identify risks and opportunities related to the achievement of the targets agreed under criterion 8. 11.d: Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. 11.e: Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team.								1	1	1	1	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Man 02 Life cycle cost and service life planning	**Elemental LCC** **1** A competent person carries out an outline, entire asset LCC plan at Process Stage 2 (**equivalent to Concept Design - RIBA Stage 2**) together with any design options appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865: 2008. **2** The elemental LCC plan: 2.a: Provides an indication of future replacement costs over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years); 2.b: Includes service life, maintenance and operation cost estimates. The study period should ideally be agreed by the client, in line with the design life expectancy of the building. However, where the life expectancy of the building is not yet formally agreed (due to being at very early design stages), the default design life of 60 years should be used for modelling purposes (in line with the UK default). **3** Demonstrate, using appropriate examples provided by the design team, how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.			Elemental LCC					2	2	2	2	
	Component level LCC options appraisal **4** A competent person develops a component level LCC options appraisal by the end of **Process Stage 4 (equivalent to Technical Design – RIBA Stage 4)** in line with PD 156865: 2008. The component level LCC includes (where present): 4.a: Envelope, e.g. cladding, windows, or roofing 4.b: Services, e.g. heat source, cooling source, or controls 4.c: Finishes, e.g. walls, floors or ceilings 4.d: External spaces, e.g. alternative hard landscaping, boundary protection. The Component level LCC option appraisal should review all of the above component types (where present). However, you do not need to consider every single example cited under each component; only a selection of those most likely to draw valued comparisons. This is to ensure that a wide range of options are considered and help focus the analysis on components which would benefit the most from appraisal. **5** Demonstrate, using appropriate examples provided by the design team, how the component level LCC options appraisal has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.					Component Level LCC Options			1	1	1	1	
	Capital cost reporting **6** Report the capital cost for the building in pounds per square metre of gross internal floor area (£k/ m^2) as part of the submission to BRE.								1	1	1	1	
Ene 06 Responsible construction practices	**Prerequisite - Legally harvested and traded timber** **1** All timber and timber-based products used during the construction process of the project are 'legally harvested and traded timber'								-	-	-	-	
	Prerequisite - For Healthcare NHS buildings only: **2** To award any of the available credits for this issue, any party who at any stage manages the construction site (e.g. the principal contractor, the demolition contractor) operates an Environmental Management System (EMS) (see requirements of criterion 3).								-	-	-	-	
	Environmental management **3** All parties who at any stage manage the construction site (e.g. the principal contractor, the demolition contractor) operate an EMS covering their main operations. The EMS must: 3.a: Be third party certified, to ISO 14001: 2015, EMAS (EU Eco-Management and Audit Scheme) or equivalent standard; OR 3.b: In compliance with BS 8555: 2016 have: 3.b.i Appropriate structure 3.b.ii Reached implementation stage phase four 'implementation and operation of the environmental management system' 3.b.iii Completed defined phase audits one to four. **4** All parties who at any point manage the construction site (e.g. the principal contractor, the demolition contractor) implement best practice pollution prevention policies and procedures on site in accordance with Working at construction and demolition sites: PPG6, Pollution Prevention Guidelines.								1	1	1	1	
	Prerequisite for the BREEAM AP credit **5** The client and the contractor formally agree performance targets.								-	-	-	-	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Man 03 Responsible construction pra	**BREEAM AP (site)** **6** Involve a BREEAM AP in the project at an appropriate time and level to: 6.a: Work with the project team, including the client, to consider the links between BREEAM issues and assist them in achieving and if possible going beyond the design intent, to maximise the project's performance against the agreed performance targets throughout the Construction, Handover and Close Out stages. 6.b: Monitor construction progress against the performance targets agreed under criterion 5 throughout all stages where decisions critically impact BREEAM performance. 6.c: Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed under criterion 5. 6.d: Provide feedback to the constructors and the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. 6.e: Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor.								1	1	1	1	
	Responsible construction management **One credit** **7** Achieve items listed as "required for one credit" in table 4.1 in the BREEAM manual. **Two credits** **8** Achieve criterion 7. **9** Achieve six additional items in the table 4.1.								2	2	2	2	
	Monitoring of construction site impacts **10** Assign responsibility to an individual for monitoring, recording and reporting energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme. To ensure the robust collection of information, this individual must have the appropriate authority and responsibility to request and access the data required. Where appointed, the BREEAM AP could perform this role. **First monitoring credit - Utility consumption** *Energy consumption* **11** Achieve criterion 10. **12** Set targets for the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. **13** Monitor and record data for the energy consumption described in criterion 12. **14** Report the total carbon dioxide emissions (total $kgCO_2$/project value) from the construction process via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking). *Water consumption* **15** Achieve criterion 10. **16** Set targets for the potable water consumption (m^3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. **17** Monitor and record data for the potable water consumption described in criterion 16. **18** Use the collated data to report the total net water consumption (m^3), i.e. consumption minus any recycled water use from the construction process via BREEAM Projects **Second monitoring credit - transportation of construction materials and waste** **19** Achieve criterion 10. **20** Set targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum cover: 20.a: transportation of materials from the point of supply to the building site, including any transport, intermediate storage and point of supply. Monitor as a minimum: 20.a.i Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01). 20.a.ii Ground works and landscaping materials. 20.b: transportation of construction waste from the construction gate to waste disposal processing or recovery centre gate. This monitoring must cover the construction waste groups outlined in the project's resource management plan. **21** Monitor and record data for the transportation movements as described in criterion 20. **22** Using the collated data, report separately for materials and waste, the total transport-related carbon dioxide emissions (kgCO2-eq), plus total distance travelled (km) via BREEAM Projects								2	2	2	2	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1 Office Shell and Core		3 Retail Shell and Core		Key responsibility
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Man 04 Commissioning and handover	**Commissioning - testing schedule and responsibilities** **1** Prepare a schedule of commissioning and testing. The schedule identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and for testing and inspecting building fabric. **2** The schedule identifies the appropriate standards for all commissioning activities to be conducted, where applicable, in accordance with: 2.a: Current Building Regulations 2.b: BSRIA guidelines 2.c: CIBSE guidelines 2.d: Other appropriate standards Exclude from the assessment any process or manufacture-related equipment specified as part of the project. However, include such equipment in cases where they form an integral part of the building HVAC services, such as some heat recovery systems. **3** Where a building management system (BMS) is specified: 3.a: Carry out commissioning of air and water systems when all control devices are installed, wired and functional 3.b: Include physical measurements of room temperatures, off-coil temperatures and other key parameters, as appropriate, in commissioning results 3.c: The BMS or controls installation should be running in auto with satisfactory internal conditions prior to handover 3.d: All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface prior to handover 3.e: Fully train the occupier or facilities team in the operation of the system. **4** Appoint an appropriate project team member to monitor and programme pre-commissioning, commissioning and testing. Where necessary include re-commissioning activities on behalf of the client. **5** The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works. Allow the required time to complete all commissioning and testing activities prior to handover.								1	1	1	1	
	Commissioning - design and preparation **6** Achieve criteria 1 to 5. **7** During the design stage, the client or the principal contractor appoints an appropriate project team member (see criterion 4), provided they are not involved in the general installation works for the building services systems, with responsibility for: 7.a: Undertaking design reviews and giving advice on suitability for ease of commissioning. 7.b: Providing commissioning management input to construction programming and during installation stages. 7.c: Management of commissioning, performance testing and handover or post-handover stages. For buildings with complex building services and systems, this role needs to be carried out by a specialist commissioning manager								1	1	1	1	
	Testing and inspecting building fabric **8** Achieve criteria 1 to 5. **9** Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through airtightness testing and a thermographic survey). A suitably qualified professional undertakes the survey and testing in accordance with the appropriate standard. **10** Rectify any defects identified during post-construction testing and inspection prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage								1	1	1	1	
	Handover **11** Prior to handover, develop two building user guides (see Methodology) for the following users: 11.a: A non-technical user guide for distribution to the building occupiers. 11.b: A technical user guide for the premises facilities managers. A draft copy is developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users. **12** Prepare two training schedules timed appropriately around handover and proposed occupation plans for the following users: 12.a: A non-technical training schedule for the building occupiers. 12.b: A technical training schedule for the premises facilities managers.						Building user guides and training schedules prepared	Building user guides and training schedules prepared	1	1	1	1	
	Aftercare support **1** Provide aftercare support to the building occupiers through having in place operational infrastructure and resources. This includes as a minimum: 1.a: A meeting between the aftercare support team or individual, and the building occupier or management team (prior to initial occupation, or as soon as possible thereafter) to: 1.a.i Introduce the aftercare support available, including the content of the building user guide (where it exists) and training schedule. 1.a.ii Present key information on the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible. 1.b: On-site facilities management training including: 1.b.i a walkabout of the building AND 1.b.ii introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands. 1.c: Provide initial aftercare support for at least the first month of building occupation, e.g. weekly attendance on-site, to support building users and management (the level of frequency will depend on the complexity of the building and building operations). 1.d: Provide longer term aftercare support for occupiers for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users and management. **2** Establish operational infrastructure and resources to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is substantially occupied. This facilitates analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and user behaviours accordingly.								N/A	N/A	N/A	N/A	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Man 05 Aftercare	**Commissioning - implementation** **3** Complete the following commissioning activities over a minimum 12-month period, once the building becomes substantially occupied: 3.a: Complex systems: The specialist commissioning manager will: 3.a.i Identify changes made by the owner or operator that might have caused impaired or improved performance. 3.a.ii Test all building services under full load conditions, i.e. heating equipment in mid-winter, cooling and ventilation equipment in mid-summer and under part load conditions (spring and autumn). 3.a.iii Where applicable, carry out testing during periods of extreme (high or low) occupancy. 3.a.iv Interview building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. 3.a.v Produce monthly reports comparing sub-metered energy performance to the predicted one (see Ene 01) 3.a.vi Identify inefficiencies and areas in need of improvement. 3.a.vii Re-commission systems (following any work needed to serve revised loads), and incorporate any revisions in operating procedures into the operations and maintenance (O&M) manuals. 3.b: Simple systems (naturally ventilated): The external consultant, aftercare team or facilities manager will: 3.b.i Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. 3.b.ii Identify deficiencies and areas in need of improvement. 3.b.iii Re-commission systems and incorporate any relevant revisions in operating procedures into the O&M manuals.								N/A	N/A	N/A	N/A	
	Post-occupancy evaluation (POE) **4** The client or building occupier commits to carry out a POE exercise one year after the building is substantially occupied. This gains comprehensive in-use performance feedback (see criterion 5.b.v) and identifies gaps between design intent and in-use performance. The aim is to highlight any improvements or interventions that need to be made and to inform operational processes. **5** An independent party carries out the POE covering: 5.a: A review of the design intent and construction process (review of design, procurement, construction and handover processes). 5.b: Feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering: 5.b.i Internal environmental conditions (light, noise, temperature, air quality) 5.b.ii Control, operation and maintenance 5.b.iii Facilities and amenities 5.b.iv Access and layout 5.b.v Energy and water consumption (see criterion 2 5.b.vi Other relevant issues, where appropriate **6** The independent party provides a report with lessons learned to the client and building occupiers. **7** The client or building occupier commits funds to pay for the POE in advance. This requires an independent party to be appointed to carry out the POE as described in criterion 5. Evidence of the appointment of the independent party and schedule of responsibilities which fulfils the BREEAM criteria are acceptable to demonstrate compliance.								N/A	N/A	N/A	N/A	
								Total - Management:	18	17	18	17	
								Credit value:	0.61%		0.61%		
	Health & Wellbeing												
ual comfort	**Control of glare from sunlight** **1** Identify areas at risk of glare using a glare control assessment. The glare control assessment also justifies any areas deemed not at risk of glare. **2** A glare control strategy designs out potential glare in all relevant building areas where risk has been identified. This should be achieved through building form and layout or building design measures. **3** The glare control strategy does not increase energy consumption used for lighting. This is achieved by: 3.a: Maximising daylight levels in all weather, cloudy or sunny AND 3.b: Ensuring the use or location of shading does not conflict with the operation of lighting control systems.								N/A	N/A	N/A	N/A	
	Daylighting *Number of credits available and criteria dependent on building type* **4** Daylighting criteria have been met using either of the following options: 4.a: The relevant building areas meet good practice daylight factors and other criteria as outlined in Table 5.1 and Table 5.2 OR 4.b: The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in Table 5.3. Additional alternative route for healthcare building types only: 4.c: The relevant building areas meet the median daylight factors and minimum daylight factors in Table 5.4.								2	2	2		
	View out **5** 95% of the floor area in 95% of spaces for each relevant building area is within 8 m of an external wall. The external wall has a window or permanent opening that provides an adequate view out. **6** The window or opening must be ≥ 20% of the surrounding wall area. Where the room depth is greater than 8 m, compliance is only possible where the percentage of window or opening is the same as, or greater than, the values in Table 1.0 of BS 8206: part 2. **7** In addition, the building type criteria in Table 5.6 are applicable to view out criteria.								1		1		

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1 Office Shell and Core		3 Retail Shell and Core		Key responsibility
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Hea 01 Vis	**Internal and external lighting levels, zoning and control** **Internal lighting** **8** Internal lighting in all relevant areas of the building is designed to provide illuminance (lux) levels and colouring rendering index in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. Internal lighting should be appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. **9** For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 73 sections 2.4, 2.13 to 2.15, 2.20, and 6.10 to 6.20. This gives recommendations highlighting: 9.a: Limits to the luminance of the luminaires to avoid screen reflections. 9.b: Any area where a surface is used to reflect light in to a space, such as uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. 9.c: Recommendations for direct lighting, ceiling illuminance, and average wall illuminance. **External lighting** **10** All external lighting located within the construction zone is specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. **11** Where no external light fittings are specified (either separate from or mounted on the external building façade or roof), the criteria relating to external lighting do not apply and the credit can be awarded on the basis of compliance with criteria 8–9.c. **Zoning and occupant control** **12** Internal lighting is zoned to allow for occupant control. Zoning is in accordance with the criteria below for relevant areas present within the building: 12.a: In office areas, zones of no more than four workplaces 12.b: Workstations adjacent to windows or atria and other building areas separately zoned and controlled 12.c: Seminar and lecture rooms: zoned for presentation and audience areas 12.d: Library spaces: separate zoning of stacks, reading and counter areas 12.e: Teaching space or demonstration area 12.f: Whiteboard or display screen 12.g: Auditoria: zoning of seating areas, circulation space and lectern area 12.h: Dining, restaurant, café areas: separate zoning of servery and seating or dining areas 12.i: Retail: separate zoning of display and counter areas 12.j: Bar areas: separate zoning of bar and seating areas 12.k: Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces 12.l: Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff. **13** Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 56 **14** In addition, the building type criteria in Table 5.7 (where relevant).								1	1	1	1	
Hea 02 Indoor air quality	**Prerequisite - Indoor air quality (IAQ) plan** **1** A site-specific indoor air quality plan has been produced and implemented in accordance with the guidance in Guidance Note GN06. The plan must be produced no later than the end of **Concept Design**. The objective of the plan is to facilitate 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: 1.a: Removal of contaminant sources 1.b: Dilution and control of contaminant sources: 1.b.i Where present, consideration is given to the air quality requirements of specialist areas such as laboratories 1.c: Procedures for pre-occupancy flush out 1.d: Third party testing and analysis 1.e: Maintaining good indoor air quality in-use.			Indoor Air Quality Plan					-	-	-	-	
	Ventilation **2** The building has been designed to minimise the indoor concentration and recirculation of pollutants in the building as follows: 2.a: Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation 2.b: Ventilation pathways are designed to minimise the ingress and build-up of air pollutants inside the building 2.c: Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3. The specified filters should achieve a minimum Indoor Air Quality of IDA2 2.d: Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified and: 2.d.i In mechanically ventilated buildings or spaces: sensors are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space 2.d.ii In naturally ventilated buildings or spaces: sensors either have the ability to alert the building owner or manager when CO_2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows or roof vents 2.e: For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates in accordance with CIBSE AM10.								1		1		
	Emissions from construction products **One credit** **3** Three out of the five product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.11. Where wood-based products are not one of three selected product types, all wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class as a minimum. **Two Credits** **4** All of the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table 5.11.								N/A	N/A	N/A	N/A	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
	Post-construction indoor air quality measurement **5** The formaldehyde concentration in indoor air is measured post construction (but pre-occupancy) and does not exceed 100 Qg/ m^3 averaged over 30 minutes (World Health Organization guidelines for indoor air quality: Selected pollutants, 2010). **6** The formaldehyde sampling and analysis is performed in accordance with ISO 16000-214 and ISO 16000-3. **7** The total volatile organic compound (TVOC) concentration in indoor air is measured post construction (but pre-occupancy) and does not exceed 500 Qg/ m^3over 8 hours. **8** The TVOC sampling and analysis is performed in accordance with ISO 16000-5 and ISO 16000-6 or ISO 16017-1. **9** Where levels are found to exceed these limits, the project team confirms the measures that have, or will be, undertaken in accordance with the IAQ plan, to reduce the TVOC and formaldehyde levels to within the above limits. **10** The measured concentration levels of formaldehyde (Qg/ m^3) and TVOC (Qg/ m^3) are reported, via the BREEAM Scoring and Reporting Tool.								N/A	N/A	N/A	N/A	
Hea 04 Thermal comfort	**Thermal modelling** **1** Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Performance Modelling. **2** The software used to carry out the simulation at the detailed design stage provides 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). **3** The modelling demonstrates that: 3.a: 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 or level for the building type) 3.b: For naturally ventilated buildings: 3.b.i 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 or level for the building type) 3.b.ii The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in either of the following standards as appropriate; CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings or CIBSE TM59: Design methodology for the assessment of overheating risk in homes **4** For air-conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.								1	1	1	1	
	Design for future thermal comfort **5** Criteria 1 to 4 are achieved. **6** The thermal modelling demonstrates that the relevant requirements set out in criterion 3 are achieved for a projected climate change environment **7** Where criterion 6 is not met, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements under criterion 6 **8** For air-conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.								1	1	1	1	
	Thermal zoning and controls **9** Criteria 1 to 4 are achieved. **10** The thermal modelling analysis (criteria1 to 4) has informed the temperature control strategy for the building and its users. **11** The strategy for proposed heating or cooling systems demonstrates that it has addressed the following: 11.a: Zones within the building, and how the building services could efficiently and appropriately heat or cool these areas. For example consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows. 11.b: The degree of occupant control required for these zones. This is based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) and considers: 11.b.i User knowledge of building services 11.b.ii Occupancy type, patterns and room functions (and therefore appropriate level of control required) 11.b.iii How the user is likely to operate or interact with the systems, e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc. 11.b.iv The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike draughts) 11.c: How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants 11.d: The need or otherwise for an accessible building user actuated manual override for any automatic systems.								N/A	N/A	N/A	N/A	
Hea 05 - Acoustic Performance	**Sound insulation** The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table Insert project specific requirements!!!			Acoustician Appointment					N/A	N/A	N/A	N/A	
	Indoor ambient noise level The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table Insert project specific requirements!!!								1	1	1	1	
	Room acoustics The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table Insert project specific requirements!!!								N/A	N/A	N/A	N/A	

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Hea 06 Security	**Security of site and building** **1** 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 purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development . **2** The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA. **3** The controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations shall be justified and agreed with the SQSS.								1	1	1	1	
Hea 07 Safe and healthy surroundings	**Safe access** Where external site areas form part of the assessed development the following apply: **1** Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to off-site cycle paths where applicable. **2** Dedicated and safe footpaths are provided on and around the site providing suitable links for the following: 2.a: The site entrance to the building entrance, 2.b: Car parks (where present) to the building entrance 2.c: The building to outdoor space 2.d: Connecting to off-site paths where applicable. **3** Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: **4** Delivery areas are not accessed through general parking areas and do not cross or share the following: 4.a: pedestrian and cyclist paths 4.b: outside amenity areas accessible to building users and general public. **5** There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. **6** Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting.								1	1	1	1	
	Outside space **7** There is an outside space providing building users with an external amenity area.								1	1	1	1	
	Total - Health & Wellbeing:								11	9	11	7	
	Credit value:								0.73%		0.73%		
Energy													
Ene 01 Reduction of energy use and carbon emissions	**Energy performance** **1** Calculate an Energy Performance Ratio for New Construction (EPR NC). Compare the EPR NC achieved with the benchmarks in Table 6.1 of the manual and award the corresponding number of BREEAM credits. - This is done by using data from the BRUKL documents.								9	5	9	4	
	Prerequisite - Prediction of operational energy consumption **2** Prior to completion of the **Concept Design**, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance.								-	-	-	-	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Ene 01 Reduction of e	**Prediction of operational energy consumption** **3** Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures. **4** Report predicted energy consumption targets by end use, design assumptions and input data (with justifications). **5** Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process.								4	4	4	4	
Ene 02 Energy monitoring	**Sub-metering of end-use categories** **1** Install energy metering systems so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories **2** Meter the energy consumption in buildings according to the total useful floor area: 2.a: If the area is greater than 1,000 m^2, by end-use category with an appropriate energy monitoring and management system. 2.b: If the area is less than 1,000 m^2, use either: 2.b.i an energy monitoring and management system or 2.b.ii separate accessible energy sub-meters with pulsed or other open protocol communication outputs, for future connection to an energy monitoring and management system **3** Building users can identify the energy consuming end uses, for example through labelling or data outputs.								1	1	1	1	
	Sub-metering of high energy load and tenancy areas **4** Monitor a significant majority of the energy supply with: 4.a: An accessible energy monitoring and management system for: 4.a.i tenanted areas or 4.a.ii relevant function areas or departments in single occupancy buildings. OR 4.b: Separate accessible energy sub-meters with pulsed or other open protocol communication outputs for future connection to an energy monitoring and management system for: 4.b.i tenanted areas or 4.b.ii relevant function areas or departments in single occupancy buildings. **5** Sub-meter per floor plate in large single occupancy or single-tenancy buildings with one homogeneous function, for example hotel bedrooms, offices.								1	1	1	1	
Ene 03 External lighting	**External lighting** **1** No external lighting (which includes lighting on the building, at entrances and signs). OR **2** External light fittings within the construction zone with: 2.a: Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt 2.b: Automatic control to prevent operation during daylight hours 2.c: Presence detection in areas of intermittent pedestrian traffic.								1	1	1	1	
e 04 Low carbon design	**Passive design analysis** **1** Achieve the first credit Hea 04 to demonstrate that the building design delivers appropriate thermal comfort levels in occupied spaces. **2** The project team analyses the proposed building design and development during **Concept Design** to identify opportunities for the implementation of passive design measures **3** Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings. **4** Quantify the reduced total energy demand and carbon dioxide (CO_2) emissions resulting from the passive design measures.			Passive Design Analysis					1	1	1	1	
	Free cooling **5** Achieve the **passive design analysis credit.** **6** Include a free cooling analysis in the passive design analysis carried out under criterion 2. **7** Identify opportunities for the implementation of free cooling solutions. **8** The building is naturally ventilated or uses any combination of the free cooling strategies listed in Free cooling analysis.								1		1		

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En	**Low and zero carbon technologies** **9** An energy specialist completes a feasibility study **by the end of Concept Design**. **10** Establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy sources for the building or development, based on the feasibility study. **11** Specify local LZC technologies for the building or development in line with the feasibility study recommendations. **12** Quantify the reduced regulated carbon dioxide (CO_2) emissions resulting from the feasibility study.			Feasibility Study					1	1	1	1	
Ene 05 Energy efficient cold storage	**Refrigeration energy consumption** **1** Design, install and commission the refrigeration system: 1.a: In accordance with the Code of Conduct for carbon reduction in the refrigeration retail sector1 and BS EN 378-2:2016. 1.b: Using robust and tested refrigeration systems or components included on the Enhanced Capital Allowance (ECA) Energy Technology Product List (ETPL) or an equivalent list **2** Commission the refrigeration plant in compliance with the commissioning criteria in BREEAM issue Man 04			Strategy for Design and Installation					N/A	N/A	N/A	N/A	
	Indirect greenhouse gas emissions **3** Achieve criteria 1 and 2. **4** Demonstrate a saving in indirect greenhouse gas emissions (CO2-eq) from the installed refrigeration system over the course of its operational life.								N/A	N/A	N/A	N/A	
Ene 06 Energy efficient transportation systems	**Energy consumption** **1** For specified lifts, escalators or moving walks (transportation types): 1.a: Analyse the transportation demand and usage patterns for the building to determine the optimum number and size of lifts, escalators or moving walks 1.b: Calculate the energy consumption in accordance with BS EN ISO 25745 Part 21 or Part 32 for one of the following: 1.b.i At least two types of system for each transportation type required OR 1.b.ii An arrangement of systems, for example for lift systems, hydraulic, traction, machine room-less lift (MRL) OR 1.b.iii A system strategy that is 'fit for purpose' 1.c: Consider the use of regenerative drives, subject to the requirements in Regenerative drives 1.d: Specify the transportation system with the lowest energy consumption.								1	1	1	1	
	Energy efficient features **2** Achieve criterion 1. **One credit - Lifts** **3** Specify the following three energy efficient features for each lift: 3.a: A standby condition for off-peak periods 3.b: The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of > 70 luminaire lumens per circuit Watt 3.c: Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. **4** Specify regenerative drives where their use is demonstrated to save energy. **One credit - Escalators or moving walks** **5** Specify at least one of the following for each escalator or moving walk: 5.a: A load-sensing device that synchronises motor output to passenger demand through a variable speed drive OR 5.b: A passenger-sensing device for automated operation (auto walk), so the escalator operates in auto start mode when there is no passenger demand.								2	2	1	1	
efficient laboratory systems	**Design specification** **1** Engage with the client during the preparation of the initial project brief to determine occupant requirements and define laboratory performance criteria. Performance criteria will include, but not be limited to: 1.a: Description of purpose 1.b: Occupant or process activities 1.c: Containment requirements and standards 1.d: Interaction between systems 1.e: Flexibility and adaptability of laboratory facilities. 1.f: Any other specific requirements (for example, requirements relevant to ventilation, heating or cooling). **2** Size the services system equipment (including ventilation supply and extract) correctly **3** Demonstrate the minimised energy demand of the laboratory facilities resulting from the achievement of the defined design performance criteria. *Laboratory containment devices and containment areas (criteria only applicable to buildings containing these facilities)* **4** For ducted fume cupboards specified: 4.a: Demonstrate that the average design air flow rate is no greater than 0.16 m^3/s per linear metre (internal width) of fume cupboard workspace 4.b: Measure the volume flow rate in the exhaust duct (at the boundary of the laboratory) to take account of reductions in (inward) volume flow rate from fume cupboard leakage 4.c: Demonstrate that a reduction in air flow does not compromise the defined performance criteria and does not increase the health and safety risk to future building occupants.			Client Engagement					N/A	N/A	N/A	N/A	

Credit Criteria Red - Minimum standards Green Highlight - Early stage credits		RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Ene 07 Energy	**Best practice energy efficient measures** If the laboratory area accounts for at least 10% of the total building floor area: **5** Achieve criteria 1 to 4 (or criteria 1 to 3 where there are no ducted fume cupboards). **6** Design, specify and install laboratory plant and systems to promote energy efficiency. Demonstrate compliance with items in Table 6.4. 6.a: Up to 2 credits: laboratory areas (see Definitions) account for at least 10% (but less than 25%) of the total building floor area OR 6.b: Up to 4 credits: laboratory areas account for 25% or more of the total building floor area. **7** Demonstrate by calculations or modelling that the chosen measures have a reasonably significant effect on the total energy consumption of the laboratory, i.e. 2% reduction or greater. **8** Demonstrate that the energy efficient measures specified do not compromise the defined performance criteria, and do not increase the health and safety risk to future building occupants.								N/A	N/A	N/A	N/A	
Ene 08 Energy efficient equipment	**Energy efficient equipment** **1** Identify the building's unregulated energy consuming loads. Estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical or standard specification. **2** Identify the systems or processes that use a significant proportion of the total annual unregulated energy consumption of the building. **3** Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building. Table 6.5 lists some examples of significant contributors to unregulated energy consumption, and the associated criteria. If additional significant contributors, not listed in the table, will be specified, the design team should justify how a meaningful reduction will be achieved for these contributors.								N/A	N/A	N/A	N/A	
								Total - Energy:	22	17	21	15	
								Credit value:	0.64%		0.67%		
Transport													
Tra 01 Transport assessment and travel plan	**Travel plan** **1** During the feasibility and design stages, develop a travel plan based on a site-specific travel assessment or statement. **2** The site-specific travel assessment or statement covers as a minimum: 2.a: Existing travel patterns and opinions of existing building or site users towards cycling and walking, identifying constraints and opportunities, if relevant 2.b: Travel patterns and transport impact of future building users 2.c: Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) 2.d: Reporting of the number and type of existing accessible amenities, see Table 7.1, within 500m of the site 2.e: Disabled access (accounting for varying levels of disability and visual impairment) 2.f: Calculation of the existing public transport Accessibility Index (AI), see Methodology 2.g: Current facilities for cyclists **3** The travel plan includes proposals to increase or improve sustainable modes of transport and movement of people and goods during the building's operation and use, see Methodology. **4** If the occupier is known, involve them in the development of the travel plan. **5** Demonstrate that the travel plan will be implemented post construction and be supported by the building's management in operation.		Travel Plan						2	2	2	2	
Tra 02 Sustainable transport measures	**Prerequisite** **1** Achieve the Tra 01 Transport assessment and travel plan credits.		Consultation with Local Authority						-	-	-	-	
	Transport options implementation **2** Identify the sustainable transport measures, see Table 7.4 and award credits accordingly								10	8	10	8	
								Total - Transport:	12	10	12	10	
								Credit value:	0.96%		0.96%		
Water													

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1 Office Shell and Core		3 Retail Shell and Core		Key responsibility
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Wat 01 Water consumption	**Water consumption** **1** Use the BREEAM Wat 01 calculator to assess the efficiency of the domestic water-consuming components. **2** Use the standard Wat 01 method to compare the water consumption (litres/person/day) for the assessed building against a baseline performance. Award BREEAM credits based upon Table 8.1. Where it is not possible to use the standard method, complete the assessment using the alternative Wat 01 method. **3** If a greywater or rainwater system (see Definitions) is specified, use its yield in L/person/day to offset potable water demand from components. **4** If a greywater or rainwater system is specified and installed: 4.a: Greywater systems in compliance with BS 8525-1:2010 Greywater systems - Part 1 Code of Practice3. 4.b: Rainwater systems in compliance with BS 8515:2009+A1:2013 Rainwater harvesting systems - Code of practice4.								5	4	5	4	
Wat 02 Water monitoring	**Water monitoring** **1** Specify a water meter on the mains water supply to each building. This includes instances where water is supplied via a borehole or other private source. **2** For water-consuming plant or building areas consuming 10% or more of the building's total water demand: 2.a: Fit easily accessible sub-meters OR 2.b: Install water monitoring equipment integral to the plant or area. **3** For each meter (main and sub): 3.a: Install a pulsed or other open protocol communication output AND 3.b: Connect it to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption. If there is no BMS system in operation at Post-Construction stage, award credits provided that the system used enables connection when the BMS becomes operational. **4** In buildings with swimming pools, or large water tanks and aquariums, fit separate sub-meters on the water supply of the above and any associated changing facilities (toilets, showers etc.) irrespective of their water consumption levels. **5** In buildings containing laboratories, fit a separate water meter on the water supply to any process or cooling loop for 'plumbed-in' laboratory process equipment, irrespective of their water consumption levels. Additionally for those pursuing a post occupancy stage certification: **6** The water monitoring strategy used enables the identification of all water consumption for sanitary uses as assessed under Wat 01 (litres/person/day), if a post occupancy stage certification is sought.								1	1	1	1	
Wat 03 Water leak detection	**Leak detection system** **1** Install a leak detection system capable of detecting a major water leak: 1.a: On the utilities water supply within the buildings, to detect any major leaks within the buildings AND 1.b: Between the buildings and the utilities water supply, to detect any major leaks between the utilities supply and the buildings under assessment. **2** The leak detection system is: 2.a: A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks 2.b: Activated when the flow of water passing through the water meter or data logger is at a flow rate above a pre-set maximum for a pre-set period of time. This usually involves installing a system which detects higher than normal flow rates at meters or sub-meters. It does not necessarily require a system that directly detects water leakage along part or the whole length of the water supply system 2.c: Able to identify different flow and therefore leakage rates, e.g. continuous, high or low level, over set time periods. Although high and low level leakage rates are not specified, the leak detection equipment installed must have the flexibility to distinguish between different flow rates to enable it to be programmed to suit the building type and owner's or occupier's usage patterns. 2.d: Programmable to suit the owner's or occupier's water consumption criteria 2.e: Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. Where there is physically no space for a leak detection system between the utilities water meter and the building, alternative solutions can be used, provided that a major leak can still be detected.								1	1	1	1	
	Flow control devices **3** Install flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework.								1	1	1	1	
Wat 04 Water efficient equipment	**Water efficient equipment** **1** Identify all water demands from uses other than those listed underWat 01 Water consumption: Table 8.1 that could be realistically mitigated or reduced. Where there is no water demand from uses other than domestic-scale, sanitary use components in the building, this issue is not applicable. **2** Identify systems or processes to reduce the relevant water demand (criterion 1), and establish, through either good practice design or specification, a demonstrable reduction in the total water demand of the building.								1	1	1	1	
								Total - Water:	9	8	9	8	
								Credit value:	0.78%		0.78%		

Materials

Credit Criteria Red - Minimum standards Green Highlight - Early stage credits		RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Mat 01 Building life cycle assessment (LCA)	**Superstructure** *Comparison with the BREEAM benchmark during Concept Design (offices, industrial and retail buildings only)* Superstructure (offices, industrial and retail buildings) **1** During the **Concept Design**, demonstrate the environmental performance of the building as follows: 1.a: Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology (see Methodology). 1.b: Submit the Mat 01/02 Results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for (that includes external material or product specifications).												
	Superstructure *Comparison with the BREEAM benchmark during Technical Design (offices, industrial and retail buildings only)* **2** During Technical Design, demonstrate the environmental performance of the building as follows: 2.a: As criterion 1.a 2.b: Submit the Mat 01/02 Results Submission Tool to BRE at the end of Technical Design.												
	Superstructure *Option appraisal during Concept Design (all building types)* **3** For offices, industrial and retail building types, achieve criterion 1 (except where Notes 1.0, 1.1 and 1.2 apply). **4** During **Concept Design**, identify opportunities for reducing environmental impacts as follows: 4.a: Carry out building LCA options appraisal of 2 to 4 significantly different superstructure design options (applicable to the Concept Design stage, see Methodology). 4.b: Use a building LCA tool that is recognised by BREEAM (as suitable for assessing superstructure during Concept Design) according to the methodology (see Methodology). 4.c: For each design option, fulfil the same functional requirements specified by the client and all statutory requirements (to ensure functional equivalency). 4.d: Integrate the LCA options appraisal activity within the wider design decision-making process. Record this in an options appraisal summary document. 4.e: Record the following in the Mat 01/02 Results Submission Tool: The differences between the design options; the design option selected by the client to be progressed beyond Concept Design; the reasons for selecting it and the reasons for not selecting the other design options. 4.f: Submit the Mat 01/02 Results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for (that includes external material or product specifications). If the building LCA tool recognised by BREEAM and used for criteria 3 to 5 (and 6 to 9, if pursued) is not an IMPACT Compliant LCA tool and criteria 1 to 2 are applicable, then the BREEAM Simplified Building LCA tool (or an IMPACT Compliant LCA tool) shall be used for criteria 1 to 2.			Building LCA Submission		Building LCA Submission			6	3	6	3	
	Superstructure *Options appraisal during Technical Design (all building types)* **5** During Technical Design identify opportunities for reducing environmental impacts as follows: 5.a: Carry out building LCA options appraisal of 2 to 3 significantly different superstructure design options (based on the selected Concept Design option and as applicable to the Technical Design stage, see Methodology). 5.b: Use a building LCA tool that is recognised by BREEAM (as suitable for assessing superstructure during Technical Design) according to the methodology (see Methodology). 5.c: As criteria 4.c to 4.e. Where an options appraisal summary document was produced during Concept Design, update it to include the Technical Design options. 5.d: Submit the Mat 01/02 Results Submission Tool to BRE at the end of Technical Design. Where a project has not achieved criteria 3 and 4, criterion 5 may still be achieved.												
	Substructure and hard landscaping options appraisal during Concept Design **6** Criteria 3 and 4 are achieved. **7** During **Concept Design** identify opportunities for reducing environmental impacts as follows: 7.a: Carry out building LCA options appraisal of a combined total of at least six significantly different substructure or hard landscaping design options (at least two shall be substructure and at least two shall be hard landscaping). 7.b: Using a building LCA tool that is recognised by BREEAM (as suitable for assessing substructure and hard landscaping during Concept Design) according to the methodology (see Methodology). 7.c: As criteria 4.c to 4.f.								1	1	1	1	
Mat 02 Environmental Product Declarations (EPD)	**Specification of products with a recognised environmental product declaration (EPD)** **1** Specify construction products with EPD that achieve a total EPD points score of at least 20, according to the Methodology below. **2** Enter the details of each EPD into the Mat 01/02 Results Submission Tool, including the material category classification. The Mat 01/02 Results Submission Tool will verify the EPD points score and credit award.						Installation of Certified Products		1	1	1	1	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1 Office Shell and Core		3 Retail Shell and Core		Key responsibility
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Mat 03 - Responsible sourcing of materials	**Prerequisite** **1** All timber and timber-based products used on the project are legally harvested and traded timber as per the UK Government's Timber Procurement Policy (TPP) (see Definitions). Compliance with criterion 1 is a minimum requirement for achieving any BREEAM rating. There are no prerequisite requirements for other materials.								-	-	-	-	
	Enabling sustainable procurement **2** A sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products. The plan must: 2.a: Be in place **before Concept Design.** 2.b: Include sustainability aims, objectives and strategic targets to guide procurement activities. Note: targets do not need to be achieved for the credit to be awarded but justification must be provided for targets that are not achieved. 2.c: Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible. 2.d: Include details of procedures in place to check and verify the effective implementation of the sustainable procurement plan. In addition, if the plan is applied to several sites or adopted at an organisational level it must: 2.e: Identify the risks and opportunities of procurement against a broad range of social, environmental and economic issues following the process set out in BS ISO 20400:2017		Sustainable Procurement Plan	Review Sustainable Procurement Plan	Review Sustainable Procurement Plan				1	1	1	1	
	Measuring responsible sourcing **3** Use the Mat 03 calculator tool and methodology to determine the number of credits achieved for the construction products specified or procured. Credits are awarded in proportion to the scope of the assessment and the number of points achieved, as set out in Table 9.10.								3	1	3	1	
Mat 05 Designing for durability and resilience	**Designing for durability and resilience** *Protecting vulnerable parts of the building from damage* **1** Protection measures are incorporated into the building's design and construction to reduce damage to the building's fabric or materials in case of accidental or malicious damage occurring. These measures must provide protection against: 1.a: Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.). 1.b: Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. 1.c: External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building façade and where delivery areas or routes are within 2 metres of the façade, i.e. specifying bollards or protection rails. 1.d: Potential malicious damage to building materials and finishes, in public and common areas where appropriate. *Protecting exposed parts of the building from material degradation* **2** Key exposed building elements have been designed and specified to limit long and short term degradation due to environmental factors. This can be demonstrated through one of the following: 2.a: The element or product achieving an appropriate quality or durability standard or design guide, see Table 9.14. If none are available, use BS 7543:20151 as the default appropriate standard OR 2.b: A detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors. **3** Include convenient access to the roof and façade for cost-effective cleaning, replacement and repair in the building's design. **4** Design the roof and façade to prevent water damage, ingress and detrimental ponding.								1	1	1	1	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Mat 06 Material efficiency	**Material efficiency** **1** At the **Preparation and Brief and Concept Design stages**, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages. See Table 9.15: 1.a: Preparation and Brief 1.b: Concept Design 1.c: Developed Design 1.d: Technical Design 1.e: Construction **2** Develop and record the implementation of material efficiency, see Table 9.15, during: 2.a: Developed Design 2.b: Technical Design 2.c: Construction **3** Report the targets and actual material efficiencies achieved.		Stage Actions	Stage Actions	Stage Actions	Stage Actions	Stage Actions		1		1		
								Total - Materials:	14	8	14	8	
								Credit value:	1.25%		1.25%		
Waste													
Wst 01 Construction waste management	**Pre-demolition audit** **1** Complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the content of Pre-demolition audit scope and: 1.a: Be carried out at Concept Design stage (**RIBA Stage 2)** by a competent person prior to strip-out or demolition works 1.b: Guide the design, consider materials for reuse and set targets for waste management 1.c: Engage all contractors in the process of maximising high grade reuse and recycling opportunities 1.d: Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets. **2** Make reference to the audit in the resource management plan (RMP)			Pre-Demolition Audit					1	1	1	1	
	Construction resource efficiency **3** Prepare a compliant Resource Management Plan (RMP) covering: 3.a: Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication, including demolition and excavation waste 3.b: Accurate data records on waste arisings and waste management routes. **4** Meet or improve upon the benchmarks in Table 10.1 for non-hazardous construction waste, excluding demolition and excavation waste. **One credit**: <13.3 m3/100m2 GIFA or <11.1 tonnes/100m2 GIFA **Two credits**: <7.5 m3/100m2 GIFA or <6.5 tonnes/100m2 GIFA **Three credits**: <3.4 m3/100m2 GIFA or <3.2 tonnes/100m2 GIFA								3	2	3	2	
	Diversion of resources from landfill **5** Meet, where applicable, the diversion from landfill benchmarks in Table 10.2 for non-hazardous construction waste and demolition and excavation waste generated. **One credit:** Non-Demolition: 70% by Volume (80% by tonnage) Demolition: 80% by Volume (90% by tonnage) **6** Sort waste materials into separate key waste groups, either on-site or through a licensed contractor for recovery.								1	1	1	1	
Wst 02 Use of recycled and sustainably sourced aggregates	**Prerequisite** **1** If demolition occurs on site, to encourage the reuse of site-won material on site, complete a pre-demolition audit of any existing buildings, structures or hard surfaces in accordance with Wst 01 Construction waste management: Criterion 1 and Wst 01 Construction waste management: Criterion 2 .								-	-	-	-	
	Project Sustainable Aggregate Points **2** Identify all aggregate uses and types on the project **3** Determine the quantity in tonnes for each identified use and aggregate type. **4** Identify the region in which the aggregate source is located. **5** Calculate the distance in kilometres travelled by all aggregates by transport type. **6** Enter the information into the BREEAM Wst 02 calculator to calculate the Project Sustainable Aggregate points. The corresponding number of BREEAM credits will be awarded								1		1		

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1 Office Shell and Core		3 Retail Shell and Core		Key responsibility
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Wst 03 Operational waste	**Operational waste** **1** Provide a dedicated space for the segregation and storage of operational recyclable waste generated. The space is: 1.a: Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams 1.b: Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors 1.c: Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates. **2** For consistent and large amounts of operational waste generated, provide: 2.a: Static waste compactors or balers; situated in a service area or dedicated waste management space 2.b: Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility 2.c: A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site. *Additionally for healthcare buildings only* **3** The specified or installed operational waste facilities are compliant with the relevant NHS guidelines for that part of the UK. *Additionally for multi-residential buildings with self-contained dwellings or bedsits only* **4** Provide three internal storage containers for each dwelling or bedsit with: 4.a: A minimum total capacity of 30 litres 4.b: No individual container smaller than 7 litres 4.c: All containers in a dedicated non-obstructive position 4.d: Storage containers for recycling in addition to non-recyclable waste storage. **5** Provide home composting facilities and a home composting information leaflet within the kitchen area or communal space for each self-contained dwelling or bedsit. *Additionally for multi-residential buildings with individual bedrooms and communal facilities only* **6** Meet criteria 4.a and 4.b for self-contained dwellings or bedsits for every six bedrooms. **7** Locate recyclable storage in a dedicated, unobstructive position in communal kitchens or other appropriate communal space. **8** Provide home composting facilities and a home composting information leaflet within the kitchen area or communal space. **9** Provide a minimum of 10 litres of internal storage for compostable waste.								1	1	1	1	
Wst 04 Speculative finishes (Offices only)	**Speculative floor and ceiling finishes** *Office building types only* **1** For tenanted areas, where the future occupant is not known and carpets or other floor or ceiling finishes are installed, these must be limited to a show area only. **2** Only install floor and ceiling finishes selected by the known occupant of a development. Alternatively, where only ceiling finishes and no carpets are installed, the building owner confirms that the first tenants will not be permitted to make substantial alterations to the ceiling finishes.								1		N/A	N/A	
Wst 05 Adaptation to climate change	**Resilience of structure, fabric, building services and renewables installation** **1** Conduct a climate change adaptation strategy appraisal using: 1.a: A systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects and includes : 1.a.i Hazard identification 1.a.ii Hazard assessment 1.a.iii Risk estimation 1.a.iv Risk evaluation 1.a.v Risk management. **2** Develop recommendations or solutions based on the climate change adaptation strategy appraisal, **before or during Concept Design**, that aim to mitigate the identified impact. **3** Provide an update during Technical Design demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing by the assessor.			Climate Adaption Strategy Appraisal		Update on Climate Adaptation Strategy Appraisal			1	1	1	1	
isassembly ility	**Design for disassembly and functional adaptability - recommendations** **1** Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios (see Methodology) by the end of Concept Design. **2** Develop recommendations or solutions (see Methodology) based on the study (criterion 1), **during or prior to Concept Design**, that aim to enable and facilitate disassembly and functional adaptation.			Disassembly and Functional Adaptation Study					1	1	1	1	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Wst 06 Design for d and adaptabi	**Disassembly and functional adaptability – implementation** **3** Achieve criteria 1 and 2 **4** Provide an update, during Technical Design, on: 4.a: How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor. 4.b: Changes to the recommendations and solutions during the development of the Technical Design. **5** Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.								1		1		
								Total - Waste:	11	7	10	7	
								Credit value:	0.64%		0.70%		
Land use and ecology													
LE 01 Site selection	**Previously occupied land** 1 At least 75% of the proposed development's footprint is on an area of land which has previously been occupied								1	1	1	1	
	Contaminated land 2 A contaminated land professional's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: 2.a: The degree of contamination 2.b: The contaminant sources or types 2.c: The options for remediating sources of contamination which present an unacceptable risk. **3** The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land professional								1		1		
Le 02 - Ecological value of the site	**Prerequisite - Assessment route selection** **1** An assessment route for the project has been determined using BREEAM Guidance Note GN34 BREEAM Ecological Risk Evaluation Checklist. **2** The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.								-	-	-	-	
	Survey and evaluation **Route 1** **3** Completion of the BREEAM Ecological Risk Evaluation Checklist indicates Assessment route 1 can be used as the assessment **Route 2** **4** An appropriate individual is appointed at a project stage that ensures early involvement in site configuration and, where necessary, can influence strategic planning decisions. **5** Prior to the **completion of the preparation and brief**, an appropriate level of survey and evaluation (see Assessment route 2: For sites where complex ecological systems are likely to be present) has been carried out to determine the ecological baseline of the site, taking account of the zone of influence to establish: 5.a: Current and potential ecological value and condition of the site, and related areas within the zone of influence. 5.b: Direct and indirect risks to current ecological value 5.c: Capacity and feasibility for enhancement of the ecological value of the site and, where relevant, areas within the zone of influence. **6** Data are collated and shared with project team to inform the site preparation, design or construction works.								1	1	1	1	
	Determining the ecological outcomes for the site (Routes 1 and 2) **7** Survey and evaluation criteria (criteria 3–6) relevant to the chosen route have been achieved. **8** During **Concept Design**, the project team liaise and collaborate with representative stakeholders to identify and consider ecological outcome for the sites (appropriate to the scale and type of development) for the project. **9** When determining the ecological outcome for the site, this must involve the identification, appraisal and selection of specific solutions and measures sufficiently early to influence key project planning decisions. This must be done in accordance with the following hierarchy of action: 9.a: avoidance 9.b: protection 9.c: reduction or limitation of negative impacts 9.d: on site compensation and, 9.e: enhancement, considering the capacity and feasibility within the site, or where viable, off-site. **10** Following this the optimal ecological outcome for the site is selected after liaising with representative stakeholders and the project team.								1	1	1	1	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1 Office Shell and Core		3 Retail Shell and Core		Key responsibility
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
LE 03 Managing negative impacts on ecology	**Prerequisite – Identification and understanding the risks and opportunities for the site** **1** LE 02 has been achieved. **2** The client or contractor has confirmed that compliance is monitored against all relevant UK, and EU or International legislation relating to the ecology of the site								-	-	-	-	
	Planning, liaison, implementation and data **3** Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes at an early enough stage to influence the concept design or design brief. **4** Site preparation and construction works have been planned for and are implemented at an early project stage to optimise benefits and outputs. **5** The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions, and measures have been selected (see LE 02 Identifying and understanding the risks and opportunities for the project), during site preparation and construction works.								1	1	1	1	
	Managing negative impacts of the project **Route 1 (one credit)** **6** Negative impacts from site preparation and construction works have been managed according to the hierarchy and no net impact has resulted. **Route 2 (up to two credits)** **7** Negative impacts from site preparation and construction works have been managed according to the hierarchy (see Assessment route 2: For sites where complex ecological systems are likely to be present) and either: 7.a: No overall loss of ecological value has occurred (2 credits) OR 7.b: The loss of ecological value has been limited as far as possible (1 credit)								2	2	2	2	
ng site ecology	**Prerequisite - Identifying and understanding the risks and opportunities for the project** **1** LE 03 has been achieved. Including the following, specific to the aims of this issue: 1.a: Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes 1.b: Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs. **2** The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.								-	-	-	-	
	Enhancement of ecology **Route 1** **3** The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions and measures based on recommendations from recognised 'local' ecological expertise, specialist input and guidance to inform the adoption of locally relevant ecological solutions and measures which enhance the site. **4** Data collated is provided to the local environmental records centres nearest to, or relevant for, the site.								-	-	-	-	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Le 04 - Enhancir	**Liaison, implementation and data collation** **Route 2** **5** The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented the solutions and measures selected in a way that enhances ecological value in the following order: 5.a: On site, and where this is not feasible, 5.b: Off site within the zone of influence.								1	1	1	1	
	Enhancement of ecology **Route 2** **6** Credits are awarded on a scale of 1 to 3, based on the calculation of the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in either GN 35 - BREEAM, CEEQUAL, HQM Ecology Assessment Issues – Route 1 or GN 36 - BREEAM, CEEQUAL, HQM Ecology Assessment Issues – Route 2 (whichever is applicable to the project).								3	1	3	1	
Le 05 - Long term impact on biodiv	**Prerequisite - Roles and responsibilities, implementation, statutory obligations** **1** The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. **2** Where pursued, LE 04 has been achieved, including the following specific aims of this issue: 2.a: Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes. 2.b: Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs.								-	-	-	-	
	Planning, liaison, data, monitoring and review management and maintenance **3** The project team liaise and collaborate with representative stakeholders, taking into consideration data collated and shared, on solutions and measures implemented to: 3.a: monitor and review implementation and the effectiveness 3.b: develop and review management and maintenance solutions, actions or measures. **4** In support of the above and to help ensure their continued relevance over the period of the project the following should be considered: 4.a: Monitoring and reporting of on the ecological outcomes for site implemented at the design and construction stage 4.b: Monitoring and reporting of outcomes and successes from the project 4.c: Arrangements for the ongoing management of landscape and habitat connected to the project (on and, where relevant, off site) 4.d: Maintaining the ecological value of the site and its relationship or connection to its zone of influence 4.e: Maintaining the site in line with the any sustainability linked activities, e.g. ecosystems benefits (LE 02). 4.f: Remedial or other management actions are carried out which relate to those identified in LE 02, LE 03 and LE 04. **5** As part of the tenant or building owner information supplied, include a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.								1	1	1	1	
	Landscape and ecology management plan (or similar) development **6** Landscape and ecology management plan, or similar, is developed in accordance with BS 42020:20131 covering as a minimum the first five years after project completion and includes: 6.a: Actions and responsibilities, prior to handover, to give to relevant individuals 6.b: The ecological value and condition of the site over the development life. 6.c: Identification of opportunities for ongoing alignment with activities external to the development project and which supports the aims of BREEAM's Strategic Ecology Framework 6.d: Identification and guidance s to trigger appropriate remedial actions to address previously unforeseen impacts 6.e: Clearly defined and allocated roles and responsibilities. **7** The landscape and management plan or similar is updated as appropriate to support maintenance of the ecological value of the site.								1	1	1	1	
									Total - Land Use & Ecology:		13	10	13	10	
									Credit value:		1.15%		1.15%		
Pollution													
	No refrigerant use **1** No refrigerant use within the installed plant or systems. OR alternatively, where the building does use refrigerants, the three credits can be awarded as follows:								-	-	-	-	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1 Office Shell and Core		3 Retail Shell and Core		Key responsibility
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Pol 01 - Impact of refrigerants	**Refrigerant pre-requisite** **2** All systems with electric compressors comply with the requirements of BS EN 378:20161 (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice2.								-	-	-	-	
	Impact of refrigerants **Two credits** **3** The direct effect life cycle CO_2 equivalent emissions (DELC) of ≤ 100 CO_2-eq/kW. For systems which provide cooling and heating, the worst performing output based on the lower of kW cooling output and kW heating output is used to complete the calculation. To calculate the DELC, refer to the relevant definitions in Methodology and Additional information. **OR** **4** All refrigerants used have a global warming potential (GWP) ≤ 10.								1		1		
	Impact of refrigerants **One credit** **5** Systems using refrigerants have a DELC of ≤ 1000 kgCO_2-eq/kW cooling and heating capacity.								1	1	1	1	
	Leak detection **6** All systems are hermetically sealed or only use environmentally benign refrigerants (see Leak detection and Hermetically sealed systems). OR **7** Where the systems are not hermetically sealed: 7.a: Systems have: 7.a.i A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks. OR 7.a.ii An inbuilt automated diagnostic procedure for detecting leakage is enabled. 7.b: In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit loss of refrigerant (see Automatic isolation and containment of refrigerant).								1	1	1	1	
Pol 02 Local air quality	**Local air quality** **1** All heating and hot water is supplied by non-combustion systems. For example, only powered by electricity. OR alternatively; **2** Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 12.4 and Table 12.5. The measurements must be provided by manufacturers, following the labelling requirements of the European directive 2009/125/EC. No credits can be awarded for Pol 02 if any of the combustion appliances are not covered in Table 12.4 and Table 12.5. **3** Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 1.21 and Table 1.22.								2		2		
	Pre-requisite **1** An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.								-	-	-	-	

	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	RIBA Plan of Works - Key Actions							1		3		Key responsibility
									Office		Retail		
									Shell and Core		Shell and Core		
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	
Pol 03 Flood and surface water management	**Flood Resilience** **Two credits - Low flood risk** **2** A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA takes all current and future sources of flooding into consideration **One credit - Medium or high flood risk** **3** A site-specific FRA confirms the development is in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain. The FRA must take all current and future sources of flooding into consideration. For smaller sites refer to Level of detail required in the FRA for smaller sites, which overrides criterion 2. **4** To increase the resilience and resistance of the development to flooding, one of the following must be achieved: 4.a: The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600 mm above the design flood level of the site's flood zone (see 600 mm threshold). 4.b: The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2017.								2	2	2	2	
	Pre-requisite for surface water run-off credits **5** Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site.								-	-	-	-	
	Surface Water Run-Off - Rate **6** Drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events. **7** Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place. **8** Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance								1	1	1	1	
	Surface Water Run-Off - Volume **9** Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND EITHER **10** Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change **11** Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques. OR (only where criteria 10 and 11 cannot be achieved): **12** Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options. **13** Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options: 13.a: The pre-development one-year peak flow rate 13.b: The mean annual flow rate (Qbar) 13.c: 2L/s/ha. For the one-year peak flow rate, the one-year return period event criterion applies. 14 Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place. 15 For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.								1	1	1	1	
	Minimising watercourse pollution **16** There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant). **17** Areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques. **18** Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) are installed in surface water drainage systems. **19** Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure. **20** All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SuDS manual2 and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site. **21** A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers. **22** Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place. **23** All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance.								1		1		

		RIBA Plan of Works - Key Actions							1		3		
									Office		Retail		
									Shell and Core		Shell and Core		
	Credit Criteria Red - Minimum standards Green Highlight - Early stage credits	Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Occupation	Credits available	Targeted	Credits available	Targeted	Key responsibility
Pol 04	Reduction of night time light pollution												
	Reduction of night time light pollution **1** External lighting pollution has been eliminated through effective design that removes the need for external lighting. This does not adversely affect the safety and security of the site and its users. OR alternatively, where the building does have external lighting, one credit can be awarded as follows: **2** The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. **3** All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. **4** If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes. **5** Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements.								1	1	1	1	
Pol 05	Reduction of noise pollution												
	Reduction of noise pollution **1** There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site. OR **2** Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:20141 is commissioned. Noise levels must be measured or determined for: 2.a: Existing background noise levels: 2.a.i at the nearest or most exposed noise-sensitive development to the proposed assessed site 2.a.ii including existing plant on a building, where the assessed development is an extension to the building 2.b: Noise rating level from the assessed building. **3** The noise impact assessment must be carried out by a suitably qualified acoustic consultant. **4** The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night. **5** If the noise sources from the assessed building are greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with the criterion.								1	1	1	1	
								Total - Pollution:	12	8	12	8	
								Credit value:	0.75%		0.75%		
Innovation													
Man 03	Responsible Construction Practices								1		1		
Man 05	Aftercare								1		1		
Hea 01	Visual Comfort								1		1		
Hea 02	Indoor air quality								N/A	N/A	2		
Ene 01	Reduction of energy use and carbon emissions								5		5		
Wat 01	Water consumption								1		1		
Mat 01	Life cycle impacts								1		3		
Mat 03	Responsible sourcing of materials								1		1		
Wst 01	Construction waste management								1		1		
Wst 02	Recycled aggregates								1		1		
Wst 05	Adaptation to climate change								N/A	N/A	1		
AI	Approved Innovation								1		1		
								Total - Innovation:	10	0	10	0	
								Credit value:	1.00%		1.00%		
Total Target Score													
										75.6%		73.7%	
										Excellent		Excellent	

APPENDIX B: BREEAM NON-DOMESTIC REFURBISHMENT 2014 PRE-ASSESSMENTS

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
MANAGEMENT								
Man 01 - Project brief and Design	**Stakeholder Consultation (Project Delivery) *** **1 credit** where 1.Prior to completion of the **Concept Design (RIBA Stage 2 or equivalent)**, the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. Project delivery stakeholders include the client, the building occupier (where known), the design team and the principal contractor. With regards to contractors' involvement, it ensures their input in terms of formulating sustainable design solutions, commenting/inputting on the practicality and build ability of (one or more) design solutions and their impact on programming, cost etc. Where the contractor for the works is not be appointed at the early stages of the project , criterion 1 will be met provided that a suitably experienced person with substantial construction/contracting experience in projects similar to the proposed works is involved prior to appointment of the contractor. A suitably experienced person could be a contractor appointed as a consultant for this stage or a construction project manager. 2.In defining the roles and responsibilities for each key phase of the project, the following must be considered: a.End user requirements, b.Aims of the design and design strategy, c.Particular installation and construction requirements/limitations d.Occupiers budget and technical expertise in maintaining any proposed systems, e.Maintainability and adaptability of the proposals f.Requirements for the production of project and end user documentation, g.Requirements for commissioning, training and aftercare support. 3.The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, including if appropriate, the Project Execution Plan, Communication Strategy, and the Concept Design. **Extra requirement for BREEAM 2014 NDR (Refurbished scheme)** 1. A clear sustainability brief is developed **prior to Concept Design** which sets out: a. Client requirements e.g. internal environmental conditions required b. Sustainability objectives and targets including target BREEAM rating, business objectives etc. c. Timescales and budget d. List of consultees and professional appointments that may be required e.g. Suitably Qualified Acoustician etc. e. Constraints for the project e.g. technical, legal, physical, environmental.	1	1		1	1		G&T / GPE / AHMM
	Stakeholder consultation (third party) * **1 credit** where 4. **Prior to completion of the Concept Design stage**, all relevant third party stakeholders have been consulted by the design team and this covers the minimum consultation content: a. Functionality, build quality and impact (including aesthetics), b. Provision of appropriate internal and external facilities (for future building, occupants and visitors/users), c. Management and operational implications, d. Maintenance resources implications, e. Impacts on the local community, e.g. local traffic/transport impact, f. Opportunities for shared use of facilities and infrastructure with the community/appropriate stakeholders, if relevant/appropriate to building type, g. Compliance with statutory (national/local) consultation requirements, h. Inclusive and accessible design. 5. The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. 6. Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties.	1		1	1		1	DP9 / AHMM / Four Communications
	Sustainability Champion (Design) **1 credit** where 8.A Sustainability Champion has been appointed to facilitate the setting and achievement of BREEAM performance target(s) for the project. The design stage Sustainability Champion is appointed to perform this role during the feasibility stage (**Stage 1, Preparation and Brief stage**, as defined by the RIBA Plan of Work 2013 or equivalent). 9.The defined BREEAM performance target(s) has been formally agreed between the client and design/project team no later than the Concept Design stage (RIBA Stage 2 or equivalent). 10. To achieve this credit at the interim design stage assessment, the agreed BREEAM performance target(s) must be demonstrably achieved by the project design. This must be demonstrated via the BREEAM Assessor's design stage assessment report. Sustainability champion: Currently only BREEAM Accredited Professional (AP) qualifies.	1	1		1	1		CBDSP/GPE/G&T
	Sustainability Champion (monitoring progress) **1 credit** where 11. The Sustainability Champion criteria 8, 9 and 10 have been achieved. 12. A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance target(s) throughout the design process and formally report progress to the client and design team. To do this the Sustainability Champion must attend key project/design team meetings during the Concept Design, Developed Design and Technical Design stages, as defined by the RIBA Plan of Work 2013, reporting during, and prior to, completion of each stage, as a minimum	1	1		1	1		
Man 02 - Life cycle cost and service life planning	**Elemental life cycle cost (LCC)** **Two credits** where: 1. An elemental life cycle cost (LCC) analysis has been carried out, **at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2)** together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008. 2. The LCC analysis shows: **For Refurbished scheme** a. An outline LCC plan for the project based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenarios e.g. 20, 30, 50+ years; b. The fabric and servicing strategy for the project outlining services component and fit-out options (if applicable) over a 15-year period, in the form of an 'elemental LCC Plan'.	2			2			Alinea / All
	Component level LCC Plan **One credit** where 4. A component level LCC plan has been developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008 and includes the following component types (where present): a. Envelope, e.g. cladding, windows, and/or roofing, b. Services, e.g. heat source cooling source, and/or controls c. Finishes, e.g. walls, floors and/or ceilings (only for new built) , d. External spaces, e.g. alternative hard landscaping, boundary protection. 5. Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.	1			1			Alinea / All
	One credit - Capital cost reporting 1 credit where: 6. Report the capital cost for the building in pounds per square metre (£k/m2), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.	1	1		1	1		GPE / Alinea
	Pre-requisite 1. All timber and timber based products used on the project is 'Legally harvested and traded timber'. Note: For other materials there are no pre-requisite requirements at this stage.		N/A			N/A		Contractor
	Environmental management **1 credit** where: 1. The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either: a. third party certified, to ISO 14001/EMAS or equivalent standard; or b. have a structure that is in compliance with BS 8555:2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and has completed phase audits one to four, as defined in BS 8555. 2. The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.	1	1		1	1		Contractor

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
Man 03 - Responsible construction practices	**Sustainability Champion (construction)** **1 credit** where: 3. A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, stages 5 and 6).To do this the Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance. The Sustainability Champion will monitor site activities with sufficient frequency to ensure that risks of non-compliance are minimised. They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate. In this context, visits should occur at key stages of the construction process, at times where: works can be observed before they are covered up or new works or trades start; where significant risks of conflicts or errors could occur; where timing is critical to demonstrating compliance; where key evidence is required to be produced at specific times including, but not limited to photographic, delivery notes and other documentary evidence; and where different trades and systems come together and one could harm the integrity or compliance of another system's performance against BREEAM requirements. 4. The defined BREEAM performance target forms a requirement of the principal contractor's contract. 5. To achieve this credit at the final post construction stage of assessment, the BREEAM-related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM Assessor's final post construction stage assessment report.	1	1		1	1		CBDSP / GPE / Contractor
	Considerate construction **Up to two credits :** 6. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification. The BREEAM credits can be awarded as follows: a. One credit where the contractor achieves 'compliance' with the criteria of a compliant scheme (a CCS score between 25 and 34) - A score of at least 5 in each of the five sections must be achieved b. Two credits where the contractor significantly exceeds 'compliance' with the criteria of the scheme (a CCS score between 35 and 39) - A score of at least 7 in each of the five sections must be achieved **1 credit - Minimum standard for an Excellent rating, 2 credits- Minimum standard for an Outstanding rating** At the final stage of the BREEAM assessment, the number of BREEAM credits awarded should therefore be based on the final visit and the subsequent Monitor's report and certified CCS score.	2	2		2	2		Contractor
	Monitoring of construction-site impacts **Up to two credits** 7. Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme. To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appointed, the Sustainability Champion could perform this role. **First monitoring credit - Utility consumption** **Energy consumption** 8. Criterion 7 is achieved. 9. Monitor and record data on principal constructor's and subcontractors' energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. 10. Report the total carbon dioxide emissions (total $kgCO_2$/project value) from the construction process via the BREEAM Assessment Scoring and Reporting tool. **Water consumption** 11. Criterion 7 is achieved. 12. Monitor and record data on principal constructor's and subcontractors' potable water consumption (m3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. 13. Using the collated data report the total net water consumption (m3), i.e. consumption minus any recycled water use, from the construction process via the BREEAM Assessment Scoring and Reporting tool.	1	1		1	1		Contractor
	Second monitoring credit - Transport of construction materials and waste 14. Criterion 7 is achieved. 15. Monitor and record data on transport movements and impacts resulting from delivery of the majority of construction/ refurbishment materials to site and construction waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. b. Scope of this monitoring must cover the following as a minimum: i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Life cycle impacts), including insulation materials, services and interior fit-out ii.Materials used for the core services iii. Ground works and landscaping materials. c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan. 16. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions ($kgCO_2$ eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool.	1	1		1	1		
	Commissioning and testing schedule and responsibilities **One credit** where 1. A schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric. 2. All commissioning activities are carried out in accordance with current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a building management system (BMS) is specified, the following commissioning procedures must be carried out: a.Commissioning of air and water systems is carried out when all control devices are installed, wired and functional b.In addition to air and water flow results, commissioning results include physical measurements of room temperatures, off-coil temperatures and other key parameters as appropriate c.The BMS/controls installation should be running in auto with satisfactory internal conditions prior to handover d.All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface before handover e.The occupier or facilities team is fully trained in the operation of the system 3. An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client. 4. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.	1	1		1	1		CBDSP /GPE/Contractor
	Commissioning building services **One credit** where 5. The commissioning and testing schedule and responsibilities credit is achieved. 6. For buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage (by either the client or the principal contractor) with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover/post-handover stages. Where there are simple building services, this role can be carried out by an appropriate project team member (see criterion 3), provided they are not involved in the general installation works for the building services system(s).	1	1		1	1		CBDSP / Contractor

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
Man 04 - Commissioning and handover	**Testing and inspecting building fabric** **One credit** where: 7. The commissioning and testing schedule and responsibilities credit is achieved. 8. The integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of post construction testing and inspection. Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an air tightness test and inspection. The thermographic survey must cover 100% of the treated spaces, unless it is a large complex building, and ensure that all elements of the building fabric that enclose an internal heated and/or conditioned (treated) zone of the building will be tested. This includes internal walls separating treated and untreated zones. In the case of large and complex buildings, it may be impractical for the thermographic survey and air-tightness testing to cover 100% of the building. Where a complete thermographic survey is deemed impractical by a Level 2 qualified thermographic surveyor, the guidance in air tightness standard TSL2 should be followed on the extent of the survey and testing. This could include airports, large hospitals and high-rise buildings. The survey and testing is undertaken by a Suitably Qualified Professional in accordance with the appropriate standard: Air tightness testing: by professionals with membership of ATTMA (Air Tightness Testing and Measurement Association) attained at organisational level maintaining UKAS accreditation (as air tightness testing laboratories to ISO 17025).Thermographic survey: by a professional holding a valid Level 2 certificate in thermography, as defined by the UKTA website http://www.ukta.org. 9. Any defects identified in the thermographic survey or the air tightness testing reports are rectified prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building/element.	1			1			GPE / Thermographic survey specialist /AHMM / Contractor
	Handover - Minimum standard for an Excellent and Outstanding ratings. 10. A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers . For Shell and core buildings: The guide includes, as far as possible, all relevant sections regarding the services and fabric installed. On completion of works the building owner/agent/user hands it over to the fit-out contractor, who can then complete the relevant sections based on the fit-out strategy. 11. A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: a. The building's design intent b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc. e. Maintenance requirements, including any maintenance contracts and regimes in place.	1	1		1	1		Contractor / GPE/AHMM/ CBDSP
		18	13	1	18	13	1	
	Credit value:	0.69%			0.74%			
HEALTH & WELLBEING								
Hea 01 - Visual comfort	**Glare control (not applicable for new build - Shell & Core project)** **One credit** where 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: a. 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 facade. AND b. The use or location of shading does not conflict with the operation of lighting control systems. Compliant shading measures for meeting glare control credit include: - building integrated measures (e.g. low eaves) - occupant controlled devices such as blinds (where transmittance value is < 0.1 (10%)) - bioclimatic design - external shading or brise soleil.	1			1			AHMM / GPE / CBDSP
	Daylighting **Up to three credits - Refurbished scheme - Office** Up to three credits are awarded on a sliding scale depending on the percentage of relevant building areas that comply with one of the following daylighting criteria: a. The relevant building areas meet good practice daylight factor(s) and other criterion are met: 2% average daylight factor for 40% / 60% / 80% of relevant area and (a) or ((b) and (c)) b. The relevant building areas meet good practice average and minimum point daylight illuminance criteria: At least 300 lux average daylight illuminance (averaged over the entire space) for 2000 hours per year or more and minimum daylight illuminance at worst lit point of 90 lux for 2000 hours per year for 40% / 60% / 80% of relevant area	3	1	2	N/A			AHMM /DP9 / GIA
	Up to three credits - Refurbished scheme - Retail Up to three credits are awarded on a sliding scale depending on the percentage of relevant building areas that comply with one of the following daylighting criteria: a. The relevant building areas meet good practice daylight factor(s) and other criterion are met: Point daylight factor of 2% or more achieved for 17.5%/25%/35% of sales area 2% average daylight factor for 40% / 60% / 80% of other occupied space and (a) or ((b) and (c)) b. The relevant building areas meet good practice average and minimum point daylight illuminance criteria: At least 200 lux point daylight illuminance (averaged over the entire space) for 2650 hours per year is achieved for 17.5%/25%/35% of sales area and for other occupied space - at least 200 lux for 2650 hours per year or more (averaged over the entire space) and at least 60 lux for 2650 hours t worst lit point of 90 lux for 2000 hours per year for 40% / 60% / 80% of relevant area	N/A			3		2	AHMM /DP9 / GIA
	View out - Refurbished scheme **Minimum glazed areas for view when windows are restricted to one wall** **Depth of room from outside wall** (max.) m / **Percentage of window wall as seen from inside** (min.) % <8 — 20 ⩾8 ⩽11 — 25 >11 ⩽14 — 30 >14 — 35 *NOTE Windows which are primarily designed for view may not provide adequate task illumination.* **Twc** 6. Two credits where 95% of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out. 7. One credit where 80% of the floor area space in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out and criterion 8 is met. 8. The window/opening must be ≥ 20% of the surrounding wall area. Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in Table above.	2	2		2	2		AHMM

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
Hea 02 - Indoor Air Quality	**Minimising sources of air pollution** **One credit - Indoor air quality (IAQ) plan** 1. An indoor air quality plan has been 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: a. Removal of contaminant sources b. Dilution and control of contaminant sources c. Procedures for pre-occupancy flush out d. Third party testing and analysis e. Maintaining indoor air quality in-use **Additional requirement for Refurbished scheme:** d. Protection of Heating Ventilation and Air Conditioning (HVAC) systems from sources of pollution during refurbishment e.g. dust e. Procedures for protecting the indoor air quality of areas outside of the refurbishment that may be affected by the refurbishment f. Procedures for identifying and implementing third party testing and analysis required to ascertain that the contaminant sources have been removed effectively before occupancy g. Commitments for maintaining indoor air quality in-use, e.g. maintenance and cleaning of the HVAC system, ductwork and filters.	1	1		1	1		Contractor / Indoor air quality specialist
	Ventilation * **One credit** where: The building has been designed to minimise the concentration and recirculation of pollutants in the building as follows: 2. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. 3. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows: a. In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution. OR ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:20071 Annex A2. b. In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution. 4. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3. 5. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO2) or air quality sensors specified and: a. In mechanical ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space. b. In naturally ventilated buildings/spaces: sensors either have the ability to alert the building owner or manager when CO 2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents.	1			1			CBDSP
	Adaptability - Potential for natural ventilation * **One credit** where: 13. The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. This can be demonstrated as follows: a. Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system: i. Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. OR ii. The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types recommended by CIBSE AM107 (or for education buildings by using the ClassVent tool).For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with criterion 13.a.i. above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. 14. The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space. The two levels of ventilation must be able to achieve the following: Higher level: higher rates of ventilation achievable to remove short term odours and/or prevent summertime overheating, Lower level: adequate levels of draught-free fresh air to meet the need for good indoor air quality throughout the year, sufficient for the occupancy load and the internal pollution loads of the space. *Note: Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type.*	1		1	1		1	CBDSP
Hea 04 - Thermal Comfort	**Thermal modelling *** **One credit** where: 1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 - Building Energy and Environmental Modelling. 2. The software used to carry out the simulation at the detailed design stage provides 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). 3. The modelling demonstrates that: a. 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 design2, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). b. For naturally ventilated/free running buildings: i. 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). ii. 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. 4. For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.	1	1		1	1		CBDSP /AHMM
	Adaptability - for a projected climate change scenario **One credit** where: 5. Criteria 1 to 4 are achieved. 6. The thermal modelling demonstrates that the relevant requirements set out in criteria 3 are achieved for a projected climate change environment. 7. Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements under criterion 6. 8. For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.	1	1		1	1		CBDSP /AHMM
Hea 05 * - Acoustic performance	**Refurbished scheme** **Two credits – Sound insulation and internal indoor ambient noise levels** Where the meeting achieves the following acoustic performance standards and testing requirements Indoor ambient noise levels comply with the design ranges given in BS 8233: 2014. A programme of pre-completion acoustic testing is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures. The sound insulation between acoustically sensitive rooms and other occupied areas complies with the example matrix relating to internal sound insulation within Section 7.5 of BS 8233:2014 which takes into consideration the likely level of activity noise, the degree of privacy required and the sensitivity of the adjacent space. Where an SQA confirms that it is not feasible to meet the indoor ambient noise criteria in full in accordance with the relevant tables due to the scope of works, in order to demonstrate compliance; measurements and/or quantitative assessment by an SQA is required to demonstrate that the installed core and local services either: do not change the indoor ambient noise levels where noise break-in through the building envelope is dominant and maintain sound insulation between noise-sensitive spaces; or • reduce the indoor ambient noise levels and maintain sound insulation between noise-sensitive spaces.	2			2			Acoustic consultant/AHMM

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
Hea 06 - Safety and security	**Safe access *** **One credit :** Where external site areas form part of the assessed development the following apply: 1. Dedicated cycle paths provide direct access from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path and, if relevant, connect to off-site cycle paths (or other appropriate safe route) where these run adjacent to the development's site boundary. 2. Footpaths on-site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off-site (where existing), providing practical and convenient access to local transport nodes and other off-site amenities (where existing). 3. Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes. 4. Dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes, and appropriate traffic calming measures are in place to slow traffic down at these crossing points. 5. For large developments with a high number of public users or visitors, pedestrian footpaths must be signposted to other local amenities and public transport nodes off-site (where existing). 6. The lighting for access roads, pedestrian routes and cycle lanes is compliant with the external lighting criteria defined in Hea 01 Visual comfort, i.e. in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: 7. Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public. 8. There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 9. Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. 10. There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking (if appropriate given the building type/function).	N/A			N/A			AHMM / Landscape Architect /TPP
	Security of site and building * **One credit** where: 11. 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).** 12. A suitably qualified security specialist (SQSS) develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA. 13. The recommendations or solutions proposed by the suitably qualified security specialist (SQSS) are implemented (see CN9. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist. SNA to include: - A visual audit of the site and surroundings, identifying environmental cues and features pertinent to the security of the proposed development. - Formal consultation with relevant stakeholders, including the local ALO, CPDA & CTSA (as applicable), in order to obtain a summary of crime and disorder issues in the immediate vicinity of the proposed development. - Identify risks specific to the proposed, likely or potential use of the building(s). - Identify risks specific to the proposed, likely or potential user groups of the building(s). - Identify any detrimental effects the development may have on the existing community	1	1		1	1		AHMM / Security Specialist
		14	7	1	14	6	1	
	Credit value:		0.83%			0.88%		
ENERGY								
Ene 01 - Reduction of energy uses and carbon emissions *	Refurbished scheme **Whole Energy Model** Up to 15 credits can be awarded for buildings designed to minimise operational energy demand, primary energy consumption and CO2 emission. Credit are awarded based on the Energy Performance Ratio Non Domestic Refurbishment (EPR_{NDR}) using BREEAM Ene 01 calculator. The calculation is determined using performance data from the approved building energy calculation software. **EPRNDR: 0.06 0.12 0.18 0.24 0.30 0.36 0.42 0.48 0.54 0.60 0.66 0.72 0.78 0.84 0.90** **BREEAM credits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15** **Excellent minimum standard: Requires 6 credits to be achieved (equivalent to an EPR of at least 0.36).** **Outstanding minimum standard: Requires 10 credits to be achieved (equivalent to an EPR of at least 0.6).**	15	4	8	15	3	9	CBDSP/AHMM
Ene 02 -Energy monitoring	**Sub-metering of major energy consuming systems - Minimum standard for Very Good, Excellent and Outstanding ratings.** **One credit** where: 1. Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. 2. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2. are metered using an appropriate energy monitoring and management system. 3. The systems in smaller buildings are metered either with an energy monitoring and management system or with separate accessible energy sub-meters with pulsed or other open protocol communication outputs, to enable future connection to an energy monitoring and management system. 4. The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs. Due to traditional distribution methods, it can be difficult to separate lighting and small power cost effectively. It is acceptable, within a single floor, for lighting and small power to be combined for metering purposes, provided that sub-metering is provided for each floor plate.	1	1		1	1		CBDSP
	Sub-metering of high energy load and tenancy areas. **One credit** where: 5. An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.	1	1		1	1		CBDSP
Ene 03 -External lighting	**One credit** where: 1. The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances). OR alternatively, where the building does have external lighting, one credit can be awarded as follows: 2. The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt. . All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	1	1		1	1		Lighting designer
Ene 04 - Low Carbon Design *	**Passive design - Passive design analysis** **One credit** where: 1. The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces. 2. The project team carries 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 3.The building uses passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result.	1		1	1		1	CBDSP
	Free cooling One credit where: 4. The passive design analysis credit is achieved. 5. The passive design analysis carried out under criterion 2 includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. 6. The building uses ANY of the free cooling strategies listed below to reduce the cooling energy demand, i.e. it does not use active cooling: 1.Night time cooling (which could include the use of a high exposed thermal mass), 2.Ground coupled air cooling, 3.Displacement ventilation (not linked to any active cooling system) 4.Ground water cooling, 5.Surface water cooling, 6.Evaporative cooling, direct or indirect, 7.Desiccant dehumidification and evaporative cooling, using waste heat, 8.Absorption cooling, using waste heat, 9.The building does not require any significant form of active cooling or mechanical ventilation (i.e. naturally ventilated)	1		1	1		1	CBDSP env + MEP

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
	Low and zero carbon technologies - Low zero carbon feasibility study **One credit** where: 7. A feasibility study has been carried out by the completion of the **Concept Design stage (RIBA Stage 2 or equivalent)** by an energy specialist (see Relevant definitions) to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development. The LZC study should cover as a minimum: 1.Energy generated from LZC energy source per year, 2.Carbon dioxide savings from LZC energy source per year 3.Life cycle cost of the potential specification, accounting for payback, 4.Local planning criteria, including land use and noise 5.Feasibility of exporting heat/electricity from the system, 6.Any available grants 7.All technologies appropriate to the site and energy demand of the development, 8.Reasons for excluding other technologies 9.Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme. 8. A local LZC technology/technologies has/have been specified for the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO_2) emissions: The amount of energy or CO_2 emissions reduction is not specified in the criteria in this issue. However, it should not be a trivial amount. As a guide, the installation should contribute at least 5% of overall building energy demand and/or CO_2 emissions	1	1		1	1		CBDSP env + MEP
Ene 06 - Energy Efficient Transportation Systems	**Energy consumption *** **One credit** where 1. Where lifts, escalators and/or moving walks (transportation types) are specified: a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. b. The energy consumption has been calculated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following: i. At least two types of system (for each transportation type required); OR ii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR iii. A system strategy which is 'fit for purpose'. c. The use of regenerative drives should be considered, subject to the requirements in CN6. d. The transportation system with the lowest energy consumption is specified.	1	1		N/A			CBDSP
	Energy efficient features* **Two credits** 2.Criterion 1 is achieved. **Lifts** 3. For each lift, the following three energy efficient features are specified: a. The lifts operate in a standby condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. 4. Where the use of regenerative drives is demonstrated to save energy, they are specified	2	2		N/A			CBDSP
		24	11	10	21	7	11	
	Credit value:	0.70%			0.74%			
TRANSPORT *								
Tra 01 - Public Transport Accessibility*	**Offices** **3 credits are available based on the Accessibility Index(AI) of the site where:** 1. The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the BREEAM tables: AI ≥ 2 : 1 credit, AI ≥ 4 : 2 credits, AI ≥ 8 2. The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day . **Retail** **Five credits are available based on the Accessibility Index(AI) of the site where:** 1. The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the BREEAM tables: AI ≥ 2 : 1 credit, AI ≥ 4 : 2 credits, AI ≥ 8 : 3 credits, AI ≥ 10 : 4 credits, AI ≥ 12 : 5 credits 2. The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day .	3	3		5	5		TPP
Tra 02 - Proximity to Amenities*	**One credit:** 1. Where the building is located within close proximity (500m walking distance) of, and accessible to, three local amenities (or two gym/ health centre **for Retail**)which are likely to be frequently required and used by building occupants. **Core amenities:** Food outlet, Access to cash, Access to recreation/leisure facility for fitness/sports **Other amenities:** Access to an outdoor space, publicly available postal facility, community facility, pharmacy, childcare or school Two out of the three required amenities should be a core amenity.	1	1		1	1		TPP
Tra 03 - Cyclist facilities*	**One credit - Cycle storage** **Offices:** One per 10 staff compliant cyclist facilities. **Retail:** One per 10 staff; One per 20 public car parking spaces. This is subject to providing a minimum of 10 cycle customer space. Site with 50 cycle space will comply regardless of the number of car parking space. Requirements can be halved as the scheme is in a city centre with high public transport accessibility. **One credit - Cyclist facilities (only for staff)** 2. Criterion 1 has been achieved. 3. At least two of the following types of compliant cyclist facilities have been provided for all staff (where appropriate) (see relevant definitions for the scope of each compliant cyclist facility): a. Showers (one per 10 cycle racks - minimum of 2), b. Changing facilities and Lockers (number of lockers: number of cycle racks) , d. Drying spaces . Compliant cyclist facilities (showers, changing areas etc.) can be provided in shell and core areas of the building as part of the base build. Alternatively, compliance can be demonstrated where the shell and core building is designed to facilitate future installation of the compliant number and type of cyclist facilities by the tenant/owner-occupier through the provision of an appropriately sized and dedicated space in the base building, including either the installation of the appropriate services (for showers) or infrastructure to allow the future installation of the relevant services e.g. capped water supply, service or ventilation ducts, drainage etc.	2	1		2	1		AHMM

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
Tra 05 - Travel Plan*	**One credit** where: 1. A travel plan has been developed as part of the **feasibility and design stages.** 2. A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum): a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified. b. Travel patterns and transport impact of future building users. c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) d. Disabled access (accounting for varying levels of disability and visual impairment) e. Public transport links serving the site f. Current facilities for cyclists. 3. The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the buildings operation and use. 4. If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post construction and be supported by the buildings management in operation.	1	1		1	1		TPP
		7	6	0	9	8	0	
	Credit value:	0.81%			0.86%			
WATER								
Wat 01 - Water consumption	**Up to five credits** where: 1. An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator. 2. The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35. 3. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified): a. WCs, b. Urinals, c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit), d. Showers, e. Baths, f. Dishwashers (domestic and commercial sized) and g. Washing machines (domestic and commercial or industrial sized). % Improvement: 12.5 % 25% 40% 50 % 55% 65% BREEAM Credits: 1 2 3 4 5 Exemplary performance **One credit required for a Good, Very Good and Excellent ratings. Two credits required for an Outstanding rating.** 4. Where a greywater and/or rainwater system is specified, its yield (L/person/day) is used to off-set non potable water demand from components that would otherwise be supplied using potable water. 5. Any greywater systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.	5	3	1	N/A			AHMM / GPE
Wat 02 - Water monitoring *	**One credit** where: 1. The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source. **Criterion 1 - Minimum standard for a Good, Very Good, Excellent and Outstanding ratings.** 2. Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area . As a minimum, this includes the following (where present): 1.Buildings with a swimming pool and its associated changing facilities (toilets, showers etc.). 2.On-sites with multiple units or buildings, e.g. shopping centres, industrial units, retail parks etc. separate sub meters are fitted on the water supply to the following areas (where present):Each individual unit supplied with water, Common areas (covering the supply to toilet blocks), Service areas (covering the supply to outlets within storage, delivery, waste disposal areas etc.), Ancillary/separate buildings to the main development with water supply. 3. Each meter (main and sub) has a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption 4. If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed/digital water meter(s) for the new building must be connected to the existing BMS. Refurbishment assessment: If the refurbishment zone is within a building that is leasehold, the pulsed/digital water meter(s) for the refurbishment or fit-out zone must be connected to the incoming water supply for water using equipment in tenanted areas (see compliance note)	1	1		1	1		CBDSP
Wat 03 - Water Leak Detection & Prevention	**Leak detection system *** One credit where: 1. 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 is installed. The leak detection system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an in-built automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.	1	1		1	1		CBDSP
	Flow control devices **One credit** where: 2. Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings). The following could be considered as types of flow control devices: A time controller, i.e. an automatic time switch device to switch off the water supply after a predetermined interval A programmed time controller, i.e. an automatic time switch device to switch water on and/or off at predetermined times. A volume controller, i.e. an automatic control device to turn off the water supply once the maximum pre-set volume is reached A presence detector and controller, i.e. an automatic device detecting occupancy or movement in an area to switch water on and turn it off when the presence is removed A central control unit, i.e. a dedicated computer-based control unit for an overall managed water control system, utilising some or all of the types of control elements listed above. Flow control systems may control combined WC areas, such as male and female toilets within a core; they are not required for each individual sanitary appliance. The criteria are set to encourage the isolation of the water supply to each WC block when it is not being used. The flow control criteria for this issue do apply to facilities which have only a single WC . In these instances shutoff could be provided via the same switch that controls the lighting (whether proximity detection or a manual switch).	1	1		N/A			CBDSP
Wat 04 - Water Efficient Equipment	**One credit** where: 1. The design team has identified all unregulated water demands that could be realistically mitigated or reduced. 2. System(s) or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building. Compliant water irrigation system: - Drip-fed subsurface irrigation incorporating soil moisture sensors. The irrigation control will be zoned to permit variable irrigation to different planting assemblages. - Reclaimed/recovered water from a rainwater collection or waste water recovery system, with appropriate storage, i.e. greywater collection from building functions or processes that use potable water, e.g. vehicle wash, training water in fire stations, sanitary facilities, irrigation etc. - This will take into account the Government Buying Standards where appropriate to the building type. - External landscaping and planting that relies solely on precipitation, during all seasons of the year. - All planting specified is restricted to contextually appropriate species that thrive without irrigation and will continue to do so in those conditions likely as a result of climate change. Where there are no soft landscaped areas and no other unregulated water demands for the building, this credit is filtered out of the assessment.	1	1		1	1		Landscape Architect / CBDSP
		9	7	1	3	3	0	
	Credit value:	0.81%			0.86%			

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
MATERIALS								
Mat 01 - Life cycle impacts	Refurbished scheme **Up to six credits (option 1): Project lifecycle assessment study** 1. The project uses a life cycle assessment (LCA) tool or undertakes a building information model life cycle assessment (BIM LCA) to measure the life cycle environmental impact of the refurbishment or fit-out works. 2. The LCA covers new materials as relevant to the assessment parts listed in CN7 and indicated in the 'Materials assessment scope' section of the BREEAM Refurbishment and Fit-out Mat 01 calculator (Part B of the tool). 3. The mandatory requirements identified in the 'Materials assessment tool, method and data' section of the BREEAM Refurbishment and Fit-out Mat 01 calculator have been met. 4. A member of the project team completes the BREEAM Refurbishment and Fit-out Mat 01 calculator using parts A and B and determines a score based on the robustness of the LCA tool used (Part A of the tool) and the scope of the assessment in terms of the materials specified that have been considered (Part B of the tool) 5. Where the design team can demonstrate how the LCA has benefited the building in terms of measuring and reducing its environmental impact. See CN14 6. Where the design team submit the LCA tool output (e.g. Building Information Model (BIM)) for assessing the building to BRE Global (via the project's appointed BREEAM assessor) to inform future potential LCA benchmarking for BREEAM 7. Credits are awarded in accordance with Table - 46 **Up to four credits (option 2): Elemental assessment of environmental performance information** The following are required to demonstrate compliance: 8. Robust environmental performance information has been collected for newly specified materials or where materials are retained in situ, for elements listed in CN7 9. The total number of points achieved as set out in the Methodology section are calculated using Part B of the BREEAM Mat 01 calculator. The number of points scored is based on the percentage of each element that has been: a. reused in situ b. reused in situ with minor repairs c. specified with robust environmental performance information. 10. Credits are awarded based upon the percentage of available points achieved.	6	4	2	6	4	2	AHMM
Mat 03 - Responsible sourcing of materials	**Pre-requisite** **1. All timber and timber based products used on the project is ' Legally harvested and traded timber'** **Note:** **a.It is a minimum requirement for achieving a BREEAM rating (for any rating level) that compliance with criterion 1 is confirmed.** b. For other materials there are no pre-requisite requirements at this stage. **One credit - Sustainable procurement plan** 2. The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan **Up to 3 credits - Responsible sourcing of materials (RSM) are responsibly sourced in accordance with the BREEAM methodology.** 18% RSM points achieved - 1 credit, 36% RSM points achieved - 2 credits, 54% RSM points achieved - 3 credits Location use categories - refurbished scheme 1. External wall (e.g. bricks, blocks), 2. External wall finishes (plastering, cladding, render, internal dry lining, wall coverings etc.), 3. Insulation, 4. Roof (structure), 5. Roof finishes (e.g. tiles, cladding systems, etc.), 6. Upper floors (mezzanines), 7. Floor (structure), 8. Flooring finishes (including coatings), 9. Internal partitions/internal walls (structure), 10. Internal partitions/internal walls (finishes, wall coverings), 11. Ceiling (structure), 12. Ceiling finishes (including coatings), 13. External/internal doors/ windows, 14. Staircases/ramps, 15. Fittings (shop fittings, railings, screens, gutters, vents, air grilles), 16. Furniture (desks, chairs, display cabinets, shelving), 17. Building services (equipment, distribution systems), 18. Hard landscaping, 19. Other **Material categories:** 1. Timber/ timber-based products (TBP), 2. Concrete/ cementitious (plaster, mortar, screed etc.) 3. Metal, 4. Stone/ aggregate, 5. Clay-based (pavers, blocks, bricks, roof tiles, etc.), 6. Gypsum, 7. Glass, 8. Plastic, polymer, resin, paint, chemicals and bituminous, 9. Animal fibre/skin, cellulose fibre, 10. Other.	4	2		4	2		Contractor/AHMM / CBDSP / AKT II
Mat 04 - Insulation	**Embodied impact** **One credit** where: 1. Any new insulation specified for use within the following building elements must be assessed: a. External walls, b. Ground floor, c. Roof, d. Building services. 2. The Insulation Index for the building fabric and services insulation is the same as or greater than 2.5. If the insulation is incorporated as a component of an element that has been manufactured off-site (in order to maximise material optimisation), e.g. a wall or roof, and that element has been assessed as part of Mat 01, then for the purpose of assessing the insulation for this BREEAM issue, a Green Guide rating of A+ should be used. The same rule applies to insulation that has a significant additional function, such as providing supporting structure, e.g. structural insulated panels (SIPS). In the Green Guide, the actual insulation will be listed within the element title, rather than under the generic insulation category.	1	1		1	1		AHMM / CBDSP / Contractor
Mat 05 - Designing for durability and resilience *	**Protecting vulnerable parts of the building from damage.** **One credit** where: 1. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas. Protecting exposed parts of the building from material degradation 2. The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors. **Applicable building elements:** 1.Foundation/substructure/lowest floor/retaining walls, 2.External walls, 3.Roof/balconies, 4.Glazing: windows, skylight, 5.External doors, 6.Railings/balusters (where exposed to external environment), 7.Cladding (where exposed to external environment), 8.Staircase/ramps (where exposed to external environment), 9.Hard landscaping **Environmental factors:** 1.Environmental agents, including:a.Solar radiation, b.Temperature variation, c.Water/moisture, d.Wind, e.Precipitation, e.g. rain and snow, f.Extreme weather conditions: high wind speeds, flooding, driving rain, snow, 2. Biological agents, including:a.Vegetation, b.Pests, insects, c.Pollutants, including:d.Air contaminants, e.Ground contaminants **Material degradation effects** (includes, but not necessarily limited to the following): 1.Corrosion, 2.Dimensional change, e.g. swelling or shrinkage, 3.Fading/discolouration, 4.Rotting, 5.Leaching, 6.Blistering, 7.Melting, 8.Salt crystallisation, 9.Abrasion	1	1		1	1		AHMM/AKT II
Mat 06 - Material Efficiency	**One credit** where: 1. Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life 2. The above is carried out by the design/construction team in consultation with the relevant parties at each of the following RIBA stages: **a. Preparation and Brief, b. Concept Design**, c. Developed Design, d. Technical Design, e. Construction. All parties (as relevant to the project stage) involved in the design, specification and/or construction of the building should be consulted. This includes but is not limited to the following: 1.Client/developer, 2.Project Manager - QS, 3.Architect, 4.Structural/civil engineers, 5.Building services engineers - mechanical, electrical, 6.Principal contractor, 7.Demolition/strip-out contractor, 8.Environmental consultant, 9.Project management consultant, 10.Materials/component manufacturers/suppliers.	1			1			AHMM / All
		13	8	2	13	8	2	
	Credit value:	1.17%			1.24%			

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
WASTE								
Wst 01 - Construction Waste Management *	**Refurbished scheme** **One credit - Pre-refurbishment audit** 1. The client shall ensure that a pre-refurbishment audit of all existing buildings, structures or hard surfaces within the scope of the refurbishment or fit-out zone is completed. The requirements for carrying out an appropriate pre-refurbishment audit are a. The audit should be carried out at the **Concept Design Stage (equivalent to RIBA stage 2)** prior to strip-out or demolition works in order to use the audit results to guide the design, consideration of materials that can be reused, and to set targets for waste management and ensure all contractors are engaged in the process of maximising high grade reuse and recycling opportunities. b. The audit should be carried out by a competent person (see Relevant Definitions) who is independent of the project, has appropriate knowledge of buildings, waste and options for the reuse and recycling of different waste streams c. Actual waste arisings and waste management routes used should be compared with those forecast from the audit and barriers to achieving targets should be investigated. The audit must be referenced in the resource management plan and cover: d. Identification and quantification of the key materials where present on the project e. Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy. f. Identification of local reprocessors or recyclers for recycling of materials g. Identification of overall recycling rate for all key materials h. Identification of reuse targets where appropriate. i. Identification of overall landfill diversion rate for all key materials	1	1		1	1		Contractor/AHMM/AKT II
	Refurbished scheme - Up to two credits - Reuse and direct recycling of materials 2. Where waste material types detailed in Table - 64 are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling 3. One credit is achieved where 50% of the total available points for the waste material types detailed in Table - 64, that are present on the project have been achieved (using the Was 01 calculator tool, see Table - 65 in the Methodology section). 4. Two credits are achieved where 75% of the total available points for the waste material types detailed in Table - 64, that are present on the project have been achieved (using the Was 01 calculator tool, see Table - 65 in the Methodology section) **Refurbished scheme - Up to three credits - Resource efficiency** 5. Develop and implement a compliant resource management plan covering the waste arisings from the refurbishment or fit-out project with the aim of minimising waste, recording and reporting accurate data on waste arisings. 6. The non-hazardous waste relating to on-site refurbishment or fit-out, and dedicated off-site manufacture or fabrication processes generated by the building's design and construction meets, or exceeds, the resource efficiency benchmarks set out in Table - 61 and Table - 62 as relevant to the project type. **1 credit** - ≤ 11.3 m3/100 GIA or ≤ 3.5 tonnes/100 m2 GIA; **2 credits** - ≤ 4.5 m3/100 GIA or ≤1.2 tonnes/100 m2 GIA; **3 credits** - ≤ 1.2 m3/100 GIA or ≤0.4 tonnes/100 m2 GIA; **Refurbished scheme - Up to three credits - Recycling rate** **1 credit** for Demolition waste: 90% by volume or 95% by weight; Non-demolition waste: 90% by volume or 85% by weight;	6	2	3	6	2	3	
	Resource Management Plan (RMP) requirements: The aim of the RMP is to promote resource efficiency and to prevent illegal waste activities. Resource efficiency includes minimising waste at source and ensuring that clients, designers and principal contractors assess the use, reuse and recycling of materials and products on and off the site. A compliant RMP is one that defines: 1.A target benchmark for resource efficiency, i.e. m3of waste per 100m2or tonnes of waste per 100m2. 2. Procedures and commitments for minimising non-hazardous waste in line with the target benchmark 3.Procedures for minimising hazardous waste 4.A waste minimisation target and details of waste minimisation actions to be undertaken 5.Procedures for estimating, monitoring, measuring and reporting hazardous and non-hazardous site waste. If waste data is obtained from licensed external waste contractors, the data needs to be reliable and verifiable, e.g. by using data from EA/SEPA/EA Wales/NIEA Waste Return Forms 6.Procedures for sorting, reusing and recycling construction waste into defined waste groups (see additional guidance section), either on-site or through a licensed external contractor 7.Procedures for reviewing and updating the plan 8.The name or job title of the individual responsible for implementing the above. A Site Waste Management Plan is a form of Resource Management Plan and for BREEAM should be written in line with best practice:. Best practice is a combination of commitments to: 1.Design out waste (materials optimisation), 2.Reduce waste generated on site, 3.Develop and implement procedures to sort and reuse/recycle construction and demolition waste on-site and off-site (as applicable), 4.Follow guidance from: Defra (Department of Environment, Food and Rural Affairs), BRE (Building Research Establishment Ltd), WRAP (Waste and Resources Action Programme), Welsh Government.							
Wst 02 - Recycled aggregates	**Recycled aggregates** **One credit** where: 1. The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled or secondary aggregate: 15% structural frame, 30% bitumen or hydraulically bound base, 20% building foundations, 15% concrete road surfaces, 100% pipe bedding, 100% granular fill and capping. 2. The total amount of recycled or secondary aggregate specified, and meeting criterion 1, is greater than 25% (by weight or volume) of the total high grade aggregate specified for the development. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified. 3.The recycled or secondary aggregates are EITHER: a.Construction, demolition and excavation waste obtained on-site or off-site OR b. Secondary aggregates obtained from a non-construction post-consumer industrial by product source.	1		1	1		1	AKT II/AHMM/ Contractor
Wst 03 - Operational Waste *	**Credit required for Excellent and Outstanding ratings.** **Operational waste** **One credit** where: 1. Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates. 2. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility. c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.	1	1		1	1		AHMM / GPE / TPP
Wst 04 - Floor Finishes and ceiling finishes	**One credit (offices only)** where: 1. For tenanted areas (where the future occupant is not known), prior to full fit-out works, carpets and other floor/ceiling finishes have been installed in a show area only. 2. In a building developed for a specific occupant, that occupant has selected (or agreed to) the specified floor/ceiling finishes. A show area could be either a floor plate or an individual office. However, to award this credit it must be less than 25% of the net lettable floor area.	1			N/A			AHMM / GPE
Wst 05 - Adaptation to Climate Change	**Adaptation to climate change – structural and fabric resilience** **One credit** where: 1. Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design **(RIBA Stage 2 or equivalent)**, in accordance with the following approach: a. 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: i. Hazard identification, ii. Hazard assessment, iii. Risk estimation, iv. Risk evaluation, v. Risk management - See detailed guidance on each topics.	1	1		1	1		AHMM /AKT II/CBDSP

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
Wst 06 - Functional Adaptability	**Functional adaptability** **One credit** where: 1. A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design **(RIBA Stage 2 or equivalent)**, which includes recommendations for measures to be incorporated to facilitate future adaptation. 2. Functional adaptation measures have been implemented (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.	1	1		1	1		AHMM /AKT II/CBDSP
		12	6	4	11	6	4	
	Credit value:	0.76%			0.81%			
LAND USE & ECOLOGY								
LE 02 - Ecological value of site and protection of ecological features *	**One credit - Ecological value of site** **One credit** where: 1. Land within the assessment zone is defined as 'land of low ecological value' using either: a. The BREEAM checklist for defining land of low ecological value; OR b. A Suitably Qualified Ecologist (SQE) who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey **One credit - Protection of ecological features** **One credit** where: 2. All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013 3. In all cases, the principal contractor is required to construct ecological protection recommended by the SQE, prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities). For sites cleared prior to purchase of the site and less than five years before assessment, a Suitably Qualified Ecologist should estimate the site's ecological value immediately prior to clearance using available desktop information (including aerial photography) and the landscape type/area surrounding the site. Where it is not possible for the ecologists to determine that the site was of low ecological value prior to the site clearance then the credits must be withheld, i.e. where there is no evidence and therefore justification for awarding the credits. For sites cleared more than five years ago, the ecological value of the site is to be based on the current situation on the basis that within five years, ecological features would have started to re-establish themselves and therefore act as an indicator of the site's ecological value. Refurbished scheme - **one credit for achieving all of the above (if outdoor areas associated with the refurbishment)**	1	1		1	1		Ecologist / Contractor
LE 04 - Enhancing Site Ecology	**Ecologist's report and recommendations** (applicable to new scheme, and to refurbished scheme - if outdoor areas associated to the refurbishment) **One credit** 1.A suitably qualified ecologist (SQE) has been appointed by the client or their project representative **by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent)** to advise on enhancing the ecology of the site at an early stage. 2. The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report is based on a site visit/survey by the SQE 3. The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the final design and build. **Increase in ecological value (not applicable for BREEAM 2014 RFO)** **One credit** 4. The criteria of the first credit are met. 5. The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build, and the SQE confirms that this will result in an increase in ecological value of the site, with an increase of six plant species or greater . 6.The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers. The role of the SQE during the Preparation and Brief stage (RIBA Stage 1 or equivalent) will be to advise on early stage site layout and development density decisions so that opportunities to enhance site ecology are maximised. SQE involvement at the Concept Design stage (RIBA Stage 2 or equivalent) will be necessary to provide more detailed ecological recommendations (see Definitions) based on the outline design. The suitably qualified ecologist must carry out site surveys of existing site ecology, on which their report is based (or to provide verification where the report is prepared by others) at the Concept Design stage (RIBA Stage 2 or equivalent) in order to facilitate and maximise potential ecological enhancement.	1	1		1	1		Ecologist / GPE
LE 05 - Long Term Impact on Biodiversity*	**Up to two credits** (applicable to new scheme, and to refurbished scheme - if outdoor areas associated to the refurbishment) 1. Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process. 2. Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff **3. Where additional measures to improve the assessed site's long term biodiversity are adopted, where 2-4 additional requirements,1- 2 credits may be awarded respectively.** **Additional requirements:** a) Nominate a 'Biodiversity Champion' with the authority to influence site activities; b) Train all a personnel on how to protect site ecology; c) Records actions taken to protect biodiversity; d) Ecologically valuable habitats to be created that contribute to local biodiversity action plan targets; e) Works conducted at times to minimise ecological disturbance.	2	2		2	2		Ecologist/ Contractor / GPE
		4	4	0	4	4	0	
	Credit value:	2.43%			2.59%			
POLLUTION								
Pol 01 - Impact of refrigerants *	**Up to 3 credits** are available for the reduction of the level of greenhouse gas emissions arising from the leakage of refrigerants from building systems. **3 credits** where the building does not required the use of refrigerant within its installed plant/systems OR alternatively, where the building does require the use of refrigerants, the three credits can be awarded as follows: **Pre-requisite:** 2. All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice **Impact of refrigerants - Two credits** where : 3. The systems using refrigerants have direct effect life cycle CO_2 equivalent emissions of 100 kgCO_2e/kW cooling capacity OR 4. where the refrigerant used have a Global Warming Potential (GWP) of 10 or less. OR **Impact of refrigerants -One credit** where : 5. the refrigerants have direct effect life cycle CO_2 equivalent emissions of 1000 kgCO_2e/kW cooling capacity **Leak detection - One credit** where: 6. Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an in-built automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. 7. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident.	3	2	1	3	2	1	CBDSP

	Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out	REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
Pol 02 - NOx emissions *	**Up to 3 credits** Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NO x emission level (measured on a dry basis at 0% excess O 2) as follows: **1 credit** where maximum dry NOx ≤100 mg/kWh (at 0% excess O_2). **2 credits** where maximum dry NOx ≤70 mg/kWh (at 0% excess O_2). **3 credits** where maximum dry NOx ≤40 mg/kWh (at 0% excess O_2). 2. Report via the BREEAM scoring and reporting tool the direct and indirect NO x emissions in mg/kWh and energy consumption in kWh/m 2 /yr arising from systems installed to meet the building's space heating, cooling and hot water demands. No credits may be awarded for open flue heating or hot water systems. Where the water heating can be demonstrated to be less than 10% of the building's total energy consumption, these credits can be awarded based solely on the NO x emissions from space heating.	3	3		3	3		CBDSP
Pol 03 - Surface water run off	**Two credits - Low flood risk *** 1. Where a site-specific flood risk assessment (FRA) confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration. **One credit - Medium/high flood risk** 2. Where a site-specific FRA confirms the development is situated in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain.	2	1		2	1		Flood risk consultant
	Refurbished scheme 5. Where the refurbishment or fit-out zone achieves avoidance from flooding through either: a. the refurbishment and fit-out zone is located entirely on the first floor or above and a flood emergency plan has been developed in accordance with 'Would your business stay afloat? A Guide to preparing your business for flooding', Environment Agency, 2011 b. As a result of the building's floor level or measures to keep water away, the building is defined as achieving avoidance from flooding by following Checklist A-1, Checklists and tables. 6. Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the building's scope of works in accordance with recommendations made by a Suitably Qualified Building Professional (see Relevant definitions. The following aspects of the design should be addressed for the relevant parts, in accordance with best practice guidance: a. Part 1: Fabric – using flood resilient materials and flood protection measures for the building fabric, e.g. waterproof materials, impermeable membranes, flood barriers, safe access/exit points in the event of a flood etc. b. Part 2: Core services – core services and associated infrastructure (including equipment and vulnerable pipes/ducts/cables etc.) should be located/specified so as to protect services from flooding damage, e.g. location/routing/height, protection of building apertures (such as intakes/extracts/ventilation), non-return valves etc. c. Part 3: Local services – the location/height of local services such as sockets, vents etc. and the location of the wiring/pipework/ductwork in relation to the flood level and other measures to protect local services. d. Part 4: Interior – the proposed function of spaces that are below the flood level (e.g. sacrificial spaces) should be limited to those which are not susceptible to flood damage, and the resilience of materials used for partitions, walls, floors, ceiling finishes, furniture and fittings and the location of equipment in relation to the flood level, e.g. avoid storing flood sensitive materials and functions in spaces that are below the flood level.							
	One credit - neutral impact on surface water 7.There is no increase in the impermeable surfaces as a result of the refurbishment works; OR 8.If there is an increase in the impermeable surface as a result of the refurbishment works then the following must be met: a.Hard standing areas - where there is an extension or increase in the hardstanding areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hardstanding area must be permeable or be provided with on-site SuDS to allow full infiltration of the additional volume, to achieve the same end result. The permeable hardstanding must include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscaped areas which will drain onto a naturally permeable surface. b.Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension must be managed on-site using an appropriate SuDS technique for rainfall depths up to 5mm. **Two credits - reducing run-off** 9.An Appropriate Consultant (see Pol 03 Flood risk management and reducing surface water run-off) has been used to design an appropriate drainage strategy for the site. 10.Either of the following criteria are met: a.There is a decrease in the impermeable area by 50% or more, from the pre-existing impermeable hard surfaces; OR b.Where run-off as a result of the refurbishment is managed on-site using source control achieving the following requirements: i.The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 50% from the existing site. ii.The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration has been reduced by 50%. iii.An allowance for climate change must be included for all of the above calculations; this should be made in accordance with current best practice planning guidance.	2	1		2	1		AKT II
	Minimising watercourse pollution **One credit** where: 15. There is no discharge from the developed site for rainfall up to 5mm. 16. In areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques. 17. Where there is a high risk of contamination or spillage of substances such as petrol and oil (an area that presents a risk of watercourse pollution includes vehicle manoeuvring areas, car parks, waste disposal facilities, delivery and storage facilities or plant areas.), separators (or an equivalent system) are installed in surface water drainage systems. 18. Where the building has chemical/liquid gas storage areas, a means of containment is fitted to the site drainage system (i.e. shut-off valves) to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure). 19. All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SUDS manual. For areas where vehicle washing will be taking place, pollution prevention systems must be in accordance with Pollution Prevention Guidelines 13 20.A comprehensive and up-to date drainage plan of the site will be made available for the building/site occupiers. 21.Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place. 22.Where present, all external storage and delivery areas designed and detailed in accordance with the current best practice planning guidance.	1		1	1		1	Civil/AKT II
Pol 04 - Reduction of night time light pollution	**One credit** 1. Where external lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users. OR alternatively, where the building does have external lighting, one credit can be awarded as follows: 2. The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011 3.All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. 4.If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes. 5.Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements.	1	1		1	1		Lighting designer
Pol 05 - Noise attenuation	**One credit** 1. Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed development. OR 2. Alternatively, where the building does have noise-sensitive areas or buildings within 800m radius of the development, one credit can be awarded as follows: a.Where a noise impact assessment in compliance with BS 7445. 1has been carried out and the following noise levels measured/determined: i.Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar. ii.The rating noise level resulting from the new noise source . 3. The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body. 4. The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level. 5. Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.	1	1		1	1		Acoustic consultant/ CBDSP
		13	**9**	**2**	**13**	**9**	**2**	
	Credit value:	**0.93%**			**1.00%**			

Credit Criteria Red - Minimum standards Green with purple background - Early RIBA stages credits Blue - Different requirements for different schemes * Base build credit impacting fit-out		REFURBISHED AREAS Office Part 1-2			REFURBISHED AREAS Retail Part 1-2			KEY RESPONSIBILITY
		Credits Available	Taregeted	Not Targeted	Credits Available	Taregeted	Not Targeted	
INNOVATION								
Man 03 - Responsible construction practices	**One innovation credit** 6. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification. The BREEAM credits can be awarded as follows: a. where the contractor achieves compliance with the criteria of the compliant scheme to an exemplary level of practice. (a CCS score of 40 or more) -- A score of at least 8 in each of the five sections must be achieved At the final stage of the BREEAM assessment, the number of BREEAM credits awarded should therefore be based on the final visit and the subsequent Monitor's report and certified CCS score.	1	1		1	1		Contractor
Hea 01 - Visual Comfort	**Please see manual**	1		1	1		1	DP9
Ene 01 - Reduction in CO_2 emissions	**Please see manual**	5		5	5		5	CBDSP /AHMM
Wat 01 -Water Consumption	**Please see manual**	1		1	1		1	AHMM
Mat 01 - Life cycle impacts	**Please see manual**	3		3	3		3	AHMM
Mat 03 - Responsible sourcing of materials	**Please see manual**	1		1	1		1	Contractor/AHMM / CBDSP / AKT II
Wst 01 - Construction Waste Management	**Please see manual**	1		1	1		1	Contractor/AHMM
Wst 02 - Recycled aggregates	**Please see manual**	1		1	1		1	AKT II/AHMM/ Contractor
Wst 05 - Adaptation to Climate Change	**Please see manual**	1		1	1		1	AHMM
Approved Innovation		1		1	1		1	All
		10	1	9	10	1	9	
Credit value:		1.00%			1.00%			
TOTAL SCORE			66.09%			64.72%		
			Very Good			Very Good		