BREEAM DOMESTIC REFURBISHMENT (2014)

DESIGN STAGE PRE ASSESSMENT AND ENERGY REPORT

FOR PROPOSALS LOCATED AT

HEATH HOUSE, NORTH END WAY, HAMPSTEAD, LONDON, NW3 7ET

ON BEHALF OF

ARIA CONSTRUCTION MANAGEMENT LTD.

SEPTEMBER 2018

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1.0 INTRODUCTION

The application site has been subject to a number of planning applications over the last decade. Heath House is a Grade II* Listed building in Hampstead. The original planning application which was submitted in 2008, (planning reference 2008/0661/P), included the demolition of the existing garage block and erection of new west side wing including double garage, erection of rear ground floor winter garden, remodelling of roofs and various external alterations. The scheme has been implemented but not completed and since the original application there have been a number of amendments to the proposals, including removing the proposed basement level and winter garden.

At the time of the original application an EcoHomes pre-assessment (2006) was submitted; this demonstrated how a EcoHomes rating of Very Good could be achieved. Since the date of the original application the EcoHomes scheme has been retired and it is no longer possible to certify a building through this scheme. In light of this, the design team contacted Camden Council to discuss an alternative assessment and were directed to Camden Council's current planning policy CC2 'Adapting to Climate Change'. This policy encourages all conversions and extensions of 500m^2 or more to achieve an 'Excellent' rating in the BREEAM Domestic Refurbishment scheme.

This document replaces and supersedes the following documents as listed in replacement condition 11 of approval 2017/4294/P:

- Ecohomes Design Stage Pre-Assessment, dated15.01.2008
- Preliminary energy Study, dated 15.01.2008
- Letter from Southfacing, dated 04.07.2008

In line with current policy, the project has been assessed against the BREEAM Domestic Refurbishment Scheme (2014) and is targeting a rating of **VERY GOOD**. It is noted that this is below the council's target rating of 'Excellent', however, in consideration of the limitations of the listed building and the existing building fabric it is considered that this score is a realistic and appropriate rating.

This report demonstrates how the proposed scheme will meet a rating of 'Very Good' when assessed against the BREEAM Domestic Refurbishment and summarises the credits that are currently being targeted under each category of the pre-assessment. The draft pre-assessment has been circulated and discussed with the design team and the targeted credits have been collated accordingly.

The energy strategy for the development has been assessed against the London Plan energy hierarchy. A number of different renewable strategies are considered together with the overarching strategy for reducing carbon emissions; a draft SAP assessment has been completed in order to assess the building against the Building Regulations Part L1B (2010 with 2018 amendments).

2.0 BREEAM DOMESTIC REFURBISHMENT RATING

2.1 INTRODUCTION

The BREEAM Domestic Refurbishment Scheme is a voluntary performance based assessment method used to assess domestic buildings undergoing refurbishment and or extensions. The overall aim of the assessment scheme is to improve the environmental performance of existing buildings. While the scheme is voluntary, many planning authorities include a requirement to undertake the assessment as part of their planning policy.

Projects are assessed using a system of credits, these credits are grouped into the following categories:

- Management
- Health and Wellbeing
- Energy
- Water
- Materials
- Waste
- Pollution
- Innovation (additional)

Once a project has been assessed across the above credit categories a full assessment is issued to the BRE for quality assurance prior to certification. Certificates are awarded depending on a rating scale and will result in a building being awarded a PASS, GOOD, VERY GOOD, EXCELLENT or OUTSTANDING rating.

2.2 BREEAM DOMESTIC REFURBISHMENT (2014) SCORING

The BRE have developed a weighting system in order to assess the different categories. The category weightings have been developed through consultation with industry professionals to represent an appropriate balance across the range of issues.

The weightings are as follows:

Category	Category Weighting
Management	12%
Health and Wellbeing	17%
Energy	43%
Water	11%
Materials	8%
Waste	3%
Pollution	6%
Innovation	10% (additional)

Table 1: BREEAM Domestic Refurbishment scoring methodology

Information is collated by a certified assessor who will then award credits based on the technical criteria for each issue. The overall score is then used to identify the BREEAM Domestic Refurbishment rating using the following ranges:

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

Table 2: BREEAM Rating benchmarks

In addition to the overall BREEAM score there are minimum standards associated with each rating level. In order to meet a certain BREEAM score the overall minimum percentage score must be achieved as well as the minimum standards for that rating level. This means that credits gained in one category cannot be offset against another category in order to achieve a BREEAM score.

BREEAM Issue	Minimum standards by rating level				
	Pass	Good	Very Good	Excellent	Outstanding
Ene 02 Energy efficiency rating post-refurbishment	0.5 credits	1 credit	2 credits	2.5 credits	3.5 credits
Wat 01 Internal water use	-	-	1 credit	2 credits	3 credits
Hea 05 Ventilation	1 credit	1 credit	1 credit	1 credit	1 credit
Hea 06 Safety	1 credit	1 credit	1 credit	1 credit	1 credit
Pol 03 Flooding	-	-	-	2 credits	2 credits
Mat 01 Environmental impact of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only

Table 3: Minimum BREEAM Domestic Refurbishment standards by rating level.

A pre-assessment is typically prepared during the early stages of the design process and this provides an indication of the overall BREEAM score based on assumptions made about the final specification and scope of works.

Once the design has advanced a more detailed 'Design Stage' assessment can be completed and formally submitted to the BRE for certification, this is usually undertaken prior to the works commencing on site. This demonstrates how the intended rating level will be achieved and provides the design and construction team with an outline of the BREEAM requirements for meeting this rating.

Once the works have been completed and the final assessment has been carried out, a final 'Post Refurbishment Review' is compiled. This involves a review of what credits were committed to at the Design Stage and an assessment on whether these are still valid based on the information supplied to the assessor during and following the works. This information is then sent to the BRE and pending QA procedures a certificate confirming the buildings score is issued.

3.0 BREEAM DOMESTIC REFURBISHMENT REPORT

3.1 PRE-ASSESSMENT CREDIT SUMMARY

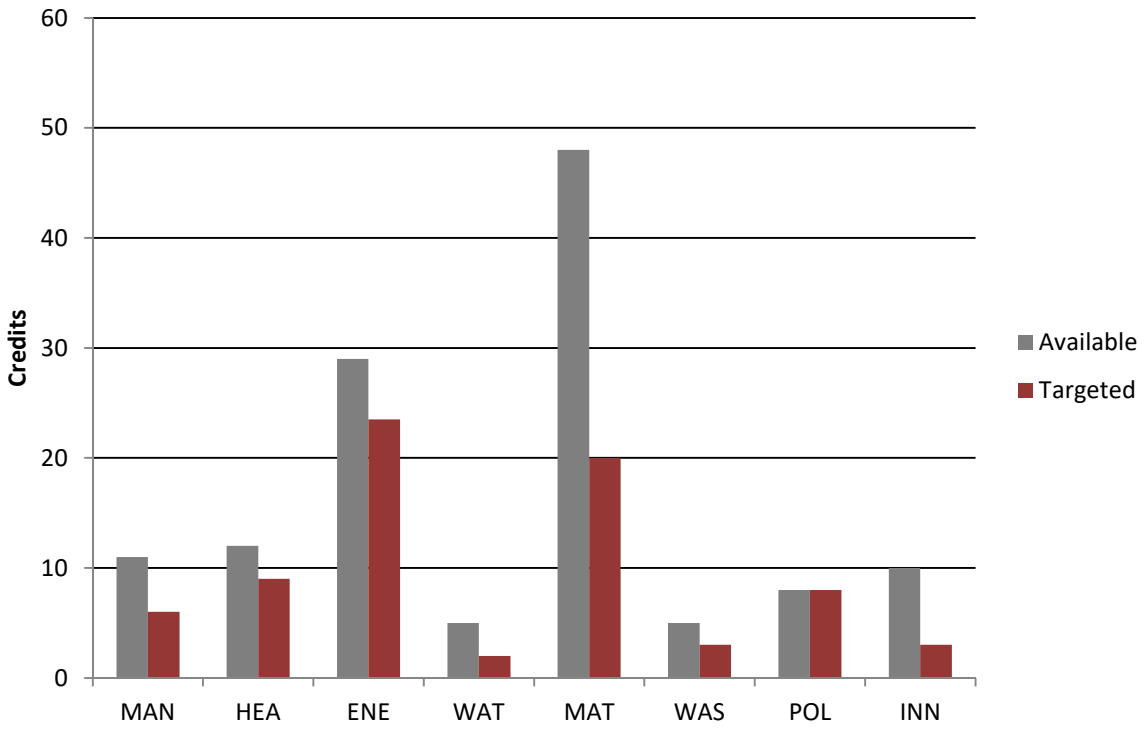
The following table provides a summary of all of the credits which are available under the scheme and which have been targeted as part of the works for the BREEAM Pre-Assessment.

		Credits Available	Indicative Credits Achieved
Management			
Man 01	Home User Guide	3	3
Man 02	Responsible Construction Practices	2	1
Man 03	Construction Site Impacts	1	0
Man 04	Security	2	0
Man 05	Protection and Enhancement of Ecological Features	1	0
Man 06	Project Management	2	2
		11	**6**
Health and Wellbeing			
Hea 01	Daylighting	2	2
Hea 02	Sound Insulation	4	4
Hea 03	Volatile Organic Compounds	1	1
Hea 04	Inclusive Design	2	0
Hea 05	Ventilation	2	1
Hea 06	Safety	1	1
		12	**9**
Energy			
Ene 01	Improvement in Energy Efficiency Rating	6	5
Ene 02	Energy Efficiency Rating Post Refurbishment	4	2.5
Ene 03	Primary Energy Demand	7	6
Ene 04	Renewable Technologies	2	0
Ene 05	Energy Labelled White Goods	2	2
Ene 06	Drying Space	1	1
Ene 07	Lighting	2	2
Ene 08	Display Energy Devices	2	2
Ene 09	Cycle storage	2	2
Ene 10	Home Office	1	1
		29	**23.5**

Water			
Wat 01	Internal Water Use	3	1
Wat 02	External Water Use	1	0
Wat 03	Water Meter	1	1
		5	**2**
Materials			
Mat 01	Environmental Impact of Materials	25	16
Mat 02	Responsible Sourcing of Materials	15	0
Mat 03	Insulation	8	4
		48	**20**
Waste			
Was 01	Household Waste	2	2
Was 02	Refurbishment Site Waste Management	3	1
		5	**3**
Pollution			
Pol 01	NOx Emissions	3	3
Pol 02	Surface Water Runoff	3	3
Pol 03	Flooding	2	2
		8	**8**
Innovation (additional)			
		10	3
		10	**3**
	Total Credits	**118**	**74.5**
	Total Weighted Score (%)	**100**	**72.67**

3.2 PRE ASSESSMENT RESULTS

The bar chart below shows where the credits are awarded against those that are available for each category. The category weightings are then applied to the score to generate an overall score which is used to define the BREEAM rating.



This assessment has demonstrated that a total of 74.5 credits have been identified and this equates to a score of **72.67%.**

This score is reasonably over the Very Good limit of 55%. This provides a degree of security against possible score reduction during construction and the BRE's QA process. While this score is above the 70% threshold for an Excellent rating the minimum water standards have not been met and therefore the score is unable to meet the requirements of the Excellent rating.

It is noted that core policy CC2 'Adapting to climate change' of the Camden Council Local Plan highlights that securing credits across the Energy, Water and Materials categories are of the greatest environmental benefit. They encourage developments to endeavour to meet the following minimum standards within those categories.

Category	Suggested minimum standard	Currently Achieved
Energy	60%	81%
Water	60%	40%
Materials	40%	42%

Table 4: Assessment against Camden Council's suggested minimum standards

The scheme is currently surpassing the council's targets across the categories of energy and materials however the water section is currently below the suggested minimum standard. It is considered that the proposed development goes as far as practically possible in working within the constraints of the listed building fabric. It is also considered that the finished specification needs to be appropriate to the character of the existing house and the nature of expectations for a super-prime residential development. In this instance it is not considered feasible to improve on this section.

The following section summarises each of the assessment issues and the credits that are being targeted.

3.3 KEY FEATURES OF THE PRE-ASSESSMENT

3.3.1 MANAGEMENT

- **Man 01:** A Home User Guide will be produced in accordance with the requirements set out within the BREEAM assessment guide to target the full 3 credits. This will provide technical information on the operation of the building as well as information on the site and surrounding area.
- **Man 02:** A main contractor will be appointed who is a member of the Considerate Construction Scheme, and will achieve the basic CCS requirements (achieving a score between 25 and 34) in order to target 1 of the 2 available credits.
- **Man 03:** While the contractor will be encouraged to consider a number of different construction site impacts, due to the nature of the refurbishment there may be a number of different specialist sub-contractors involved in the scheme which could make achieving and managing this credit too onerous therefore no credits are currently targeted.
- **Man 04:** No credits are targeted under this issue due to the listed status and requirements to retain or replace windows and doors in keeping with the style and character of the property.
- **Man 05:** No credits are targeted under this issue.
- **Man 06:** The project roles and responsibilities will be defined and a commitment to provide suitable aftercare therefore 2 credits have been targeted. An exemplary credit is also targeted for the early design input from a BREEAM assessor.

3.3.2 HEATH AND WELLBEING

- **Hea 01:** The minimal daylighting standards will be achieved in the Kitchen (2%), living room, dining room, and studies (1.5%) and a view of the sky in all rooms, therefore 2 credits are targeted.
- **Hea 02:** The existing property is detached therefore all four credits are achieved by default.
- **Hea 03:** It is proposed that the specification of internal items and finishes will comply with the standards set out for the use of volatile organic compounds (VOC's), therefore 1 credit is targeted.
- **Hea 04:** Due to the nature of the existing building and the number of features that are being retained this credit has not been targeted.
- **Hea 05:** Ventilation will be provided in accordance with the minimum requirements for historic buildings, 1 credit is targeted.

- **Hea 06:** Compliant fire and carbon monoxide detector will be provided within the dwelling, 1 credit is targeted.

3.3.3 ENERGY

- **Ene 01:** A pre and post refurbishment design stage SAP assessment have been completed and 5 credits have been targeted.
- **Ene 02:** Based on the results of the post refurbishment design stage SAP 2.5 credits have been targeted.
- **Ene 03:** Based on the results of the post refurbishment design stage SAP 6 credits have been targeted.

- **Ene 04:** Due to the historical status of the building renewable technologies have been assessed and considered not to be appropriate for this scheme therefore no credits are targeted.
- **Ene 05:** Energy efficient goods will be provided which meet the EU energy efficiency labelling requirements. (If in the event that these appliances are not provided a compliant EU energy labelling leaflet will be provided). 2 credits are targeted.
- **Ene 06:** A laundry room is provided within the house which will have provision for a drying line, the room will also have adequate ventilation. 1 credit is targeted.
- **Ene 07:** It is proposed that both internal and external lighting will be energy efficient with an average internal wattage of 9watts/m^2, 2 credits are targeted.
- **Ene 08:** An energy display device will be installed which is capable of displaying current electricity and primary heating fuel consumption, 2 credits are targeted. It is also proposed that the device shall be capable of storing historical data for an exemplary credit.
- **Ene 09:** Cycle storage for 4 cycles will be provided within the garage on the lower ground floor. 2 credits are targeted.
- **Ene 10:** The library room will provide sufficient space for a home office. 1 credit is targeted.

3.3.4 WATER

- **Wat 01:** The design team have aimed to reduce internal water use. A water use calculator has been completed and 1 of the 3 credits available have been targeted.
- **Wat 02:** No rainwater collection system is proposed therefore no credits are targeted for this issue at this stage.
- **Wat 03:** A water meter will be provided within the dwelling for measuring potable water usage. 1 credit is targeted.

3.3.5 MATERIALS

- **Mat 01:** An assessment of the proposed material specifications has been undertaken against the Green Guide ratings calculator and 16 of the possible 25 credits have been targeted.
- **Mat 02:** All timber based products used on the project will be legally harvested and traded.
- **Mat 03:** All of the insulation used within the project has been assessed across the following building elements:
    - External walls
    - Ground floor
    - Roof
    - Building services

  The green guide rating of each of insulation has been determined and 4 of the 8 credits have been targeted.

3.3.6 WASTE

- **Was 01:** There is a compliant refuse collection scheme in place and compliant composting facilities will be provided within the private garden 2 of the 2 credits have been targeted.

- **Was 02:** A site waste management plan will be prepared by the contractor this will outline targets and commitments for minimising non-hazardous construction waste. Procedures for sorting, reusing and recycling construction waste. 1 of the potential 3 credits have been targeted.

3.3.5 POLLUTION

- **Pol 01:** A highly efficient boiler has been specified which has a dry NO_x emissions of ≤40mg/kWh, 3 credits have been targeted.
- **Pol 02:** A flood risk assessment has been completed for the site and an appropriately qualified professional will confirm that as a result of the refurbishment is managed on-site using source control. 3 credits have been targeted.
- **Pol 03:** The site is not located close to any watercourse a Flood Risk Assessment for the site has been undertaken and concluded that the site is not at risk of flooding. All new hardstanding will be permeable and rainwater will be discharged to soakaways located on site therefore 3 credits are targeted.

4.0 SUMMARY

In summary, this report has sought to replace the now retired EcoHomes assessment and assess the scheme under the BREEAM Domestic Refurbishment. It has been demonstrated that a score of '**VERY GOOD**' can be achieved.

5.0 ENERGY STATEMENT

The Mayor of London has proposed a set of principles within The London Plan for reducing carbon emissions. Policy 5.2 'Minimising Carbon Dioxide Emissions outlines the energy hierarchy; this is a guide for developments to follow to ensure decisions regarding energy are balanced with the need to optimise both environmental and economic benefits[1]. These guiding principles are recommended to be applied in sequence, as follows:

- BE LEAN: use less energy
- BE CLEAN: supply energy efficiently
- BE GREEN: use renewable energy

In response to the energy hierarchy we have considered each section in turn and based our resulting studies on calculations and comparison of various energy efficiency measures and technologies.

5.1 BE LEAN

Be lean is the first rung of the Mayors energy hierarchy and sets out an objective to first consider fabric efficiencies, through optimisation of the building fabric, glazing and air tightness. This section sets out the results of the energy and environmental performance of the dwelling as modelled using the Government Standard Assessment Procedure (SAP) 2012. The existing building and the proposed building have been analysed and the results are shown in table 5.

[1] https://www.london.gov.uk/what-we-do/planning/london-plan/current-london-plan/london-plan-chapter-five-londons-response/policy

Option	Specification	DER/TER Variance **BREGS L1A 2013** **TARGET 0%**
House as existing	DER Average U-values assumed based on exploratory works. -Roof u=1.32 W/m2K -External wall u =0.96 W/m^{2}K -Floor u =0.24 W/m^{2}K -Windows / Doors u =4.64 W/m^{2}K -Air permeability at 50 pascals 15 -0% energy efficient lighting -Thermal bridging: default 0.15. -Low efficiency boiler (assumed)	DER 49.54 kg/m^2 TER 13.64 kg/m^2 DER/TER Variance **263%**
House as proposed	Improved build ups/services. Average U-values shown below for both the new build extension and existing building. -Roof u =0.14 W/m^{2}K -External wall u =0.57 W/m^{2}K -Separating Floor u =0.19 W/m^{2}K -Windows / Doors u =1.65 W/m^{2}K -Air permeability at 50 pascals 15 -100% energy efficient lighting -Thermal bridging: default 0.15. - Instantaneous Combi boiler 95.4% efficient - MVHR to certain areas 83% efficient	DER 28.13 kg/m^2 TER 11.93 kg/m^2 DER/TER Variance **136%**
Overall Improvement in DER		**43%** Improvement

Table 5: Assessment of DER and TER of existing and proposed

The building fabric improvements have been taken as far as possible given the constraints of the Grade II* listed building. There are certain restrictions with working with the existing fabric that mean that the building cannot comply with the limiting U-values set out within Part L where changes would permanently alter the character and appearance of the house. Therefore due to the status of the existing house being Grade II* Listed it is suggested that the Part L requirements be relaxed.

5.2 BE CLEAN

The second step in the hierarchy is to consider the energy supply within the property and to consider the use of high efficiency systems. The house is proposed to be served by two highly efficient combination boilers with an MVHR serving certain areas of the house (predominately within the lower ground floor).

The previous Energy Statement indicated the possibility of one of the following means for reducing CO_2 emissions:

- Combined heat and power
- Biomass boiler
- Ground Source Heat Pump

It is noted that the Energy Report submitted with the original application proposed the installation of a Combined Heat and Power (CHP) unit in order to meet and exceed the carbon reductions set out within Part L (2008 version). The CHP system was justified at that time because of the constant heat load from the swimming pool, the heat:power ratio and the large and constant heat demand of the large house. Since the original submission, a number of amendments to the scheme have been made. The most recent changes form part of a non-material amendment application 2017/4294/P, which includes the omission of the previously approved winter garden, basement and swimming pool, and consequently reduced the overall area of the development.

With the swimming pool no longer part of the proposed development together with the smaller floor area, the inclusion of a CHP unit has become less viable. It is noted that the installation of single CHP unit is not in line with the council's policy CC1 'Climate Change Mitigation', this cites that stand-alone CHP units are not supported by the council 'where there is neither the potential nor the intention for that development to form part of a wider network'[2].

Figure 1 demonstrates that the site is not located near to any existing or potential network therefore this report seeks to remove the intention to install a CHP unit within the house.

[2] CamdenCouncil.CamdenLocalPlan. 2017. Policy CC1.Pg256

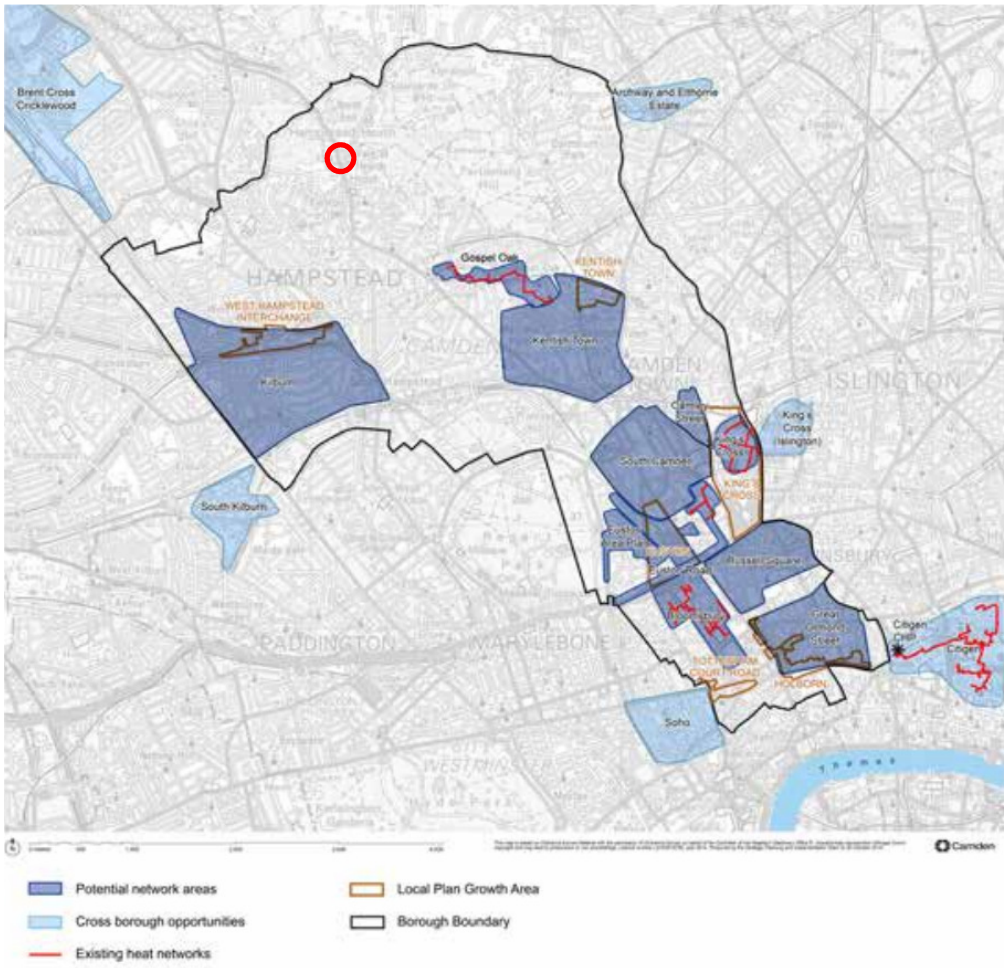


Figure 1. Camden Council map identifying existing and potential heating networks. Site highlighted.[3]

Biomass heating can provide a cheap and straightforward route to achieving CO^2 savings however the burning of wood in heating appliances can result in pollution emissions which will impact on air quality. This option is discounted on the grounds that the site falls within a Smoke Control Area and as a result no heating appliance can emit smoke without undergoing testing and certification.

While ground source heat pumps could be a possibility there would need to be additional ground condition surveys. The viability of such a system is unlikely due to the TPO trees on the site and the Northern Line tube tunnel running beneath the site.

[3] CamdenCouncil.Camden Local Plan. 2017. Map 5, Energy Networks. Policy CC1.Pg257

5.3 BE GREEN

The final stage is to consider appropriate renewable technologies which are intended to support the preceding two stages. The table below summarises the renewable technologies that have been investigated for this site.

System	Preliminary Assessment	Decision
Wind generators	Planning and local community issues associated with noise and visual obstruction. Average wind speeds do not achieve the required speed of 6 m/s (www.bwea.com) at the location of the site. Not appropriate in the setting of a listed building.	**Rejected**
Photovoltaic, roof top	The proposed development has a flat roof which is suitable for the application of photovoltaic panels. They are a commonly used renewable technology and not prohibitively expensive. Low maintenance as there are no moving parts. However, due to the status of the listed building the application of photovoltaics is not considered appropriate on planning grounds. Not appropriate in the setting of a listed building.	**Rejected**
Solar water heating	The building has a pitched roof that could be used for Solar Thermal tubes. However, as above due to the status of the listed building solar water heating is not considered appropriate on planning grounds. Not appropriate in the setting of a listed building.	**Rejected**

Gas Combined Heat and Power (CHP)	Gas CHP units are energy efficient systems generating electricity and providing space and hot water heating. These gas fired systems are available for domestic use, although are more suitable for dwellings with a high annual heat demand. These systems are fairly cost prohibitive in comparison with other more efficient renewable technologies. CHP systems are more suitable for applications where there is a high heat demand throughout the year. The previous energy statement highlighted CHP as a potentially economical solution; however following this there have been several design changes which have reduced the viability of the system. It is also noted that Camden Council do not support the application of single CHP system where there is no likely future possibility of connection to a larger network.	Rejected
Biomass CHP	Biomass CHP is a renewable and energy efficient system providing electricity and space and hot water heating. There is sufficient space for a boiler and storage of fuel however consideration should also be given to the source of the fuel and the method of transportation. It is noted that Camden Council does not encourage the use of Biomass due to the air quality implications. (Camden Council Local Plan, Policy CC1 pg. 255).	Rejected
Ground source heat pumps for heating (space and hot water)	There is a sufficient amount of ground area available to accommodate horizontal pipe system. Ground may be accessible for vertical pipe systems, however the cost is likely to be prohibitive for this development and would be subject to a ground conditions survey.	Rejected
Ground sourced inc. borehole cooling	There is no need of a mechanical cooling system for the proposed dwelling.	Rejected

Biomass heating. Fuels – wood, pellets, woodchips, some industrial waste products.	Biomass heating is a renewable energy technology. However, the system requires extensive space for storing the fuel (chips/pellets). It is noted that Biomass heating is not encouraged by Camden Council due to the air quality implications. (Camden Council Local Plan, Policy CC1 pg. 255).	Rejected
External and Exhaust Air source heat pumps for heating (space and hot water)	Air is an easily accessible means of heating, the most appropriate use would be low temperature system such as under floor heating. However, as it runs on electricity the contribution of the system to the reduction of CO2 use is very low. Systems also require large, and often noisy units to be mounted externally which would not be appropriate on planning grounds because of the listed status.	Rejected
Micro Combined Heat and Power (CHP)	Micro CHP units are energy efficient systems generating electricity and providing space and hot water heating. These gas fired systems are available for domestic use, although are more suitable for dwellings with a high annual heat demand. These systems are fairly cost prohibitive in comparison with other alternative renewable technologies.	Rejected

6.0 SUMMARY

The energy strategy has been assessed and the results of the design stage SAP assessment have been analysed against the Building Regulations Part L1B. It has been demonstrated that through building fabric enhancements and efficient heating systems the proposed building will reduced its carbon emissions by 43%. While there are options available for reducing the emissions further to comply with the requirements of Part L it is considered that these are prohibitively invasive or not suitable for the setting of the listed building.

It is noted that an approved inspector has been appointed to the development and they have requested a statement from the council's conservation officer confirming that the level of fabric improvements proposed takes the improvement as far as reasonably practical for the listed building.

APPENDIX 1: BREEAM Domestic Refurbishment Pre Assessment

BREEAM UK Domestic Refurbishment 2014 Pre-Assessment Estimator v0.1

BREEAM UK

This assessment and indicative BREEAM rating is not a formal certified BREEAM assessment or rating and must not be communicated as such. The score presented is indicative of a dwelling's potential performance and is based on a simplified pre-formal BREEAM assessment and unverified commitments given at an early stage in the design process.

Building name	Heath House
Indicative building score (%)	72.67%
Indicative BREEAM rating	BREEAM Very Good

Management | Health & Wellbeing | Energy | Water | Materials | Waste | Pollution

	Minimum Standards				
	Pass	Good	Very Good	Excellent	Outstanding
Ene 02	✓	✓	✓	✓	✗
Wat 01	✓	✓	✓	✗	✗
Hea 05	✓	✓	✓	✓	✓
Hea 06	✓	✓	✓	✓	✓
Pol 03	✓	✓	✓	✓	✓
Mat 02	✓	✓	✓	✓	✓

INNOVATION

Section Weighting: 10% | Indicative Section Score: 3.00%

Comments

MANAGEMENT

Section Weighting: 12% | Indicative Section Score: 6.55%

Man 01 Home Users Guide

No. of BREEAM credits available	3	Available contribution to overall score	3.27%
No. of BREEAM innovation credits	0	Minimum Standards applicable:	No

Assessment Criteria

Where a Home Users Guide be provided to all dwellings, covering all issues set out in the 'Users Guide Contents list', three credits may be awarded

Indicative Credits: 3

Comments

Man 02 Responsible Construction Practices

No. of BREEAM credits available	2	Available contribution to overall score:	2.18%
No. of BREEAM innovation credits	1	Minimum Standards	No

Assessment Criteria

Where a compliant considerate construction scheme will be used, credits are awarded depending the score achieved as outlined below:

Indicative Credits: 1

Large Scale - project with more than 5 units

	One Credit	Two Credits
Considerate Constructors Scheme	Score of 25-34 with a score of 5 in each section	Score of 35-39 with a score of 7 in each section
Alternative Compliant Scheme	Compliance	Beyond Compliance

Small Scale - project with 5 units or fewer

	One Credit	Two Credits
Considerate Constructors Scheme	Score of 25-34 with a score of 5 in each section	Score of 35-39 with a score of 7 in each section
Alternative Compliant Scheme	Compliance	Beyond Compliance
Checklist A-3	50% of the optional items	80% of the optional items

Exemplary Credit

Considerate Constructors Scheme	Score of 40 or more with a score of 7 in each section
Alternative Compliant Scheme	Exemplary Level Compliance
Checklist A-3*	All Items (Optional & Mandatory)

Indicative Innovation Credits Achieved: 0

* Small Scale Project Only

Comments

Man 03 Construction Site Impacts

No. of BREEAM credits available	1	Available contribution to overall score	1.09%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where evidence demonstrate that site impacts will be monitored, as detailed below:

Indicative Credits: 0

	One Credit
Large Scale	Where there is evidence to demonstrate that **2 or more** of the sections in **Checklist A-4** are completed
Small Scale	Where there is evidence to demonstrate that **2 or more** of the sections in **Checklist A-5** are completed

Sections of Checklist	
Large Scale - Checklist A-4	Small Scale - Checklist A-5
Monitor, report and set targets for CO2 production of energy use arising from site activities	Set objectives for reducing CO2 production from energy use arising from site activities
Monitor, report and set targets for water consumption arising from site activities	Set objectives for reducing water use arising from site activities
A main contractor with an environmental materials policy	Main contractor environmental materials statement
A main contractor that operates an Environmental Management System	80% of site timber is reclaimed, re-used or responsibly sourced
80% of site timber is reclaimed, re-used or responsibly sourced	

Same definition of small and large scale as in Man 02

Comments

Man 04 Security

No. of BREEAM credits available	**2**	**Available contribution to overall score:**	**2.18%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable:**	**No**

Assessment Criteria
Where the following requirements will be met:

		Indicative Credits
		0
One Credit Secure windows and doors	External doors and accessible windows meet minimum standards and appropriately certified	
Two Credits Secured by design	Principles and guidance of Secured by Design Section 2 are complied with	
	A suitably qualified security consultant is consulted at the design stage and their recommendations are incorporated into the refurbishment	

Comments

Man 05 Protection and Enhancement of Ecological Features

No. of BREEAM credits available	**1**	**Available contribution to overall score:**	**1.09%**
No. of BREEAM innovation credits	**1**	**Minimum Standards applicable:**	**No**

Assessment Criteria
Where the following requirements will be met:

		Indicative Credits
		0
One Credit Protecting Ecological Features	Site survey carried out to determine presence of ecological features	
	Statutory Nature Conservation Organisation notified of protected species	
	Features of ecological value protected during refurbishment works	

		Indicative Innovation Credits Achieved
		0
Exemplary Credit **Ecological enhancement**	A suitably qualified ecologist recommends features to enhance ecology of the site	
	adopts all general ecological recommendations	
	adopts 30% of additional recommendations	

Comments

Man 06 Project Management

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.18%**
No. of BREEAM innovation credits	**2**	**Minimum Standards applicable**	**No**

Assessment Criteria
Where the following requirements will be met:

		Indicative Credits
		2
One Credit Project Roles and Responsibilities	Where all of the project team are involved in the project decision making	
	Small Scale - the project manager assigns individual and shared responsibilities amongst the project team including all trades on site	
	Large Scale - the project manager assigns individual and shared responsibilities across the following key design and refurbishment stages: i. Planning and Building control notification ii. Design iii. Refurbishment iv. Commissioning and handover v. Occupation	

Small Scale projects: five units or fewer and less than £100k

Large Scale projects: more than five units and more than £100k

One Credit Handover and Aftercare	Handover meeting arranged	
	2 or more of the following committed to: - A site inspection within 3 months of occupation - Conduct post occupancy interviews with building occupants or a survey via phone or posted information within 3 months of occupation - Longer term after care e.g. a helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupation	

		Indicative Innovation Credits Achieved
Exemplary Credits		1
One Exemplary Credit Early Design Input	Where A BREEAM Accredited Professional has been appointed to oversee key stages within the project. OR Where a BREEAM Domestic Refurbishment Assessor has been appointed at an early stage of the project, prior to the production of a refurbishment specification	
One Exemplary Credit Thermographic Surveying and Airtightness Testing	Where Thermographic surveying and Airtightness testing have been carried out at both pre and post refurbishment stages Where an improved air tightness target has been set at design stage and testing demonstrates that this has been achieved post refurbishment	

Comments

HEALTH & WELLBEING — Section Weighting: 17% — Indicative Section Score 12.75%

Hea 01 Daylighting

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.83%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria — **Indicative Credits: 2**

Where the refurbishment results in a neutral impact on daylighting or where minimum daylighting standards are met, up to two credits may be awarded as follows:

For Existing Dwellings and Change of Use Projects

First Credit Maintaining Good Daylighting	The refurbishment results in a neutral impact on the dwellings daylighting levels in the kitchen, living room, dining room and study

Where the property is being extended

First Credit Maintaining Good Daylighting	New spaces achieve minimum daylighting levels
	The extension does not significantly reduce daylighting levels in the kitchen, living room, dining room or study of neighbouring properties

For All Properties

Second Credit Minimum Daylighting	The dwelling achieves minimum daylighting levels in the kitchen, living room, dining room and study

Comments

Hea 02 Sound Insulation

No. of BREEAM credits available	**4**	**Available contribution to overall score**	**5.67%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria — **Indicative Credits: 4**

To ensure the provision of acceptable sound insulation standards and so minimise the likelihood of noise complaints

Properties where sound testing has been carried out:

Up to Four Credits	Four credits awarded according to the improvement over building regulations. See table in additional information in Technical Manual

Properties where sound testing is not feasible and not required by the appointed Building Control body

Two Credits	Where existing separating walls and floors are designed to meet the requirements of Building Regulations with compliant construction details
Up to Four Credits	Where a Suitably Qualified Acoustician (SQA) provides recommendations for the specification of all existing separating walls and floors
	SQA confirms in their professional opinion that they have the potential to meet or exceed the sound insulation credit requirements
	Where these recommendations are implemented
	See table in additional information in Technical Manual

Historic Buildings

Up to Four Credits	Where the dwelling is a Historic Building and sound testing results demonstrate existing separating walls and floor meet the Historic Building credit requirements
	See table in additional information in Technical Manual
	Where sound testing is not feasible and not required by the appointed Building Control body meeting criteria 2 and 3 using Table 12
	Properties where sound testing has been carried out, credits awarded according to the improvement over building regulations. See table in additional information in Technical Manual
	Where the dwelling is a detached property
	Where the dwelling is a propertywith separating walls or floors only between non habitable rooms OR Testing not required by building control body

Detached Properties

Four Credits	By Default

Properties with separating walls or floors only between non habitable rooms OR Testing not required by building control body

Four Credits	By Default

Comments

Hea 03 Volatile Organic Compounds

No. of BREEAM credits available	**1**	**Available contribution to overall score**	**1.42%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria — **Indicative Credits: 1**

Where the refurbishment avoids the use of VOCs with new products meeting the following requirements

One Credit Avoiding the use of VOCs	Where all decorative paints and varnishes used in the refurbishment have met the requirement listed in table 5.4 in the Technical Manual
	Where at least five of the eight remaining product categories listed in table 5.4 have met the testing requirements and emission levels for Volatile Organic Compound (VOC) emissions against the relevant standards identified within table 5.4 in the Technical Manual
	Where five or less products are specified within the refurbishment, all must meet the requirements in order to achieve this credit.

Comments

Hea 04 Inclusive Design

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.83%**
No. of BREEAM innovation credits	**1**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where an access statement has been carried out using Checklist A-8 of the Technical Manual to optimise the accessibility of the home as follows:

Indicative Credits: 0

	Checklist A-8 of the Technical Manual	
	Section 1	**Section 2**
One Credit Minimum Accessibility	Completed with Evidence	
Two Credits Advanced Accessibility	Completed with Evidence	Completed with Evidence

Exemplary Performance

One Credit	Where an access expert suitably qualified member of the design team has completed sections 1, 2 and 3 of Checklist A-8, access statement template with evidence provided of the measures implemented in the refurbishment

Indicative Innovation Credits Achieved: 0

Comments

Hea 05 Ventilation

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.83%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**Yes**

Assessment Criteria

Where the dwelling meets the following ventilation requirements:

Indicative Credits: 1

One Credit Minimum Ventilation Requirements	A minimum level of background ventilation is provided (with trickle ventilators or other means of ventilation) for all habitable rooms, kitchens, utility rooms and bathrooms compliant with section 7, Building Regulations Approved Document Part F, 2010
	A minimum level of extract ventilation is provided in all wet rooms (e.g. kitchen, utility and bath-rooms), compliant with section 5, Building Regulations Approved Document Part F 2010.
	A minimum level of purge ventilation is provided in all habitable rooms and wet rooms, compliant with section 7, Building Regulations Approved Document Part F, 2010.
	It is an historic building and meets historic building requirements in CN4 of the technical manual
Two Credits Advanced Requirements	Ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full
	Where the building is a historic building and meets the requirements for Historic Buildings in compliance note 4 of the technical manual

Comments

Hea 06 Safety

No. of BREEAM credits available	**1**	**Available contribution to overall score**	**1.42%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**Yes**

Assessment Criteria

Where a fire and carbon monoxide (CO) detection and alarm system is specified as follows

Indicative Credits: 1

One Credit Fire and Carbon Monoxide (CO) Detection and Alarm Systems	Where a compliant fire detection and fire alarm system is provided
	Carbon Monoxide detector installed if dwelling is supplied with mains gas or other fossil fuel
	Mains supplied fire detection and alarm system if project involves re-wiring*
	Battery operated fire detection and alarm system if no re-wiring* is to take place

*** see CN9 in Hea 06 for the definition of re-wiring**

Comments

ENERGY — Section Weighting: 43% — Indicative Section Score 34.84%

Ene 01 Improvement in Energy Efficiency Rating

No. of BREEAM credits available	**6**	**Available contribution to overall score**	**8.90%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where the following targets are met for the improvement in Energy Efficiency Rating achieved as a result of refurbishment:

Indicative Credits: 5

Improvement in EER	Credits
≥ 5	0.5
≥ 9	1
≥ 13	1.5
≥ 17	2
≥ 21	2.5
≥ 26	3
≥ 31	3.5
≥ 36	4
≥ 42	4.5
≥ 48	5
≥ 54	5.5
≥ 60	6

Comments

Ene 02 Energy Efficiency Rating Post Refurbishment

No. of BREEAM credits available	**4**	**Available contribution to overall score**	**5.93%**
No. of BREEAM innovation credits	**2**	**Minimum Standards applicable**	**Yes**

Assessment Criteria

Where the following Energy Efficiency Rating benchmarks will be met as a result of refurbishment:

Indicative Credits: 2.5

EER post refurbishment	Credits	Minimum requirements
≥50	0.5	'Pass' level EER of 50
≥55	1	'Good' level EER of 58
≥60	1.5	
≥65	2	'Very Good level' EER of 65
≥70	2.5	'Excellent' level EER of 70
≥75	3	
≥80	3.5	'Outstanding' level EER of 81
≥85	4	

Exemplary	Credits
≥90	1
≥100	2

Indicative Innovation Credits Achieved: 0

Comments

Ene 03 Primary energy demand

No. of BREEAM credits available	**7**	**Available contribution to overall score**	**10.38%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where the following Primary Energy Demand benchmarks will be met as a result of refurbishment

Indicative Credits: 6

Primary Energy Demand Post Refurbishment	Credits
≤ 400	0.5
≤ 370	1
≤ 340	1.5
≤ 320	2
≤ 300	2.5
≤ 280	3
≤ 260	3.5
≤ 240	4
≤ 220	4.5
≤ 200	5
≤ 180	5.5
≤ 160	6
≤ 140	6.5
≤ 120	7

Comments

Ene 04 Renewable Technologies

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.97%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where the dwelling will meet the following % contribution from renewables and primary energy demand targets as a result of refurbishment

Indicative Credits: 0

Dwelling Type	Primary Energy Demand	Percentage from Renewables	
		1 Credit	2 Credits
Detached	≤ 250 kWh/m^2/year	≥10%	≥20%
Semi-Detached		≥10%	≥20%
Bungalow		≥10%	≥20%
End of Terrace		≥10%	≥20%
Mid Terrace	≤ 220 kWh/m^2/year	≥10%	≥20%
Low Rise Flat		≥10%	≥20%
Mid Rise Flat		≥10%	≥15%
High Rise Flat		≥10%	≥15%

Comments

Ene 05 Energy Labelled White Goods

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.97%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where Energy Efficiency White goods are to be provided as follows:

Indicative Credits: 2

First Credit

Appliance	Appliance provided	Appliance not to be provided
Fridges, Freezers and Fridge-Freezers	A+ Rating under EU Energy Efficiency Labelling Scheme	EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings

Second Credit

Appliance	Appliance provided	Appliance not to be provided
Washing Machines and Dishwashers	Washing Machine A++ under EU Energy Efficiency Labelling Scheme AND Dishwasher A+ uner EU Energy Efficiency Labelling Scheme	Second credit not achieved
Washer-Dryers and Tumble Dryers	Appliances specified with A Rating under EU Energy Efficiency Labelling Scheme	EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings

Comments

Ene 06 Drying Space

No. of BREEAM credits available	**1**	**Available contribution to overall score**	**1.48%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where adequate, secure internal or external space with posts and footings or fixings is provided with the following

Indicative Credits: 1

1 Credit

Number of bedrooms	Drying line required
1-2	4m+
3+	6m+

Comments

Ene 07 Lighting

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.97%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where energy efficient internal and external lighting is provided as follows

Indicative Credits: 2

External Lighting - 1

Energy Efficient Space Lighting of more than 45 lumens per circuit watt and Energy Efficient Security Lighting OR
Where Energy Efficient Space Lighting is provided ONLY

Internal Lighting - 1

Maximum average wattage across the total floor area of the dwelling of 9 watts/m2

Comments

Ene 08 Display Energy Devices

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.97%**
No. of BREEAM innovation credits	**1**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where consumption data is displayed to occupants by a compliant energy display device

Indicative Credits: 2

Electricity usage data displayed	Primary Heating Fuel	
	Electricity	Other
Electricity usage data displayed	2 credits awarded	1 credit awarded
Primary Heating Fuel usage data displayed	N/A	1 credit awarded
Electricity & Primary Heating Fuel usage displayed	N/A	2 credits awarded

Exemplary Credits

One credit Recording consumption data	Where the first two credits are achieved
	Where any compliant Energy Display Device is capable of recording consumption data

Indicative Innovation Credits Achieved: 1

Comments

Ene 09 Cycle Storage

No. of BREEAM credits available	**2**	**Available contribution to overall score**	**2.97%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where individual or communal compliant cycle storage is provided as follows

Indicative Credits: 2

Dwelling Size	One Credit	Two Credits
Studios/ 1 bedroom	1 per two dwellings	1 per dwelling
2-3 bedrooms	1 per dwelling	2 per dwelling
4 bedrooms	2 per dwelling	4 per dwelling

Comments

Ene 10 Home Office

No. of BREEAM credits available	**1**	**Available contribution to overall score**	**1.48%**
No. of BREEAM innovation credits	**0**	**Minimum Standards applicable**	**No**

Assessment Criteria

Where sufficient space and services will be provided to allow occupants to set up a home office in a suitable room with adequate ventilation

Indicative Credits: 1

Comments

WATER	Section Weighting: 11%	Indicative Section Score 4.40%

Wat 01 Internal Water Use

No. of BREEAM credits available	3	Available contribution to overall score	6.60%
No. of BREEAM innovation credits	1	Minimum Standards applicable	Yes

Assessment Criteria

Indicative Credits: 1

Where the dwellings water consumption meets the following consumption benchmarks, or where terminal fittings meet the following water consumption standards:

Calculated Water Consumption (litres/person/day)	Equivalent terminal fitting standards	Minimum Standard	Credits
>150	Typical baseline performance	N/A	0
from 140 to ≤ 150	All showers specified to 'Good' **OR** All taps and WC's to 'Good' **OR** Kitchen fittings specified to 'Excellent'	N/A	0.5
from 129 to < 140	All showers specified to 'Excellent' **OR** All showers and bathroom taps to 'Good'	BREEAM Very Good	1
from 118 to < 129	All bathroom and WC room fittings specified to 'Good' **OR** All bathroom fittings specified to 'Excellent'	N/A	1.5
from 107 to < 118	All Bathroom and WC room fittings specified to 'Excellent' **OR** All Bathroom fittings Specified to 'Excellent' and WC room fitting specified to 'Good' **OR** All Bathroom fittings, kitchen and utility sittings specified to 'Good'	BREEAM Excellent	2
from 96 to < 107	All kitchen, bathroom, utility room and WC room fittings specified to 'Good' **OR** All bathrooms, kitchens and utility rooms specified to 'Excellent'	N/A	2.5
< 96	All bathroom fittings specified to 'Excellent' and WC room, kitchen and utility room fittings specified to 'Good'	BREEAM Outstanding	3

NOTE: 'Good' fittings are equivalent to good practice fittings with "Excellent" fittings equivalent to best practice fittings (see the technical manual for full details.

Exemplary Credit	If the water consumption is less than 80l/person/day

Indicative Innovation Credits Achieved: 0

Comments

Wat 02 External Water Use

No. of BREEAM credits available	1	Available contribution to overall score	2.20%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Indicative Credits: 0

Where the following requirements will be met:

Requirements:

One Credit	Where a compliant rainwater collection system for external/internal irrigation use has been provided to dwellings. **OR** Where dwellings have no individual or communal garden space.

Comments

Wat 03 Water Meter

No. of BREEAM credits available	1	Available contribution to overall score	2.20%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Indicative Credits: 1

Where an appropriate water meter for measuring usage of mains potable water meter has been provided to dwelling(s), one credit may be awarded

Comments

MATERIALS	Section Weighting: 8%	Indicative Section Score 3.33%

Mat 01 Environmental Impact of Materials

No. of BREEAM credits available	25	Available contribution to overall score	4.16%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Indicative Credits: 16

Up to 25 credits can be awarded, with credits calculated using the Mat 01 calculator tool. The table below shows the maximum number o credits available for each element:

Elements	Green Guide Rating credits available	Thermal performance credits
Roof	5	3
External walls	5	3.8
Internal walls (including separating walls)	5	-
Upper and Ground Floor	5	1.2
Windows	5	2

The full 25 credits represents all of the elements containing refurbished or existing materials that meet the Green Guide Rating of A+(6

GG Rating	Points for existing / refurbished elements	Points for new elements
A+ (6)	5	
A+ (5)	4.6	
A+ (4)	4.2	
A+ (3)	3.8	
A+ (2)	3.4	
A+	3	3
A	2	2
B	1	1
C	0.5	0.5
D	0.25	0.25
E	0	0

Where the full 25 credits cannot be achieved the score can be 'topped up' with thermal performance credits. The full number of therma performance credits for each element can be achieved when achieving the minimum U-values shown below

Elements	Minimum U-Value
Roof	0.11
External walls	0.15
Internal walls (including separating walls)	-
Upper and Ground Floor	0.15

Windows	1.4

Comments

Mat 02 Responsible Sourcing of Materials

No. of BREEAM credits available	15	Available contribution to overall score	2.50%
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes

Assessment Criteria

Where new materials are responsibly sourced, up to 12 credits may be awarded where 80% of new materials for an element are responsibly sourced. The credits achieved are dependent on % of point achieved which is based upon the responsible sourcing tier level of each material sourced as detailed below:

Indicative Credits
0

Sustainable Procument Plan (3 BREEAM credits)
The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan
OR Where the principal contractor is a Small Company (up to 3 BREEAM credits)
Checklist A-9 is filled in with supporting evidence

Will all new timber used in the project be sourced in accordance with the UK Government's Timber Procurement
Yes

Table 1

BREEAM credits	% of available points achieved
12	≥54%
10	≥45%
8	≥36%
6	≥ 27%
4	≥ 18%
2	≥ 9%

Comments

Mat 03 Insulation

No. of BREEAM credits available	8	Available contribution to overall score	1.33%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where any new insulation specified for use within external walls, ground floor, roof and buildings services meet the following requirements:

Indicative Credits
4

Requirements

4 Credits	Where the Insulation Index for new insulation used in the buildings is≥2
	Where Green Guide ratings are determined using the Green Guide to specification tool

Requirements

4 Credits	Where ≥ 80% of the new thermal insulation used in the building elements is responsibly sourced.

Comments

WASTE — Section Weighting: 3% — Indicative Section Score 1.80%

Was 01 Household Waste

No. of BREEAM credits available	2	Available contribution to overall score	1.20%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where compliant recycling and composting facilities are provided, up to two credits may be awarded as follows:

Indicative Credits
2

First Credit - Recycling Facilities	
Scenario	**Internal recycling storage requirements**
Compliant collection scheme in place	3 internal recycling containers provided where recycling is not sorted post collection
	1 internal recycling container provided where recycling is sorted post collection
	Minimum 30 litre total capacity, no single container less than 7 litre capacity
	Dedicated position in accordance with compliance note 1
No compliant collection scheme in place No adequate external storage	3 internal recycling containers provided
	Minimum 60 litre total capacity
	Dedicated position in accordance with compliance note 1
No compliant collection scheme in place Adequate external storage provided	3 internal recycling containers provided
	Minimum 30 litre total capacity, no single container smaller than 7 litre
	Dedicated position in accordance with compliance note 1

Second credit - Composting facilities	
With external space	**Without external space**
Where a composting service or facility is provided for green/garden waste	Where a composting service or facility is provided for kitchen waste
Where a composting service or facility is provided for kitchen waste	Where an interior container is provided for kitchen composting waste of at least 7 litres
Where an interior container is provided for kitchen composting waste of at least 7 litres	

Comments

Was 02 Refurbishment Site Waste Management

No. of BREEAM credits available	3	Available contribution to overall score	1.80%
No. of BREEAM innovation credits	1	Minimum Standards applicable	No

Assessment Criteria

Up to three credits are available depending on the site waste management plan to be implemented as follows:

Indicative Credits
1

Projects up to £100k

Three Credits	Where waste generated through the refurbishment process is managed in accordance with Checklist A-9
Exemplary Credit	Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place

Indicative Innovation Credits Achieved
0

Projects up to £300k

Three Credits	Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place
Exemplary Credit	Where a compliant Level 2; Site Waste Management Plan (SWMP) is in place
	Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the resource efficiency benchmark
	The percentage of non-hazardous construction waste and demolition

	waste generated by the project has been diverted from landfill and meets or exceeds the refurbishment & demolition waste diversion benchmarks

Projects over £300k

First Credit Management Plan	Where a compliant Level 2; Site Waste Management Plan (SWMP) is in place
Second Credit Good Practice Waste Benchmarks	First credit achieved
	Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the resource efficiency benchmark
	Amount of waste generated against £100,000 of project value is recorded in the SWMP
	Pre-refurbishment audit of the existing building is completed
	If demolition is included as part of the refurbishment programme, then the audit should also cover demolition materials
Third Credit Best Practice Waste Benchmarks	Where the first two credits have been achieved achieved
	Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the refurbishment & demolition waste diversion benchmarks
Exemplary Credit	Where non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the *exemplary level resource efficiency benchmark*
	Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the exemplary level diversion benchmarks

Comments

POLLUTION	Section Weighting: 6%	Indicative Section Score 6.00%

Pol 01 NOx Emissions

No. of BREEAM credits available	3	Available contribution to overall score	2.25%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Credits are awarded on the basis of NOx emissions arising from the operation of space heating and hot water systems for each refurbished dwelling as follows:

Indicative Credits
3

	Dry NOx Emissions
One Credit	≤100 mg/kWh (NOx class 4 boiler)
Two Credits	≤70 mg/kWh (NOx class 5 boiler)
Three Credits	≤40 mg/kWh

Comments

Pol 02 Surface Water Runoff

No. of BREEAM credits available	3	Available contribution to overall score	2.25%
No. of BREEAM innovation credits	1	Minimum Standards applicable	No

Assessment Criteria

Where impacts of the refurbishment on surface water runoff are neutralised or where runoff is reduced as a result of refurbishment, up to three credits can be awarded as follows:

Indicative Credits
3

	Requirements
One Credit Neutral Impact on Surface Water	New hard standing areas must be permeable
	If building on to previously permeable area additional run-off must be managed on site
	Calculations should be carried out by an appropriately qualified professiona

	Requirements
OR Second Credits Reducing Run-Off From Site: Basic	Where the criteria needed for One Credit has been achieved
	Where all run-off from the roof for rainfall depths up to 5 mm, have been managed on site using source control methods
	Include runoff from all existing and new parts of the roof.
	An appropriately qualified professional should be used to design an appropriate drainage strategy for the site

	Requirements
OR Three Credits Reducing Run-Off From Site: Advanced	Where run-off as a result of the refurbishment is managed on site using source control
	An appropriately qualified professional should be used to design an appropriate drainage strategy for the site.
	The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 75% from the existing site.
	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 75%.
	An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010).

	Requirements
Exemplary Credit	Where all run-off from the developed site is managed on site using source control
	The peak rate of run-off as a result of the refurbishment for the 1 in 1 year event is reduced to zero.
	The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero.
	There is no 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.
	An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010).

Indicative Innovation Credits Achieved
1

Comments

Pol 03 Flooding

No. of BREEAM credits available	2	Available contribution to overall score	1.50%
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes

Assessment Criteria

Where the dwelling is located in a low flood risk zone, or where in a medium to high flood risk zone and a flood resilience/resistance strategy has been implemented, up to two credits can be awarded as follows:

Indicative Credits
2

Minimum Standards	A minimum of two credits must be achieved for this issue at the Excellent and Outstanding levels

Option 1 - Low Flood Risk

Two Credits	Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a low annual probability of flooding.

Option 2 - Medium / High Flood Risk

Two Credits	Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a medium or high annual probability of flooding.
	Two credits are awarded where as a result of the dwellings floor level or measures to keep water away the dwelling is defined as achieving avoidance from flooding by following Checklist A-10; Decision Strategy Flow Chart.
	Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the dwellings in accordance with recommendations made by a Suitably Qualified Building Professional

Comments