

Preliminary Assessment

BREEAM Domestic

Refurbishment

40-42 Mill Lane

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Executive Summary

BREEAM Domestic Refurbishment

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Introduction:

Eight Associates has been appointed, as registered BREEAM Domestic Refurbishment assessors, to undertake an outline stage review of the likely BREEAM rating for the proposed development at 40-42 Mill Lane in the London Borough of Camden. The results of this report are based on layout drawings provided from the architect and initial recommendations based on the refurbishment works for the scheme.

Score Summary:

Camden Council requires all residential refurbishments, conversions and change of use (for 5 or more dwellings, or 500sqm or more) to achieve a BREEAM Domestic Refurbishment Excellent rating with at least:

- 60% of the credits within the Energy section (18 of a possible 29)
- 60% of the credits within the Water section (3 of a possible 5)
- 40% of the credits within the Materials section (20 of a possible 48)

The development currently aims to achieve an **Excellent** rating, with a preliminary score of **73.69%** (the minimum score required to achieve this rating is 70%). Eight Associates recommends a safety margin of at least 3% is maintained to secure the rating through to practical completion.

The development will aim to achieve the council's targets for energy, water and materials.

Building Summary:

The proposed development is located in the London Borough Camden and comprises the refurbishment and extension of the upper ancillary residential space of an existing development. The proposed site is within close proximity of several conservation areas but is not considered a 'historic building' and is therefore not subject to the 'historic building' requirements under BREEAM Domestic Refurbishment for ventilation, security and sound insulation.

Score Breakdown

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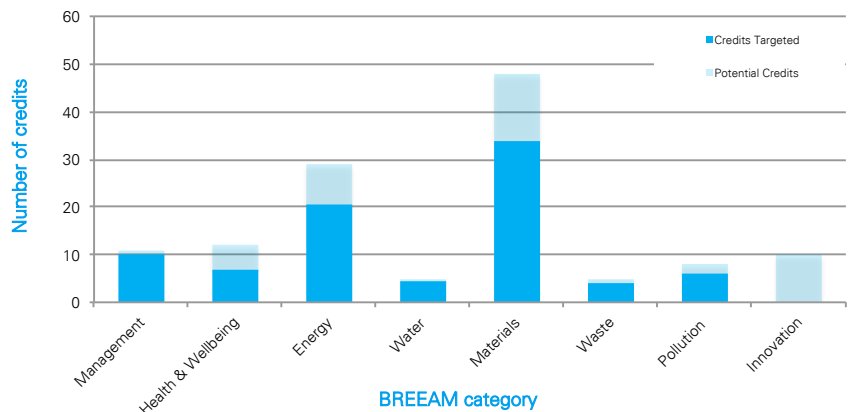
Summarised Score:

	Score	Credits available	% Achieved	Weighting Factor	Credits Score
Management	10.0	11	90.91	0.12	10.91
Health & Wellbeing	7.0	12	58.33	0.17	9.92
Energy	20.5	29	70.69	0.43	30.40
Water	4.5	5	90.00	0.11	9.90
Materials	34.0	48	70.83	0.08	5.67
Waste	4.0	5	80.00	0.03	2.40
Pollution	6.0	8	75.00	0.06	4.50
Innovation	0.0	10	0.00	0.1	0.00
Total					73.69

Rating **EXCELLENT**

Graphic Breakdown:

The graph below shows the credits targeted in the proposed scheme (dark blue) and the potential credits that are achievable (light blue) under BREEAM. Please see the remaining portions of the report for further details of BREEAM requirements.



Management

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Man 01 – Home Users Guide:

The design team has confirmed that a Home User Guide will be provided, informing the occupants on the correct operation of the building's various systems. The guide will contain all information listed in the 'Home Users Guide Contents List', as detailed by BREEAM, and will be non-technical in nature.

3 of 3

Three of three credits are targeted.

Man 02 – Responsible Construction:

The design team has confirmed that the site will be registered with the Considerate Constructors Scheme and will achieve a score of ≥ 35 , with at least 7 points in each section.

2 of 2

Two of two credits are targeted.

Man 03 – Construction Site Impacts:

The design team has confirmed that the chosen contractor will operate an environmental materials policy and at least 80% of site timber will be reclaimed, re-used or responsibly sourced. In addition, the design team has confirmed that site energy and water use will be logged during the construction phase and targets will be set for usage.

1 of 1

One of one credit is targeted.

Man 04 – Security:

The design team has confirmed that all doors and windows are to be replaced, and that all new units will meet the security ratings set out by BREEAM. In addition, the design team has confirmed that a Police Architectural Liaison Officer will be appointed to provide recommendations as to how Section 2 of Secured by Design ('Physical Security') will be met – all mandatory recommendations will be adopted in the refurbishment specification.

2 of 2

Two of two credits are targeted.

Management

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Man 05 – Ecological Features:

At this stage it could not be confirmed that a site survey and ecological report will be undertaken to outline key recommendations for protecting and enhancing site ecology therefore this credit has not been targeted.

0 of 1

Zero of one credit is targeted.

Man 06 – Project Management:

The design team has confirmed that all members of the project team will be involved in project decision-making, and individual/shared roles and responsibilities will be assigned across the following key design and refurbishment stages for one credit:

2 of 2

- Planning and Building Control notification;
- Design;
- Refurbishment;
- Commissioning and handover;
- Occupation.

In addition, the design team has confirmed that a handover meeting will take place, and that at least two of the following items will be undertaken to evaluate project success:

- A site inspection within three months of occupation;
- Post-occupancy interviews with building occupants (by phone or by post) within three months of occupation;
- A commitment to providing longer-term aftercare e.g. a helpline, nominated individual or other appropriate system to support building users for at least the first twelve months of occupation.

Two of two credits are targeted.

Health and Wellbeing

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Hea 01 – Daylighting:

The design team has confirmed that the credits for this section will not be targeted at this stage.

0 of 2

Zero of two credits are targeted.

Hea 02 – Sound Insulation:

The design team has confirmed that post completion sound testing will be undertaken to confirm a 3dB improvement over Approved Document Part E airborne sound insulation values and impact sound insulation values will be achieved.

3 of 4

Three of four credits are targeted.

Hea 03 – Volatile Organic Compounds:

The design team has confirmed that internal finishes that emit high levels of volatile organic compounds (VOCs) will be avoided in the specification, in line with the criteria set out by BREEAM.

1 of 1

One of one credit is targeted.

Hea 04 – Inclusive Design:

The design team has confirmed that it will not be possible to meet the inclusive design criteria as set out by BREEAM, most notably WC provision in the entrance storey of the building.

0 of 2

Zero of two credits is targeted.

Hea 05 – Ventilation:

MINIMUM OF ONE CREDIT REQUIRED FOR ALL BREEAM RATINGS

2 of 2

The design team can confirm that minimum background, extract and purge ventilation rates, compliant with Approved document F 2010 will be achieved. In addition, ventilation will be provided that meets the requirements of Section 5 of Building Regulations Part F in full.

Two of two credits are targeted.

Health and Wellbeing

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Hea 06 – Safety:

MINIMUM OF ONE CREDIT REQUIRED FOR BREEAM 'VERY GOOD'

1 of 1

The design team has confirmed that compliant fire and (where mains gas or any other form of fossil fuel is used within the building) carbon monoxide detection systems will be installed. These will be hard-wired into the building's mains electricity supply and will feature battery back-up. In addition, the systems will meet Part B of the Building Regulations for new build, in line with the following requirements:

- Fire detection and alarm systems will be in accordance with BS5839-6:2004 and to at least a Grade D, Category LD3 standard. The system will be positioned in accordance with the Building Regulations Part B, Fire Safety Volume 1 – Dwellinghouses 2006, Section 1, Paragraphs 1.11 – 1.18.
- Carbon Monoxide detection systems will meet BS EN 50291-1:2001 and be positioned in accordance with BS EN 50292:2002. Systems should carry a British or European approval mark. Where smoke and carbon monoxide detectors are combined, they should also meet the LPS 1282 standard.

One of one credit is targeted.

Energy

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Ene 01 – Improvement in EER:

The design team has confirmed that efforts will be made to improve the energy efficiency of the dwelling, thus reducing the associated CO₂ emissions. Draft SAP 2012 calculations carried out by Eight Associates demonstrate an improvement in the building's energy efficiency of ≥ 26 , for which three credits will be achievable. **3 of 6**

Three of six credits are targeted.

Ene 02 – EER Post Refurbishment:

Draft SAP 2012 calculations carried out by Eight Associates demonstrate a post-refurbishment Energy Efficiency Rating of ≥ 75 , for which three credits will be achievable. **3 of 4**

Three of four credits are targeted.

Ene 03 – Primary Energy Demand:

The design team has confirmed that efforts will be made to reduce the absolute total regulated energy demand of the dwelling, as a result of refurbishment. **6.5 of 7**

Based on SAP 2012, Eight Associates estimate the post-refurbishment Primary Energy Demand as being ≤ 140 kWh/m²/year, for which six and a half credits will be achievable.

Six and a half of seven credits are targeted.

Ene 04 – Renewable Technologies:

The design team has confirmed that, due to space constraints, credits for renewable technologies will not be targeted. **0 of 2**

Zero of two credits are targeted.

Ene 05 – Energy Labelled White Goods:

The design team has confirmed that all white goods will have the following ratings under the EU Energy Efficiency Labelling Scheme: **2 of 2**

- Fridges/freezers = A+
- Washing machines = A++
- Dishwashers = A+
- Washer driers and tumble dryers = A
- Where no white goods are provided to the dwelling(s) but the EU Energy Efficiency Labelling Scheme Information Leaflet is provided to each dwelling

Two of two credits are targeted.

Energy

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Ene 06 – Drying Space:

The design team has confirmed that 4m+ of drying line will be installed, permanently fixed within a bathroom or utility room. The room will be heated and will feature adequate, controlled ventilation compliant with the Building Regulations Approved Document Part F.

1 of 1

One of one credit is targeted.

Ene 07 – Lighting:

The design team has confirmed that the energy required for internal lighting will be minimised through the provision of a maximum average wattage across the total floor area of the dwelling of 9 Watts/m². In addition, the BREEAM criteria for external lighting (luminous efficacy and control systems) will be met.

2 of 2

Two of two credits are targeted.

Ene 08 – Energy Display Devices:

The design team has confirmed energy display device will not be specified therefore these credits for this section are not targeted.

0 of 2

Zero of two credits is targeted.

Ene 09 – Cycle Storage:

The design team has confirmed that storage will be provided for at least four bicycles within a secure location on the lower ground floor, therefore two credits are achievable.

2 of 2

Two of two credits are targeted.

Ene 10 – Home Office:

The design team has confirmed that the space and services necessary for residents to be able to work from home will be provided, in line with BREEAM criteria for a home office. The room will incorporate the following services:

1 of 1

- Two double power sockets;
- One telephone point;
- One data point;
- A window with an openable casement of no less than 0.5m² and whose width or height is not less than 450mm.

One of one credit is targeted.

Water

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Wat 01 – Internal Potable Water Use:

MINIMUM OF ONE CREDIT REQUIRED FOR A BREEAM 'VERY GOOD'

2.5 of
3

The design team has confirmed that internal water use attenuation measures will be implemented. Although a number of options are available to achieve one credit for this issue, Eight Associates recommend the following specification:

- All taps with a flow rate of 4 litres per minute or less;
- Showers with a flow rate of 8 litres per minute or less;
- Baths with a capacity of no more than 140 litres to overflow;
- 6/3 litre, dual flush WCs;
- Dishwashers with a consumption of no more than 1 litre per place setting;
- Washing machines with a consumption of no more than 7 litres per kg of dry load;
- No waste disposal units to be installed;
- No water softening devices to be installed.

Adoption of the above specification will ensure that the required water consumption level of <107 litres/person/day will be achievable and the mandatory credit is awarded.

Two and a half of three available credits are targeted.

Wat 02 – External Water Use:

The design team has confirmed that on small terrace areas in Units 1, 2 and 4 there is no scope for soft planting, therefore this credit can be awarded by default.

1 of 1

One of one credit is targeted.

Wat 03 – Water Meter:

The design team has confirmed that a compliant water consumption display device will be specified in each apartment. The meter will have a visible display showing the mains potable water consumption to occupants.

1 of 1

One of one credit is targeted.

Materials

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Mat 01 – Environmental Impact of Materials:

The design team has confirmed that many of the building's existing elements will be retained and their performance enhanced. Where new materials are required, those with the optimal balance of low environmental impact and high thermal performance will be specified. 18 of 25

Where used, concrete will be specified to comprise the highest possible proportions of ground granulated blast furnace slag (GGBS), pulverised fuel ash (PFA) and recycled aggregate (RCA).

Eighteen of the twenty-five available credits are targeted, based on the Green Guide rating of works to the external, internal and separating walls and roofs.

Mat 02 – Responsible Sourcing of Materials:

MINIMUM STANDARDS APPLY TO TIMBER PROCUREMENT 8 of 15

The design team has confirmed that all timber used on site will be 'legally harvested and traded' (see design guide for further details). **This is a pre-requisite; no credits can be awarded unless compliance with this criterion is confirmed.**

The principle contractor will source materials for the projects in accordance with a documented sustainable procurement plan (see design guide for further details).

The design team has confirmed that efforts will be made to reuse materials where feasible, and that where required, new materials will be responsibly sourced. All concrete will be BES 6001 certified and any other material will be ISO 14001 certified for both key processes and supply chain extraction processes.

Eight of fifteen credits are targeted.

Mat 03 – Insulation:

The design team has confirmed that where thermal insulation is required, responsibly sourced materials with a low embodied environmental impact relative to its thermal properties will be specified, in line with BRE requirements. All insulation will be A+ rated under the Green Guide (including insulation for building services) and sourced from a manufacturer with ISO14001 (for manufacture and sourcing) or BES6001 (to at least a 'Very Good' standard) certification. In addition at least 80% of all new thermal insulation used in the building elements will be responsibly sourced. 8 of 8

Eight of eight credits are targeted.

Waste

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Was 01 – Household Waste:

The design team has confirmed that household recycling facilities will be provided alongside those for non-recyclable waste, thus diverting household waste from landfill or incineration.

1 of 2

The Borough of Camden operate a recycling service where waste is collected and sorted post-collection, therefore two containers with a capacity of no less than 30 litres each (i.e. 60 litres in total), installed in a fixed location in the dwelling will be sufficient to gain one credit for this issue.

The credit available for food composting will not be targeted at this stage.

One of two credits is targeted.

Was 02 – Refurbishment Site Waste:

The design team has confirmed that a pre-refurbishment waste audit will be carried out to establish materials that can be recovered, re-used and recycled. In addition, the contractor will be required to operate a site waste management plan in line with BREEAM criteria, and meet their 'best practice' waste generation and diversion benchmarks.

3 of 3

Three of three credits are targeted.

Pollution

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Pol 01 – NO_x Emissions:

Full credits can be awarded as new, high efficiency gas boilers with a dry NO_x emission rate of <40mg/Kwh will be specified. **3 of 3**

Three of three credits are targeted.

Pol 02 – Surface Water Runoff:

The design team has confirmed that there will be no increase in hardstanding areas or change in the building footprint therefore there will be a neutral impact on surface water runoff. **1 of 3**

One of three credits is targeted.

Pol 03 - Flooding

The design team has confirmed that a site-specific flood risk assessment will be carried out in line with the guidance set out in the National Planning Policy Framework in order to confirm that the site is at low risk from flooding. **2 of 2**

Two of two credits are targeted.

Scoresheet

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BREEAM Domestic Refurbishment 27.07.2016 1905 Mill Lane Preliminary Assessment			Score	Credits available	Score Assessment				
					Sub-total	Credits available	% achieved	Weighting factor	Credits Score (%)
Management	Man 01	Home User Guide	3	3	10	11	91	0.12	10.91
	Man 02	Responsible Construction Practices	2	2					
	Man 03	Construction Site Impacts	1	1					
	Man 04	Security	2	2					
	Man 05	Ecological Features	0	1					
	Man 06	Project Management	2	2					
Health and Wellbeing	Hea 01	Daylighting	0	2	7	12	58	0.17	9.92
	Hea 02	Sound Insulation	3	4					
	Hea 03	Volatile Organic Compounds	1	1					
	Hea 04	Inclusive Design	0	2					
	Hea 05	Ventilation*	2	2					
	Hea 06	Safety*	1	1					
Energy	Ene 01	Improvement in EER	3.0	6	21	29	71	0.43	30.40
	Ene 02	EER Post Refurbishment*	3.0	4					
	Ene 03	Primary Energy Demand	6.5	7					
	Ene 04	Renewable Technologies	0	2					
	Ene 05	Energy Labelled White Goods	2	2					
	Ene 06	Drying Space	1	1					
	Ene 07	Lighting	2	2					
	Ene 08	Energy Display Devices	0	2					
	Ene 09	Cycle Storage	2	2					
	Ene 10	Home Office	1	1					
Water	Wat 01	Internal Water Use*	2.5	3	5	5	90	0.11	9.90
	Wat 02	External Water Use	1	1					
	Wat 03	Water Meter	1	1					
Materials	Mat 01	Environmental Impact of Materials	18	25	34	48	71	0.08	5.67
		Roof	4.0	5					
		External Walls	3.0	5					
		Internal / Separating Walls	4.0	5					
		Upper and Ground Floor	3.0	5					
	Windows	4.0	5						
	Mat 02	Responsible Sourcing of Materials*	8	15					
Mat 03	Insulation	8	8						
Waste	Was 01	Household Waste	1	2	4	5	80	0.03	2.40
	Was 02	Refurbishment Site Waste	3	3					
Pollution	Pol 01	NO _x Emissions	3	3	6	8	75	0.06	4.50
	Pol 02	Surface Water Runoff	1	3					
	Pol 03	Flooding	2	2					
Innovation	Inn 01	Exemplary Performance	0	10	0	10	0	0.1	0.00
* Minimum standards apply					Score: 73.69% Rating: EXCELLENT				

SAP Input Information

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Building Fabric U-values

U-Values (to be confirmed by design team or material manufacturer) are:

Proposed element	Predicted U-Value (W/m ² K)
Exposed / External Floors	0.25
External Walls (upgraded)	0.25
External Walls (new)	0.25
Unheated Corridor Walls / Dormer Cheeks	0.28
Flat Roof	0.16
Pitched Roof	0.18
Windows	
Double glazed 16mm Argon filled G-value 0.57	1.4
Flat front door	1.5
Thermal Mass Parameter	Medium (250 kJ/m ² K)
Air permeability	5 m ³ /hour/m ² at 50pa.
Thermal bridging: γ -value	0.15 W/m ² K

Ventilation

MVHR units have been specified to ensure minimum purge ventilation requirements are met. Indicatively units have been modelled to have a SFP of 0.6 and a heat efficiency of 90% to serve wet rooms and kitchen areas within each unit.

Space Heating

Space heating and hot water provided by
 - Gas fuelled boiler with a minimum efficiency of 90%.

The heat will be distributed via radiators and underfloor heating.

Heating system controls: Time and temperature zone control by suitable arrangement of plumbing and electrical services.

Domestic Hot Water

From main heating system.

Lighting

100% dedicated energy efficient lighting.

Thermal Bridging

A default Y-value of 0.15 W/m²K has been adopted for the scheme.