

Zidan Lin and Xuyang Deng
37 Alpine Street, Reading

BREEAM

Pre-assessment Tracker & Action List



MLM.

Group

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1 Introduction

The 37 Alpine Street, Reading development will be assessed under Domestic Refurbishment SD5077: 2.2 - 2014: Small scale assessment - Existing Dwelling Refurbishment.

This report has been prepared by MLM Consulting Engineers Ltd Sustainability Group and provides guidance to the design team in relation to the BREEAM Domestic Refurbishment SD5077: 2.2 - 2014 development at 37 Alpine Street, Reading.

The report is based upon information obtained at the pre-assessment meeting held on 16 September 2019 and all correspondence with the team to date.

The development is the conversion of an existing dwelling into two flats. The lower ground floor flat will be a studio and will have a new electric heating system and has access to the outdoor amenity area. The ground floor flat is a two bedroom flat which also has an upper storey and an attic. This flat will retain the existing gas connection. A new bathroom is being specified for this flat.

The council has asked to prepare a pre-assessment for the project and the dwelling to achieve a BREEAM 'Very Good' rating.

1.1 What is BREEAM?

This guidance report is based on the Domestic Refurbishment SD5077: 2.2 - 2014 issued by the BRE. As with all schemes under the BREEAM umbrella the assessment seeks to minimise the adverse effects of new and existing buildings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants. The environmental implications of any building are assessed at the design stage, and compared with good practice by independent assessors.

BREEAM establishes a set of categories under which specific credit requirements are grouped. These are:

- Management
- Health and Wellbeing
- Energy
- Water
- Materials
- Waste
- Pollution
- Innovation

Within each category there are a number of credits which the design team can choose from to achieve the desired rating. It should be noted that there will be certain minimum requirements that must be achieved depending on the BREEAM rating required. Building designs are compared against the credit criteria by registered assessors and credits awarded where the criteria have been met. An overall rating of the building's performance is given using the terms; Pass, Good, Very Good, Excellent or Outstanding. The rating is determined from the number of credits achieved in each of the categories, which are then weighted (i.e. credits multiplied by environmental weighting factor) to provide an overall score.

This report is for advice only. This report outlines the overall performance of the development and provides a written and tabulated summary that should be used as a quick reference guide. For full details of the credit criteria refer to the BRE website www.breeam.org where copies of the Assessment Manuals are available for download. The final rating achieved in a certified Domestic Refurbishment SD5077: 2.2 - 2014 assessment will be dependent on the provision of acceptable information as evidence that the compliance requirements of the credits have been met. Such evidence could be in the form of marked-up drawings, specification clauses, manufacturers' literature and project specific documents or reports.

1.2 Scoring and Rating Assessed Buildings

The BREEAM rating benchmarks for new construction projects assessed using the 2014 version of BREEAM are as follows:

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

1.3 Minimum Standards

The BREEAM categories contain a number of environmental issues which reflect the choices available when procuring, designing and constructing a building.

Each category has a set number of 'credits' available and these credits are awarded where the building demonstrates that it complies with the requirements set by BREEAM.

1.4 Minimum Standards and BREEAM Ratings

The following outlines the minimum standards to meet specific ratings:

BREEAM Issue	BREEAM Rating / Minimum no. of credits				
	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	None	None	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	None	None	None	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

1.5 Innovation Credits

Innovation credits provide recognition for designs which innovate in the field on sustainable performance, above and beyond the level that is currently recognised and rewarded by standard BREEAM issues. There are two ways in which BREEAM awards 'Innovation Credits':

The first is by meeting Exemplary Performance criteria defined within an existing BREEAM issue i.e. going beyond the standard BREEAM assessment criteria and therefore best practice.

The second is where an application is made to BRE Global by the registered project's BREEAM Assessor to have a particular building technology or feature, design or construction method or process recognised as 'innovative'.

All Innovation credits have a fixed environmental weighting of 1% towards the final score, and there is a maximum of innovation credits (totalling 10%) which may be awarded to any scheme.

1.6 Environmental Weightings, Final Score and BREEAM Rating

Once each BREEAM credit has been assessed the category percentage scores are determined (based on the number of credits achieved over those available within a category) and an environmental weighting applied. The weighted category scores are then totalled to give an overall score and any additional score for innovation is added to give the final BREEAM score which is used to determine the BREEAM rating.

2 Project Status

2.1 BREEAM Workshops:

The pre-assessment meeting held at MLM offices in Ipswich on the 16 September 2019 was attended by:

Name of Attendee	Company	Role in Project
Zidan Lin	Self	Client
Deepshikha Mittal	MLM	BREEAM Assessor/AP

2.2 Summary

The project currently targets a score of 58.4% which equates to a VERY GOOD rating and the minimum standards to achieve this rating have been met.

To ensure that a Very Good $\geq 55\%$ rating is achieved/maintained, it is vital that all design team members read through the action list of credits required and ensure that the credit criteria are incorporated in the developing design and that suitable evidence is provided to validate achievement.

Where information could be provided to support the achievement of a credit this should be provided to the assessor at the earliest opportunity. The assessor should also be informed of any credit criteria, which cannot be met. Changes to existing specifications and tender package documents to address the criteria contained in this report would enable the design team to deliver the necessary rating.

This document should be used as a 'live' tool throughout the project and the BREEAM options and requirements should be considered at every stage of development.

Any changes made to the document from the last issue will be shown in red ink for tracking purposes.

The table below shows the progress of the score of the project based on the development of the scheme:

Score History Table

Revision	Report	Achieved Score (ACH)	Currently Targeted Score (CTS)	Potential Score (TBC)
0	Pre-assessment	0.00%	58.50%	58.40%

The initial score targeted at the Pre-assessment meeting will allow for the required BREEAM rating to be achieved provided sufficient and compliant evidence is received by MLM.

The Pre-assessment meeting held for this project on the date above details the credits targeted, who is responsible for providing evidence for each credit, and the evidence that must be provided to the BREEAM assessor in order to secure credits and achieve the required BREEAM rating. Any changes to the targeted credits and/or changes to the score are detailed below for reference. Where any changes to the score have occurred, this is reflected in the current targeted score on the Summary page of this document.

The current projected score will allow for the required BREEAM rating to be achieved once sufficient and compliant evidence is received by MLM.

2.3 Tracker

	Action By	Credit Status	AVL	ACH	CTS	TBC
MANAGEMENT 1.09% weighting per credit			11	0	10	0
Man01 Home User Guide C1: Home User Guide RIBA Stage 3(D): Recommended action	Client	Targeted	3	0	3	0
	N/A	Targeted				
Man02: Responsible construction practices C3-4: Small Scale Projects RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	2	0	2	0
	Client	Targeted				
Man02: Responsible Construction Practices C5-6: Innovation Credit RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Man03 Construction Site Impacts C2: Small Scale Projects RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				
Man04 Security C1-2: Secure Windows and Doors RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Man04 Security C3-4: Secured by Design RIBA Stage 2(C): Recommended Action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Man05 Protection and Enhancement of Ecological Features C1-3: Protecting Ecological Features RIBA Stage 2(C): Recommended Action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Man05 Exemplary Level Criteria C4: Ecological Enhancement RIBA Stage 2(C): Recommended Action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Man06 Project Management C1: Project Roles and Responsibilities RIBA Stage 2(C): Recommended Action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Man06 Project Management C2-3: Handover and Aftercare RIBA Stage 3(D): Recommended Action	Client	Targeted	1	0	1	0
	N/A	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man06 Exemplary Level Criteria C4-5: Early Design Input RIBA Stage 2(C): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Man06 Exemplary Level Criteria C6-7: Thermographic Survey and Air Tightness Testing RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
HEALTH & WELLBEING 1.42% weighting per credit			12	0	6	0
Hea01 Daylighting C1: Existing Dwellings RIBA Stage 2/3(C/D): Recommended action	N/A	Targeted	1	0	1	0
	N/A	Targeted				
Hea01 Visual Comfort C3: Daylighting RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Hea02 Sound Insulation C1-8: Sound Insulation RIBA Stage 3(D): Recommended action	Client	Targeted	4	0	2	0
	N/A	Targeted				
Hea03 Volatile Organic Compounds C1-3: Avoiding the use of VOCs RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Hea04 Inclusive Design C1: Minimum Accessibility RIBA Stage 2/3(C/D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Hea04 Inclusive Design C2-3: Advanced Accessibility RIBA Stage 2/3(C/D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Hea04 Inclusive Design C3: Exemplary Level Criteria RIBA Stage 2/3(C/D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

			Action By	Credit Status	AVL	ACH	CTS	TBC
Hea05 Ventilation								
Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:								
1 Credit								
Hea05 Ventilation C1-4: Minimum Ventilation Requirements RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0		
	N/A	Targeted						
Hea 05 Ventilation C5-6: Advanced Ventilation RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0		
	N/A	Not targeted						
Hea06 Safety								
Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:								
1 Credit								
Hea06 Safety C1-4: Fire and Carbon Monoxide Detection and Alarm Systems RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0		
	N/A	Targeted						
ENERGY 1.48% weighting per credit			29	0	15.5	0		
Ene01 Improvement in Energy Efficiency Rating C1: Improving the Dwelling's EER RIBA Stage 4(E-F): Recommended action	Client	Targeted	6	0	2	0		
	N/A	Targeted						
Ene02 Energy Efficiency Rating in Post-Refurbishment								
Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:								
2 Credits								
Ene02 Energy Efficiency Rating Post-Refurbishment C1: EER Post-Refurbishment RIBA Stage 4(E-F): Recommended action	Client	Targeted	4	0	2	0		
	N/A	Targeted						
Ene02 Energy Efficiency Rating Post-Refurbishment C2-3: Exemplary Performance Requirements	N/A	Not targeted	1	0	0	0		
Ene03 Primary Energy Demand C1: Primary Energy Demand RIBA Stage 4(E-F): Recommended action	Client	Targeted	7	0	2.5	0		
	N/A	Targeted						
Ene04: Renewable Technologies C1-5: Renewable Technologies RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0		
	N/A	Not targeted						

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene05 Energy Labelling White Goods C1-2: One Credit RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Ene05 Energy Labelling White Goods C3-6: One Credit RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Ene06 Drying Space C1: One Credit RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Ene07 Lighting C1-2: External Lighting RIBA Stage 2(C): Feasibility Study RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Ene07 Lighting C3: Internal Lighting RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Ene08 Energy Display Devices C1-3: One or Two Credits RIBA Stage 4(E-F): Recommended action	Client	Targeted	2	0	2	0
	N/A	Targeted				
C4-5: Exemplary Performance Criteria	Client	Targeted	1	0	1	0
Ene09 Cycle Storage C1-2: One or Two Credits RIBA Stage 4(E-F): Recommended action	Client	Targeted	2	0	1	0
	N/A	Targeted				
Ene10 Home Office C1: One Credit RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
WATER 2.20% weighting per credit			5	0	2	0
Wat01 Water Consumption Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating: 1 Credit						
Wat01 Internal Water Use C1-2: Up to Three Credits RIBA Stage 3(D): Recommended action	Client	Targeted	3	0	1	0
	N/A	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wat01 Water Consumption C3: Exemplary Level Criteria	N/A	Not targeted	1	0	0	0
Wat02 External Water Use C1-2: One Credit RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Wat03 Water Meter C1: One Credit RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
MATERIALS 0.17% weighting per credit			48	0	36	0
Mat 01 Environmental Impact of Materials C1-6: Up to 25 Credits RIBA Stage 3(D): Recommended action	Client	Targeted	25	0	20	0
	N/A	Targeted				
MAT 02 Responsible Sourcing of Materials Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating: Criterion 1 only						
Mat02 Responsible Sourcing of Materials C1: Pre-requisite RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	Pre-requisite to achieve credit			
	Client	Targeted				
Mat02 Responsible Sourcing of Materials C2-3: Sustainable Procurement Plan RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	2	0
	Client	Targeted				
Mat02 Responsible Sourcing of Materials C4: Responsible Sourcing of Materials (RSM) RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	12	0	6	0
	Client	Targeted				
Mat02 Responsible Sourcing of Materials C1: Exemplary Level Performance	N/A	Not targeted	1	0	0	0
Mat03 Insulation C1: Pre-requisite RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	Pre-requisite to achieve credit			
	Client	Targeted				
Mat03 Insulation C1-2: Embodied Impact RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	4	0	4	0
	Client	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat04 Insulation C3: Responsible Sourcing RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	4	0	4	0
	Principal Contractor	Targeted				
WASTE 0.60% weighting per credit			5	0	4	0
Wst01 Household Waste C1: Recycling Facilities RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				
Wst01 Household Waste C2-6: Composting Facilities RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
Wst02 Refurbishment Site Waste Management C1: Projects up to and equal to £100k RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	3	0
	Client	Targeted				
Wst02 Refurbishment Site Waste Management C11: Projects up to £100k - Exemplary Performance Requirements RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				
POLLUTION 0.75% weighting per credit			8	0	3	0
Pol01 Nitrous Oxide Emissions C1: Low NOx Space Heating and Hot Water Systems RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
	N/A	Not targeted				
Pol02 Surface Water Run Off C1-9: Up to Three Credits RIBA Stage 3(D): Recommended action	Client	Targeted	3	0	1	0
	N/A	Targeted				
Pol02 Surface Water Run Off C10-11: Exemplary Performance Criteria	N/A	Not targeted	1	0	0	0
Pol03 Flooding C1-5: Low Flood Risk or Flood Mitigation RIBA Stage 3(D): Recommended action	Client	Targeted	2	0	2	0
	N/A	Targeted				

4 Score Summary

Domestic Refurbishment SD5077: 2.2 - 2014

BREEAM Reference: BREEAM-0079-7084

Pre-assessment date: 16 September 2019

Internal Reference: 7134135

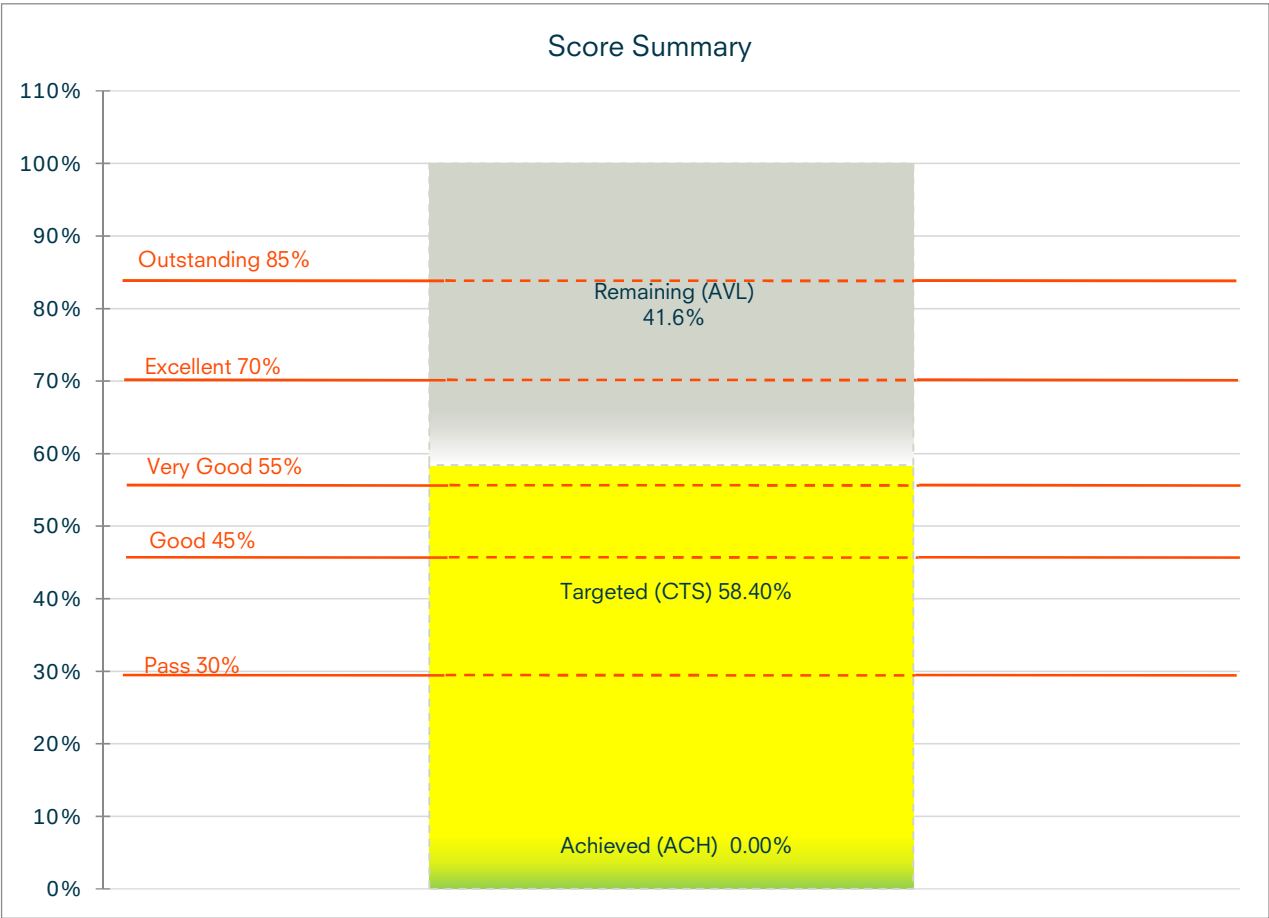
Updated: 23 September 2019

BREEAM Requirement: Very Good $\geq$ 55%

Minimum standards level achieved: Very Good

Current Targeted Score: 58.4%

Achieved Score: 0.0%



5 Credit Status

This report provides an overview of the current position of the project in terms of the BREEAM assessment and the progress in achieving the required rating.

The 'Targeted' credits and any still 'To Be Confirmed' (TBC) are detailed in the following pages and it is the responsibility of the design team to provide the evidence, as required by BREEAM, to the Assessor as soon as it becomes available.

'TBC' items are not included in the 'Current Targeted Score' and should be confirmed as either 'Targeted' or 'Not Sought' as soon as possible to clarify the project's position.

All the BREEAM Credits have a recommended time period where they should be completed within to help ensure they are carried out at the most appropriate time. All credits and specific criteria have mandatory RIBA stages where they must be completed within unless otherwise indicated with 'Recommended Action' beside it in the credit summary bar. Below are the RIBA stages referred to in this report.

Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
0 (A.)	1 (B.)	2 (C.)	3(D)	4 (E-F)	5	6 (J-K)

Each credit has been assigned to a responsible party. It is their responsibility to refer to the relevant section of the Credit Status in this document and BREEAM manual.

Please note that it is not possible to achieve 100% in a BREEAM assessment, therefore there will always be credits that are 'Not Sought' due to the nature of the assessment.

The credits detailed below were agreed at the pre-assessment meeting for the and the status of each credit reflects the information provided by the Design Team following all meetings and correspondence to date with the BREEAM Assessor.

All actions and evidence must be submitted to the BREEAM Assessor as soon as possible for review to and inclusion in the BREEAM report.

Where text is struck through, evidence has been received, reviewed and signed off.

Changes to the document following the report issued prior to this issue (where applicable) are shown in orange text.

5.1 Scoring Abbreviations:

AVL = Available credits

ACH = Achieved credits out of the total credits available

CTS = Credits which form part of the Current Targeted Score

TBC = Credits which are To Be Confirmed. These include the CTS credits and additional credits that are potentially achievable but not formally confirmed as targeted.

MANAGEMENT 1.09% weighting per credit	11	0	10	0
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Man01 Home User Guide C1: Home User Guide RIBA Stage 3(D): Recommended action	Client	Targeted	3	0	3	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that home user guides can be provided for the two dwellings.

Evidence/Action Required

1. Provide specification, employers requirements, written confirmation or equivalent demonstrating that a home user guide will be provided and supplied to all homes.

The following content must be included in the Home User Guide:

- a. About BREEAM Domestic Refurbishment;
- b. Recommendations report;
- c. Energy efficiency;
- d. Water Use;
- e. Transport facilities;
- f. Materials and waste;
- g. Emergency information;
- h. Local amenities;
- i. Provision of information in alternative formats;
- j. SuperHomes network;
- k. Links and references.

Please refer to the BREEAM guide for further guidance on reporting requirements for each of the above sections.

Man02: Responsible construction practices C3-4: Small Scale Projects RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	2	0	2	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the contractor can comply with the checklist requirements.

Evidence/Action Required

3. A copy of Checklist A-3 "Small scale refurbishment: Responsible Construction Practises" will be completed by the principal contractor. The credits are awarded on the following basis:
 - 1 credit: All mandatory items are achieved, and 50% of the optional items are achieved.
 - 2 credits: All mandatory items are achieved, and 80% of the optional items are achieved.
 - Innovation credit: All mandatory items are achieved and 100% of the optional items are achieved.

Man02: Responsible Construction Practices C5-6: Innovation Credit RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since it is not clear at this stage if the contractor can meet all the requirements of the checklist to achieve the innovation credits.

Evidence/Action Required

5-6 See Main Man02 Credit

Man03 Construction Site Impacts C2: Small Scale Projects RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the contractor can comply with the checklist requirements.

Evidence/Action Required

- Where there is evidence (Copy of Ers, specification) to demonstrate that 2 or more of the sections a-e in Checklist A-5: Small-scale refurbishments are completed.

Man04 Security C1-2: Secure Windows and Doors RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that most windows are being retained with only one being changed on first floor. In addition the front door will also be changed and it was confirmed that the new windows and door will comply with the relevant standards. Also the retained windows and doors comply with the criteria below.

Evidence/Action Required

- Written confirmation that any retained external doors and accessible windows comply with the following minimum security requirements:
 - External doors are of good quality with working key locks and a strong frame, where there is no sign of warping, splitting or rotting to the door or its frame. Where the door contains glazing this should be a minimum of double glazing. Putty or beading to glazed areas should be on the unexposed side of the door, in good condition, with no sign of degradation.
 - Accessible Windows should have a minimum of double glazing with working key locks. Putty or beading to glazed areas should be on the unexposed side of the window, in good condition, with no sign of degradation. The window frame should be strong with no sign of warping, splitting or rot.

2. Specification and drawings stating that all newly added external doors and windows are appropriately certified as follows:

External door sets:

- PAS 24:2012 or
- LPS 1175 Issue 7 Security Rating 1 or equivalent

Windows are certified to:

- PAS 24:2012
- LPS 1175 Issue 7 Security Rating 1 or equivalent

Man04 Security C3-4: Secured by Design RIBA Stage 2(C): Recommended Action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since a security consultant from the local police force will be difficult to consult but can be done if required.

Evidence/Action Required

3. Written confirmation that the principals and guidance of Secured by Design Section 2 - Physical Security are complied with.
4. Minutes/Written correspondence showing that a suitably qualified security consultant (such as an Police Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA)) has been consulted during the design stage.
- AND
- Details (drawings/specifications) showing that their recommendations have been incorporated into the refurbishment.

Man05 Protection and Enhancement of Ecological Features C1-3: Protecting Ecological Features RIBA Stage 2(C): Recommended Action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that there are no ecological features on site and the site can be considered of low ecological value. There is one tree on site which will be protected during construction works.

Evidence/Action Required

1. Written confirmation/Report showing that a site survey has been carried out by a member of the project team or a suitably qualified ecologist (SQE) to determine the presence of ecological features.

2. If any protected species have been identified as present on-site, the relevant Statutory Nature Conservation Organisation must be notified and written evidence of this provided to the BREEAM Assessor.

All species must then be adequately protected. Documentary evidence of this should be provided.

3. If any of the following features of ecological value are present on the refurbishment site, they should be adequately protected:

- Trees over 100mm trunk diameter, or over 10 years old, or of significant ecological value;
- Mature hedgerows over 1m tall and 0.5m wide;
- Natural areas (e.g. flower-rich meadow or grassland and heathland which includes habitat or plants that thrive on acidic soils, such as heather and gorse);
- Watercourses (rivers, streams and canals);
- Wetlands (ponds, lakes, marshland, fenland);
- Protected species;
- Local priority UK BAP species;
- Either roosting or nesting opportunities, or both, in buildings for bats and birds

Reports/Written confirmation should be provided to the BREEAM assessor of species present and protection measures.

Man05 Exemplary Level Criteria C4: Ecological Enhancement RIBA Stage 2(C): Recommended Action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since an ecologist will be difficult to be appointed but can be done if required.

Evidence/Action Required

4. Written confirmation that a suitably qualified ecologist has been appointed to recommend appropriate ecological features that will positively enhance the ecology of the site. All general recommendations must be adopted, as well as 30% of the additional recommendations.

This should be evidenced with a copy of the SQE's report, plus landscape drawings and specifications showing the recommendations implemented into the design.

Man06 Project Management C1: Project Roles and Responsibilities RIBA Stage 2(C): Recommended Action	Client	Targeted				
	N/A	Targeted	1	0	1	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that they themselves are the project managers and will manage the team involved in the refurbishment and will comply with the credit criteria and create a plan.

Evidence/Action Required

- 1 The project manager should write a project implementation plan and hold an initiation meeting to assign individual and shared responsibilities amongst the project team including all trades on-site. Minutes of this meeting should be provided to the BREEAM Assessor.

If a single individual is responsible for ensuring the completion of the project, the project implementation plan should contain/plan for the following:

- Produce a time frame for the project including contingency measures;;
- Compile the scheduled evidence for the assessment;
- Determine building status i.e. listed buildings and buildings in conservation areas;
- Occupier's budget and technical expertise in maintaining any proposed systems;
- Building control notification;
- Ensure the shared responsibilities are assigned and managed;
- To write project implementation plan and hold an initiation meeting.

Where it is the joint responsibility of the whole project team, to ensure the either the production, completion or both, of the outlined tasks:

- End-user requirements and building usage;
- Design aims;
- Particular installation and construction requirements;
- Usability and manageability of design solutions for the installer and end-user of the building;
- Project team communication methods;
- Supply chains;
- Documents as required in schedule of evidence sections.

Please see the BREEAM guide for further information regarding the required contents of the implementation plan.

Man06 Project Management C2-3: Handover and Aftercare RIBA Stage 3(D): Recommended Action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that they themselves are the project managers and will manage the team involved in the refurbishment and will comply with the credit criteria and a site inspection will be carried out following occupation.

Evidence/Action Required

- 2 A handover meeting must be arranged. A written commitment, or a copy of the ERs is sufficient for design stage evidence.

This should be arranged as soon as possible after occupation. It should introduce the aftercare team and home user guide (where appropriate); present key information about how the building operates; and answer questions. Where appropriate it should also include demonstrations of newly installed equipment and an insight into their advantages. Information should be presented in a clear manner and with an appropriate level of technical terminology.

- 3 A copy of the Ers or written commitment to achieve 2 or more of the following items:
- A site inspection within three months of occupation;
 - Conduct post-occupancy interviews with building occupants or a survey via phone or posted information within three 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.

Man06 Exemplary Level Criteria C4-5: Early Design Input RIBA Stage 2(C): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since even though a BREEAM AP has been consulted with during early design stage, they are not being retained to oversee the key stages. However their input will be followed throughout the refurbishment process.

Evidence/Action Required

5. Appointment documentation showing that a BREEAM Accredited Professional (AP) or BREEAM Domestic Refurbishment Assessor has been appointed to oversee key stages within the project at an early stage, prior to the production of a refurbishment specification.

Written confirmation from the AP or Assessor that the key stages have been implemented

Plus minutes of meetings or schedules that demonstrate the AP has attended key design team meetings and BREEAM issues are a regular agenda item.

Man06 Exemplary Level Criteria C6-7: Thermographic Survey and Air Tightness Testing RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since air testing and thermographic survey is not being carried out for the project but can be done if required.

Evidence/Action Required

6-7. Provide thermographic surveying and airtightness testing at both pre-refurbishment and post-refurbishment stages. Provide confirmation of the air tightness strategy, plus confirmation of the target areas for improvement with reference to the results of the pre-refurbishment testing.

This can be in the form of a written commitment, or copy of the Ers at design stage.

HEALTH & WELLBEING 1.42% weighting per credit 12 0 6 0

Hea01 Daylighting C1: Existing Dwellings RIBA Stage 2/3(C/D): Recommended action	N/A	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that all answers in Checklist A7 can be answered No for parts 3 and 4.

Evidence/Action Required

- Provide daylight calculations which confirm the following:
The refurbishment must result in a neutral impact on the dwellings daylighting levels in the kitchen living room dining room and study with "no" answered for all questions in Checklist A-7 Daylight Factor, parts 3 and 4.

Hea01 Visual Comfort C3: Daylighting RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since daylight study is not being carried out for the project but can be done if required.

Evidence/Action Required

3. Provide detailed daylighting calculations showing that ALL areas (refurbished and extended) meet the following minimum requirements:
 1. Where kitchens achieve a minimum daylight factor of at least 2%;
 2. Where living rooms, dining rooms and studies achieve a minimum average daylight factor of at least 1.5%;
 3. Where 80% of the working plane in the kitchen, living room, dining room and study, receives direct light from the sky.

Hea02 Sound Insulation C1-8: Sound Insulation RIBA Stage 3(D): Recommended action	Client	Targeted	4	0	2	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that sound testing is not required by the council and the existing separating walls and floors will be designed to meet the requirements of Building Regulations with compliant construction details.

Evidence/Action Required

1. Properties where sound testing is not feasible* and not required by the appointed building control body:

Provide specifications confirming that existing separating walls and floors are designed to meet the requirements of Building Regulations with compliant construction details. Two credits can be awarded.

AND/OR

Providing specifications and acousticians report confirm that a suitably qualified acoustician (SQA) provided recommendations for the specification of all existing separating walls and floors, confirming in their professional opinion that they have the potential to meet or exceed, the sound insulation credit requirements. Where these recommendations are implemented up to four credits may be awarded as follows -

2 Credits: Part E Compliance

3 Credits: Airborne SI values are 3dB higher than before refurbishment and Impact SI values are 3dB lower than Part E

4 Credits: Airborne SI values are 5dB higher than before refurbishment and Impact SI values are 5dB lower than Part E.

*In the case of material alterations to, or changes of use to existing buildings, it may not be possible to conduct pre-completion tests where adjoining properties remain occupied, furnished or inaccessible. In this situation and where testing is required by the appointed building control body, justification should be made to the appointed building control body who will make the decision to either:

- Accept existing construction meets the applicable performance standards of Part E without the need for remedial work. This would be the case if the construction was generally similar (including flanking constructions) to one of the constructions in sections 2 and 3 of Approved Document Part E; where field test data from previous developments demonstrating similar construction as compliant; or expert advice from an SQA. OR
- Require remedial treatment to result in reaching the applicable performance standards of Part E (without testing).

Hea03 Volatile Organic Compounds C1-3: Avoiding the use of VOCs RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that a new kitchen is being specified for the lower ground floor flat along with new carpets in both the living rooms of the flats. In addition there will be new tiles in the wet rooms and new ceiling in staircase area. It was confirmed that all new products chosen will have low VOC and will meet the testing requirements as per criteria below.

Evidence/Action Required

1. Provide specifications/finishes schedule demonstrating that all decorative paints and varnishes used in the refurbishment have met the requirement in Table - 16.
2. Provide specifications/finishes schedule demonstrating that at least five of the weight remaining product categories listed have met the testing requirements and emission levels for VOC emissions against the relevant standards identified in Table - 16.
3. Where five or fewer products are specified within the refurbishment, all must meet the requirements in order to achieve this credit.

Table 16: VOC criteria by product type

Ref	Product	Requirements
A	Paints and varnishes	
	Performance requirements	VOC content limit
	Compliant performance standard	EU Directive 2004/42/CE ('Paints Directive')
	Compliant testing standard	BS EN ISO 11890-2:2013 – Paints and varnishes – Determination of VOC content, Part 2 – Gas Chromatographic method
	Manufacturer also to confirm	Paint to be fungal and algal resistant in wet areas e.g. bathrooms, kitchens, utility rooms
B	Wood Panels	
	Performance requirements	Formaldehyde E1 class
	Compliant performance standard	BS EN 13986:2004 Wood-based panels for use in construction - Characteristics evaluation of conformity and marking
	Compliant testing standard(s)	In accordance with Annex B of BS EN 13986:2004
	Manufacturer also to confirm	The absence of prohibited wood preservatives/biocides.
C	Timber structures (e.g. glue laminated timber)	
	Performance requirements	Formaldehyde E1 Class
	Compliant performance standards	BS EN 14080:2005 Timber structures - Glues laminated timber - Requirements
	Compliant testing standards	EN 717-1:2004

D	Wood flooring (e.g. parquet)	
	Performance requirements	Formaldehyde E1 Class
	Compliant performance standard	BS EN 14342:2005+A1:2008 Wood flooring - Characteristics, evaluation of conformity and marking
	Compliant testing standards	EN 717-1:2004
	Manufacturer also to confirm	The absence of prohibited wood preservatives/biocides.
E	Resilient textile and laminated floor coverings (e.g. vinyl, linoleum, cork, rubber, carpet, laminated wood flooring)	
	Performance requirements	Option 1 - Formaldehyde E1 Class
	Compliant performance standard	BS EN 14041:2006 Resilient, textile and laminate floor coverings - Essential characteristics
	Compliant testing standards	EN 717-1:2004
F	Suspended ceiling tiles	
	Performance requirements	Option 1 - Formaldehyde E1 Class
	Compliant performance standard	BS EN 13964:2004+A1:2006 Suspended ceilings - Requirements and test methods
	Compliant testing standards	In accordance with Annex B of BS EN 13986:2004
	Manufacturer also to confirm	The absence of asbestos
G	Flooring adhesives (and if relevant adhesives for rigid wall coverings)	
	Performance requirements	Carcinogenic or sensitising volatile substances are substantially absent
	Compliant performance standard	BS EN 13999-1:2013 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 1: General procedure
	Compliant testing standards	1. BS EN 13999-1:2013 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 1: General procedure 2. BS EN 13999-2:2013 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 2: Determination of volatile organic compounds 3. BS EN 13999-3:2007+A1:2009 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 3: Determination of volatile aldehydes 4. BS EN 13999-4:2007+A1:2009 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 4: Determination of volatile diisocyanates

H	Wall coverings	
	Performance requirements	• Vinyl chloride monomer (VCM) content • Formaldehyde level
	Compliant performance standard	1. BS EN 233:1999 Wallcoverings in roll form - Specification for finished wallpapers, wall vinyls and plastic wall coverings 2. BS EN 234:1997 Wallcoverings in roll form - Specification for wallcoverings for subsequent decoration 3. BS EN 259-1:2001 Wallcoverings in roll form - Heavy duty wallcoverings - Part 1: Specifications
	Compliant testing standards	BS EN 11890-2:2013 - Paints and varnishes. Determination of volatile organic compound (VOC) content. Gas-chromatographic method
I	Adhesive for hanging flexible wallcoverings (for rigid wall coverings use flooring adhesives criteria)	
	Performance requirements	No harmful substances, and preservatives used should be of minimum toxicity.
	Compliant performance standard	BS 3046: 1981 - Specification for adhesives for hanging flexible wallcoverings
	Compliant testing standards	1. BS EN 13999-1:2013 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 1: General procedure 2. BS EN 13999-2:2013 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 2: Determination of volatile organic compounds 3. BS EN 13999-3:2007+A1:2009 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 3: Determination of volatile aldehydes 4. BS EN 13999-4:2007+A1:2009 Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 4: Determination of volatile diisocyanates

Ref	Product	Requirements
Relevant standards - VOCs All standards outlined in Table 16 are standards recognised across Europe and internationally for VOC content and testing. In instances where a product is not assessed against the listed European or International standard, it is acceptable to use an alternative, nationally recognised, standard provided the following is met as a minimum: 1. The performance level requirements required by the alternative standard are equivalent to or better than those specified in the standards in Table 20 . For example, if a material containing formaldehyde has been added to the floor covering product as part of the production process, then the E1 emission measured for formaldehyde must be less than 0.124mg/m ³ (as required by BS EN 14041:2004). 2. Where an alternative standard omits evaluation of a particular material, it is only acceptable to use the alternative standard in instances where the product does not contain that particular material. BREEAM assessors should seek confirmation from BRE Global prior to awarding credits for compliance with standards not listed in Table 20 or previously approved as alternative nationally recognised standards. Products with no formaldehyde containing materials For some floor coverings and wood-based panels, the requirement for formaldehyde testing (referred to in the above criteria) does not apply to 'floor coverings to which no formaldehyde containing materials were added during production or post-production processing', or in the case of EN 13986:2004, wood-based panels. As such, if a product manufacturer confirms that they have made a declaration of formaldehyde class E1 without testing (in writing or via a company product fact sheet or literature) then the product in question meets the BREEAM requirement relevant to formaldehyde testing. A declaration of E1 without testing is effectively confirmation from the manufacturer that formaldehyde emissions comply with the emission level requirements of the relevant standard(s) and therefore, evidence confirming the actual emission level(s) via testing will not be required by the assessor to demonstrate compliance with that particular requirement.		

Hea04 Inclusive Design C1: Minimum Accessibility RIBA Stage 2/3(C/D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since there is no team member who is suitably qualified as per the credit criteria.

Evidence/Action Required

1. Provide a copy of Section 1 of Checklist A8: Access Statement Template completed by an access expert or suitably qualified member of the design team (NRAC consultant or inclusive design champion), with evidence provided of the measures implemented into the refurbishment.

Provide a copy of the access statement, which should demonstrate reasonable provision to provide accessibility to the dwelling covering Section 1 of Checklist A8.

Hea04 Inclusive Design C2-3: Advanced Accessibility RIBA Stage 2/3(C/D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since there is no team member who is suitably qualified as per the credit criteria.

Evidence/Action Required

1. Provide a copy of Sections 1 and 2 of Checklist A8: Access Statement Template completed by an access expert or suitably qualified member of the design team (NRAC consultant or inclusive design champion), with evidence provided of the measures implemented into the refurbishment.

Provide a copy of the access statement, which should demonstrate reasonable provision to provide accessibility to the dwelling covering Sections 1 and 2 of Checklist A8.

Hea04 Inclusive Design C3: Exemplary Level Criteria RIBA Stage 2/3(C/D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since there is no team member who is suitably qualified as per the credit criteria.

Evidence/Action Required

1. Provide a copy of Sections 1, 2 and 3 of Checklist A8: Access Statement Template completed by an access expert or suitably qualified member of the design team (NRAC consultant or inclusive design champion), with evidence provided of the measures implemented into the refurbishment.

Provide a copy of the access statement, which should demonstrate reasonable provision to provide accessibility to the dwelling covering Sections 1, 2 and 3 of Checklist A8.

Hea05 Ventilation

Minimum standards for this credit with the currently targeted Very Good $\geq 55\%$ BREEAM rating:

1 Credit

Hea05 Ventilation C1-4: Minimum Ventilation Requirements RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the dwellings will achieve the minimum ventilation requirements as per the criteria below.

Evidence/Action Required

1. Provide a specification or report demonstrating 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.
2. Plus, a minimum level of extract ventilation is provided in all wet rooms (e.g. kitchen, utility and bathrooms), compliant with section 5, Building Regulations Approved Document Part F 2010.
3. Plus, 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.

Hea 05 Ventilation C5-6: Advanced Ventilation RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since the advanced ventilation requirements might be difficult to meet because of the limited scope of refurbishment but can be done if required.

Evidence/Action Required

5. Provide report/specification confirming that ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full.

Hea06 Safety

Minimum standards for this credit with the currently targeted Very Good $\geq 55\%$ BREEAM rating:

1 Credit

Hea06 Safety

C1-4: Fire and Carbon Monoxide Detection and Alarm Systems

RIBA Stage 4(E-F): Recommended action

Client	Targeted	1	0	1	0
N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that a fire detection alarm will be specified for both the dwellings which will be compliant with the credit criteria. Re-wiring is happening for the lower ground floor flat and hence the alarm can be mains wired. There is no re-wiring in the ground floor flat and hence the alarm will remain battery operated. It was also confirmed that compliant carbon monoxide detector will be specified in the ground floor flat but not in lower ground floor flat as there will be no gas supply.

Evidence/Action Required

1. Provide specification and drawings confirming that fire detection and alarm systems have been provided in accordance with the following:
 - BS5839-2:2013
 - at least a Grade D Category LD3 standard

The positioning of smoke and heat alarms should be in accordance with building Regulations Part B Fire Safety Volume 1—Dwelling houses 2006. Section 1 Paragraphs 1.11–1.18 and in accordance with the recommendations of BS 5839–6:2004 for a category L2 system. Note: Building regulations have separate requirements for the positioning of alarms in refurbishment projects. However, for the purposes of this issue and in order to award the credit all alarms must meet part B Building Regulations as outlined for new build

Where the project involves an electrical rewire, Smoke and heat alarms should be mains operated and conform to BS EN 14604:2005 (which has preceded BS 5446–1: 2000) or BS 5446–2:2003 respectively. They should have a standby power supply, such as a battery (either rechargeable or non-rechargeable) or capacitor. More information on power supplies is given in clause 15 of BS 5839–6:2004 (40). Carbon Monoxide alarm power supply should conform to BS EN 50292:2002. The mains supply to the alarm(s) should comprise of a single independent circuit at the dwelling's main distribution board (consumer unit) or a single regularly used local lighting circuit. This has the advantage that the circuit is unlikely to be disconnected for any prolonged period. There should be a means of isolating power to the smoke alarms without isolating the lighting

Additionally in dwellings with more than one story with a floor area of any story of at least 200m²:

- Grade B category LD3 as described in BS5839-6:2004.

Additionally in dwellings with 3 or more stories:

- Grade A category A LD2 system as described in BS5839-6:2004.

2. Where the dwelling is supplied with mains gas or where any other form of fossil fuel (e.g. coal) or biomass is used within the building, a compliant carbon monoxide detector and alarm system must be provided in accordance with the following standards:
 - BS EN 50291-1:2010+A1:2012
 - BS EN 50292:2013
 - and should carry a British or European approval mark.

Note: there is a difference in the standards required for carbon monoxide alarms used as a method of fire detection and those used in the detection of faulty or inadequately ventilated gas appliances

Where smoke and carbon monoxide detectors are combined they should, in addition to compliance notes all other standards, meet the LPS 1282 standard

3. Where the project involves electrical rewiring the power supply for the smoke alarm and compliant carbon monoxide alarm systems are derived from the dwellings main electricity supply. Where there is a full rewire of all electrical circuitry the fire and carbon monoxide detector and alarm system must be mains wired in order to achieve this credit. Where there is a partial rewire of the circuitry and this is taking place in an area that is suitable for the position of a detection system, the detection equipment should be mains wired.
4. Where the project does not involve electrical rewiring the power supply for the smoke alarm and carbon monoxide alarm systems are derived from a battery supply.

ENERGY 1.48% weighting per credit **29 0 15.5 0**

Ene01 Improvement in Energy Efficiency Rating C1: Improving the Dwelling's EER RIBA Stage 4(E-F): Recommended action	Client	Targeted	6	0	2	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. An EPC has not been requested by the council and hence SAP calculations are not being carried out for the development. Based on past experience on similar dwellings 2 credits can be achieved post refurbishment.

Evidence/Action Required

1. Provide SAP calculations for pre and post development situations. Up to six credits are awarded as follows:

Credits	Improvement in EER
0.5	≥5
1	≥9
1.5	≥13
2	≥17
2.5	≥21
3	≥26
3.5	≥31
4	≥36

4.5	≥42
5	≥48
5.5	≥54
6	≥60

Ene02 Energy Efficiency Rating in Post-Refurbishment

Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:

2 Credits

Ene02 Energy Efficiency Rating Post-Refurbishment C1: EER Post-Refurbishment RIBA Stage 4(E-F): Recommended action	Client	Targeted	4	0	2	0
	N/A	Targeted				
Ene02 Energy Efficiency Rating Post-Refurbishment C2-3: Exemplary Performance Requirements	N/A	Not targeted	1	0	0	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. An EPC has not been requested by the council and hence SAP calculations are not being carried out for the development. Based on past experience on similar dwellings 2 credits can be achieved post refurbishment.

Evidence/Action Required

1. Provide SAP calculations for the development. Up to four credits are awarded as follows:

Credits	Improvement in EER	Minimum Requirements
0.5	≥50	BREEAM Pass Requires a minimum EER of 50.
1	≥55	BREEAM Good Requires a minimum EER of 58.
1.5	≥60	
2	≥65	BREEAM Very Good Requires a minimum EER of 65.
2.5	≥70	BREEAM Excellent Requires a minimum EER of 70.
3	≥75	
3.5	≥80	BREEAM Outstanding Requires a minimum EER of 81.
4	≥85	
1 x Innovation Credit	≥90	
2 x Innovation Credits	≥100	

Ene03 Primary Energy Demand C1: Primary Energy Demand RIBA Stage 4(E-F): Recommended action	Client	Targeted	7	0	2.5	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. An EPC has not been requested by the council and hence SAP calculations are not being carried out for the development. Based on past experience on similar dwellings 2.5 credits can be achieved post refurbishment.

Evidence/Action Required

1. Provide SAP calculations for the development. Up to seven credits are awarded as follows:

Credits	Improvement in EER
0.5	≤400
1	≤370
1.5	≤340
2	≤320
2.5	≤300
3	≤280
3.5	≤260
4	≤240
4.5	≤220
5	≤200
5.5	≤180
6	≤160

Ene04: Renewable Technologies C1-5: Renewable Technologies RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since no renewables are proposed as part of the refurbishment.

Evidence/Action Required

1. One credit: Copy of SAP calculations showing that at least 10% of the dwelling's primary energy demand per annum is supplied by low or zero carbon technologies, AND
2. One credit: Where the dwelling has reduced energy demand prior to the specification of renewable technologies with a maximum primary energy demand as follows:
 - 2.a For detached, semi-detached, bungalows and end terraces: 250 kWh/m²/year
 - 2.b Mid terraces and flats: 220 kWh/m²/year
4. Where for dwellings other than mid to high-rise flats at least 20% of each dwellings primary energy demand per annum is supplied by low or zero carbon technologies AND

5. Where the dwelling has reduced energy demand prior to the specification of renewable technologies with a maximum primary energy demand as follows:
- 5.a For detached, semi-detached, bungalows and end terraces: 250 kWh/m²/year
- 5.b Mid terraces and flats: 220 kWh/m²/year

Ene05 Energy Labelling White Goods C1-2: One Credit RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that new fridge-freezer and washing machine will be specified for both the dwellings. In addition dishwasher will be specified for the ground floor flat. It was confirmed that the white goods will comply with the energy efficient rating as per criteria below to gain the two credits.

Evidence/Action Required

1. Provide specifications and drawings showing that fridges and freezers or fridges/freezers have an A+ rating or better under the EU energy efficiency labelling scheme OR
2. Provide a letter of commitment confirming that where no white goods are provided to the dwelling(s) but the EU energy efficiency labelling scheme information leaflet is provided to each dwelling.

Ene05 Energy Labelling White Goods C3-6: One Credit RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that new fridge-freezer and washing machine will be specified for both the dwellings. In addition dishwasher will be specified for the ground floor flat. It was confirmed that the white goods will comply with the energy efficient rating as per criteria below to gain the two credits.

Evidence/Action Required

3. Provide drawings/schedules/specifications showing that washing machines have an A++ rating or better under the EU energy efficiency labelling scheme
4. Dishwashers have an A+ rating or better under the EU energy efficiency labelling scheme AND EITHER
5. Washer-dryers and tumble dryers have an A rating under the EU energy efficiency labelling scheme (where a washer dryer is provided, it is not necessary to also provide a washing machine) OR
6. Where a washer dryer or tumble dryer is not provided, the EU energy efficiency labelling scheme information leaflet is provided to each dwelling.

Ene06 Drying Space C1: One Credit RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that adequate drying line will be specified in the utility room for the ground floor flat and in the private external space for the lower ground floor flat. Both the spaces, internal and external, will meet with the criteria below.

Evidence/Action Required

- Provide drawings and specifications confirming that an adequate, secure internal or external space with post and footings or fixings holding:
Adequate Internal Space:
This is either a heated space with adequate, controlled ventilation, complying with Building Regulations Approved Document F Ventilation 2006 (rooms that commonly meet these requirements are a bathroom or utility room), or an unheated outbuilding, where calculations by an appropriate Chartered Institute of Building Services Engineer (CIBSE or equivalent professional) demonstrate that ventilation in the space is adequate to allow drying in normal climatic conditions and to prevent condensation and mould growth. The fixture or fitting needs to be a permanent feature of the room. Internal drying spaces in the following rooms do not comply:
 - Living rooms
 - Kitchens
 - Dining rooms
 - Main halls
 - Bedrooms
Adequate External Space:
This should be an enclosed space only accessible to the residents of the dwellings. The types of external spaces that may comply include a secure:
 - Private or communal garden
 - Balcony (which is openable at least on the whole front side)
 - Roof terrace
Secure Space:
For self-contained dwellings this can be defined as an enclosed space only accessible to the residents of the dwelling. For buildings with a communal drying space it is an enclosed space with a secure entrance, accessible to the residents of the building only.

Ene07 Lighting C1-2: External Lighting RIBA Stage 2(C): Feasibility Study RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that there would be no external lighting and hence this credit is achieved by default.

Evidence/Action Required

- Provide schedules and manufacturer's data confirming that energy efficient space lighting (including lighting in communal areas) and energy efficient security lighting is provided. This is defined as any lighting more than 45 lumens per circuit watt.

2. OR provide a written commitment stating that no efficient space lighting (including lighting in communal areas) and no security lighting is provided.

Ene07 Lighting C3: Internal Lighting RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the internal lighting would meet the criteria of maximum average wattage across the total floor area of the dwelling of 9 watts/m². It was confirmed that there would be a new light specified in the ground floor flat bathroom and lower ground floor entrance.

Evidence/Action Required

1. Provide calculations demonstrating that the energy required for internal lighting is minimised through the provision of a maximum average wattage across the total floor area of the dwelling of 9 watts/m².

Ene08 Energy Display Devices C1-3: One or Two Credits RIBA Stage 4(E-F): Recommended action	Client	Targeted	2	0	2	0
	N/A	Targeted				
C4-5: Exemplary Performance Criteria	Client	Targeted	1	0	1	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that smart meters will be specified for both the dwellings which are compliant with the credit criteria. The meter also shows historic data.

Evidence/Action Required

1. ONE CREDIT: Provide specifications demonstrating that current electricity OR primary fuel consumption data is displayed to occupants through a compliant energy display device.

This is a system comprising a self-charging sensor(s) fixed to the incoming mains supply or supplies, to measure and transmit energy consumption data to a visual display unit. As a minimum the visual display unit must be capable of displaying the following information:

- Local time
- Current (real time) energy consumption (kilowatts and kilowatt hours)
- Current (real time) estimated emissions (g/kg CO₂)
- Current (real time) tariff
- Current (real time) cost (per hour)
- Visual presentation of data (i.e. non-numeric) to allow consumers to easily identify high and low level of use

A self charging sensor should either be a sensor, transmitter or both, powered by the mains supply to the building that transmits energy consumption data to a visual display unit. Long life batteries, with a minimum life expectancy of seven years, can be used in place of a self-charging sensor or transmitter where the functionality of the system is demonstrated to be maintained by the assessor.

2. TWO CREDITS: Where current electricity AND primary heating fuel consumption data are displayed to occupants by a compliant correctly specified energy display device.
3. OR Where electricity is the primary heating fuel and current electricity consumption data are displayed to occupants by a compliant energy display device.
4. Where criterion 2 or 3 have been achieved
5. Where any specified energy display devices is capable of recording consumption data

Historical consumption data so that consumers can compare their current and previous usage in a meaningful way. This should include cumulative consumption data in all of the daily, weekly, monthly or other billing periods. The data must be stored internally for a minimum of two years or be connected to a separate device with automatic upload from the energy display device

Ene09 Cycle Storage C1-2: One or Two Credits RIBA Stage 4(E-F): Recommended action	Client	Targeted				
	N/A	Targeted	2	0	1	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the lower ground floor flat will have a dedicated space for cycle storage in the hall. And for the upper floor flat, a vertical cycle storage under the staircase on the ground floor will be provided. However this is not compliant as the hallway width to get to the cycle store is less than 1.1m. Hence one credit is targeted for the lower ground floor flat.

Evidence/Action Required

1. ONE CREDIT: Provide drawings and specifications confirming that individual or communal compliant cycle storage is provided for the following number of cycles:
 - 1.a Studios or 1 bedroom dwellings – storage for 1 cycle for every two dwellings.
 - 1.b 2 and 3 bedroom dwellings – storage for 1 cycle per dwelling.
 - 1.c 4 bedrooms and above – storage for 2 cycles per dwelling.
2. TWO CREDITS: Provide drawings and specifications confirming that individual or communal compliant cycle storage is provided for the following number of cycles:
 - 1.a Studios or 1 bedroom dwellings – storage for 1 cycle per dwelling.
 - 1.b 2 and 3 bedroom dwellings – storage for 4 cycles per dwelling.
 - 1.c 4 bedrooms and above – storage for 2 cycles per dwelling.

Ene10 Home Office C1: One Credit RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that a compliant home office can be accommodated in both the dwellings.

Evidence/Action Required

1. Provide drawings and specifications confirming that sufficient space and services have been provided which allow the occupants to set up a home office in a suitable room with adequate ventilation.

Suitable Room:

For dwellings with three or more bedrooms, a suitable room is defined as a room other than the kitchen, living room, master bedroom or bathroom

For dwellings with one or two bedrooms or studio homes, a suitable room is defined as a room other than the kitchen, living room or bathroom, however may be within the master bedroom

In all cases, the room must be large enough to allow the intended use of that room, e.g. if a home office is to be set up in the main bedroom, that room also needs to be able to fit in a double bed and other necessary furnishing

For studio homes, where the living room, kitchen or both forms part of the same room as the master bedroom, the home office is allowed to be in this space

3. Sufficient Services:

The following services must be provided in the suitable room intended as a home office:

- Two double power sockets
- Telephone point
- Window (either of the width and height are to be no less than 450mm)
- Adequate ventilation

Sufficient Space:

A minimum size space should be provided (1.8m wall length) to allow a desk, chair and filing cabinet or bookshelf to be installed, with space to move around the front and side of the desk, use the chair appropriately and operate the filing cabinet safely (the 1.8m wall size requirement can, in some circumstances, be altered if drawings can prove that a desk can be fitted in any other type of arrangement, i.e. alcove or similar, fulfilling all the above criteria)

Adequate Ventilation:

In all cases the room must have an openable window or alternative ventilation, such as a passive stack, etc. Where the room relies on a window for ventilation, the minimum openable casement must be 0.5 m². A room with only an external door does not meet the minimum requirements for adequate ventilation. Alternatively, where at least one credit has been achieved under issue Hea 05 Ventilation, this is deemed to meet the requirements for adequate ventilation

WATER 2.20% weighting per credit

5 0 2 0

Wat01 Water Consumption

Minimum standards for this credit with the currently targeted Very Good $\geq 55\%$ BREEAM rating:

1 Credit

Wat01 Internal Water Use C1-2: Up to Three Credits RIBA Stage 3(D): Recommended action	Client	Targeted	3	0	1	0
	N/A	Targeted				
Wat01 Water Consumption C3: Exemplary Level Criteria	N/A	Not targeted	1	0	0	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that a new kitchen sink and bathroom fittings such as bath, shower and taps is being specified for both the dwellings. The client confirmed that these would meet the Very Good standard as mentioned in criteria below.

Evidence/Action Required

1. Provide specifications and manufacturer's information confirming that all fittings meet the consumption standards detailed in the table below, OR
2. Provide specifications and manufacturer's information for completion of the BREEAM WAT 01 calculator confirming consumption for the whole dwelling rate.

Credits	Calculated Water Consumption (l/p/day)	Equivalent terminal fitting standards	Minimum Standard
0	>150	Typical baseline performance	
0.5	from 140 to ≤ 150	— All showers specified to 'Good' OR — All taps and WCs to 'Good' OR — Kitchen fittings specified to 'Excellent'	
1	from 129 to <140	— All showers specified to 'Excellent' OR — All showers and bathroom taps to 'Good'	BREEAM Very Good
1.5	from 118 to <129	— All bathroom and WC room fittings specified to 'Good' OR — All bathroom fittings specified to 'Excellent'	
2	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 fittings specified to 'Good'.	BREEAM Excellent

2.5	from 96 <107	— All kitchen, bathroom, utility room and WC room fittings specified to 'Good' OR — All bathrooms, kitchens and utility rooms specified to 'Excellent'	
3	≤96	— All bathroom fittings specified to 'Excellent' and WC room, kitchen and utility room fittings specified to 'Good'	BREEAM Outstanding
Exemplary	<80		

Fitting	Baseline	Good	Excellent
Showers	14 litres per minute	8 litres per minute or less	6 litres per minute
Baths	200 litre capacity to overflow	140 litre capacity to overflow or less	140 litre capacity to overflow or less
WCs	6 litres effective flushing volume	4 litres effective flushing volume or less	3 litres effective flushing volume or less
Bathroom and WC Room Taps	12 litres per minute	5 litres per minute or less	3 litres per minute or less
Kitchen and Utility Room Taps	12 litres per minute	5 litres per minute or less	5 litres per minute or less
Dishwashers	17 litres per cycle	13 litres per cycle	12 litres per cycle
Washing Machines	90 litres per use	60 litres per use	40 litres per use

Wat02 External Water Use C1-2: One Credit RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since there is not much irrigation and hence an external irrigation system is not specified.

Evidence/Action Required

1. Provide specifications and drawings demonstrating that a compliant rainwater collection system for external or internal irrigation use has been provided to dwellings.
2. OR written confirmation and drawings showing that there are no individual or communal garden spaces.

Wat03 Water Meter C1: One Credit RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that a water meter has not been specified for the development as a fixed tariff is charged. However for the purposes of this credit, water meters will be provided for both the dwellings.

Evidence/Action Required

1. Provide a specification and drawing/schematic/schedule showing that an appropriate water meter for measuring mains potable water has been provided to dwellings.

This should be a meter that provides a visible display of mains potable water consumption to occupants. The meter should be a permanent feature secured within the home in a location visible to occupants (i.e. not hidden within a cupboard) and capable of recording and displaying historic water consumption to allow water consumption to be monitored over time. The meter should be capable of displaying current consumption either instantaneously or at half hourly intervals.

MATERIALS 0.17% weighting per credit	48	0	36	0
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Mat 01 Environmental Impact of Materials C1-6: Up to 25 Credits RIBA Stage 3(D): Recommended action	Client	Targeted	25	0	20	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that no new roof is being specified. There will be a new improved external brick wall for lower ground floor flat and new internal walls in both the flats. The client confirmed that all the new elements will aim to achieve a high Green Guide rating as per the credit criteria.

Evidence/Action Required

1. Provide details (m2 areas, u-values, green guide rating and material types) for retained elements, retained elements being refurbished, and new building elements. To include:
 - Roof
 - External Walls
 - Internal Walls (including separating walls)
 - Upper and Ground Floor
 - Windows
2. Up to a maximum of 25 credits can be awarded through achieving a combination of the credits available for each element.

Table 25: Number of credits available for each element

Elements	Green Guide rating credits available	Thermal performance credits available*
Roof	5	3
External walls	5	3.8
Internal walls (including separating walls)	5	-
Upper and ground floor	5	1.2
Windows	5	2
* Thermal performance credits are only available to retained elements undergoing refurbishment to recognise thermal improvements made to existing retained elements		

3. Retained elements, where no work is being carried out on them, are assessed against the Green Guide calculator. Typically they will be counted as being very low impact by the calculator. A maximum of 5 credits are available with elements rated from A+ (6) to E.
4. Retained elements undergoing refurbishment (e.g. the installation of solid wall insulation) are assessed against the Green Guide calculator. A maximum of 5 credits are available for refurbished elements depending on their Green Guide rating from A+ (6) to E.
5. New elements such as new windows, a newly constructed roof or walls are assessed against the Green Guide to Specification with a maximum of 3 credits available depending on their Green Guide rating from A+ to E.
6. Additional credits are awarded for retained elements undergoing refurbishment as detailed in the calculation procedure (Mat01: Calculation procedure B-7) depending on the thermal improvement made as a result of refurbishment based on the U-value of elements before and after refurbishment.

MAT 02 Responsible Sourcing of Materials

Minimum standards for this credit with the currently targeted Very Good $\geq 55\%$ BREEAM rating:

Criterion 1 only

Mat02 Responsible Sourcing of Materials C1: Pre-requisite RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	Pre-requisite to achieve credit
	Client	Targeted	

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that all new timber procured will be responsibly sourced and will have FSC certificates.

Evidence/Action Required

1. Provide written confirmation that all timber and timber-based produced used on the project will be "legally harvested and traded timber"

Mat02 Responsible Sourcing of Materials C2-3: Sustainable Procurement Plan RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	2	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the contractor will meet the requirements of Checklist A9.

Evidence/Action Required

3. OR

Where the principal contractor is a Micro-enterprise* up to 3 credits are available:

3.a Where the principal contractor addresses part 1 OR part 2 of Checklist A-9: Sustainable procurement statement one credit can be awarded.

3.b Where the principal contractor addresses parts 1 AND 2 of Checklist A-9: Sustainable procurement statement two credits can be awarded.

3.c Where the principal contractor addresses parts 1, 2 AND 3 of Checklist A-9: Sustainable procurement statement three credits can be awarded.

*Staff headcount <10 employers, and either a turnover of <2million euros or balance sheet <2million euros.

Mat02 Responsible Sourcing of Materials C4: Responsible Sourcing of Materials (RSM) RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	12	0	6	0
	Client	Targeted				
Mat02 Responsible Sourcing of Materials C1: Exemplary Level Performance	N/A	Not targeted	1	0	0	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the contractor will procure the responsible sourcing information such as ISO 14001, FSC certificates for new materials being used for refurbishment.

Evidence/Action Required

- Provide details (m2 areas/volumes, manufacturers responsible sourcing certification and material types) for retained, refurbished and new elements as per the requirements in the location, use and material categories table below.

Up to 12 credits awarded depending on levels of responsibly sourced products provided.

RSM Credits	% of Available RSM Points Achieved
Exemplary	≥ 75%
12	≥ 54%
10	≥ 45%
8	≥ 36%
6	≥ 27%

4	≥ 18%
2	≥ 9%

Location/Use Categories

1. External wall (e.g. bricks, blocks)
2. External wall finishes (plastering, cladding, render, internal dry lining, wall coverings, etc.)
3. Roof (structure)
4. Roof finishes (e.g. tiles, cladding systems, etc.)
5. Upper floors
6. Floor (structure)
7. Flooring finishes (including coatings)
8. Internal partitions/ internal walls (structure)
9. Internal partitions/ internal walls (finishes, wall coverings)
10. Ceiling (structure)
11. Ceiling finishes (including coatings)
12. External/ internal doors/ windows
13. Staircases/ ramps
14. Building services
15. Hard landscaping
16. 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

Mat03 Insulation C1: Pre-requisite RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	Pre-requisite to achieve credit
	Client	Targeted	

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that new insulation will be provided for the lower ground floor flat's external wall and new water pipes for ground floor and lower ground floor.

Evidence/Action Required

Provide specifications plus a schedule of any new insulation specified for use within the following building elements must be assessed:

1. External walls.
2. Ground floor.
3. Roof.
4. Building services.

Mat03 Insulation C1-2: Embodied Impact RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	4	0	4	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that new insulation provided will be as per the criteria below.

Evidence/Action Required

4. 4 Credits will be awarded where the insulation index (as calculated by BRE's MAT 03 calculator) is <2. Provide the manufacturer literature confirming the following information for new insulation specified -
 - Area of insulation (m2)
 - Insulation thickness (m)
 - Thermal conductivity of insulation (W/mk)
 - Green Guide Rating

Mat04 Insulation C3: Responsible Sourcing RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	4	0	4	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the responsible sourcing information such as ISO 14001, BES 6001 certificates for new insulation will be procured.

Evidence/Action Required

1. Provide responsible sourcing certificates such as ISO 14001, BES 6001 etc. for each of the insulation types specified. Where 80% of the new thermal insulation is responsibly sourced, four credits will be awarded.

WASTE 0.60% weighting per credit	5	0	4	0
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Wst01 Household Waste C1: Recycling Facilities RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that recycling is sorted post collection by the council and hence only one bin is required. It was confirmed that this bin can be provided in fixed dedicated position as new kitchens are going on. These bins will be provided in addition to the general recycling bins.

Evidence/Action Required

1. Provide marked up drawings, plus specifications and written confirmation that the following standards are met:

Criterion	Scenario	Internal Recycling Storage Requirements
1	- Compliant collection scheme in place	1. Three internal recycling containers provided where recycling is not sorted post collection 2. One internal recycling container provided where recycling is sorted post collection 3. Minimum 30 litre total capacity, no single container less than seven litre capacity 4. Dedicated position as follows - — In a dedicated, unobtrusive position located in a cupboard in the kitchen, close to the non-recyclable waste bin, or located adjacent (within 10m) to the kitchen in a utility room, storage room or connected garage — The storage containers for recycling are provided in addition to non-recyclable waste storage — The storage containers are a fixture of the dwelling

Wst01 Household Waste C2-6: Composting Facilities RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since there is no composting facility provided. However this can be re-visited if required.

Evidence/Action Required

2. For dwellings with significant external space*:
Provide details of a composting service or facility which is provided for green/garden waste.

*Significant external private space is defined as a space greater than or equal to 4.5m² per dwelling or for flats with communal external private space, a total space for the building greater than 1m² per bedroom. An external private space is a space that can only be used only by occupants of designated dwelling(s) by either fencing, planting or other barrier to seal off the space.
3. Provide details of a composting facility provided for kitchen waste
4. Provide details of the provision of an internal container for kitchen composting waste of at least seven litres. This must be positioned in a dedicated position, and be accompanied by a composting information leaflet (please see BREEAM guide for full contents).
5. For dwellings without significant external private space:
Provide details of a composting facility provided for kitchen waste
6. Provide details of the provision of an internal container for kitchen composting waste of at least seven litres. This must be positioned in a dedicated position, and be accompanied by a composting information leaflet (please see BREEAM guide for full contents).

Wst02 Refurbishment Site Waste Management C1: Projects up to and equal to £100k RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	3	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that the checklist A-10 will be filled by the contractor.

Evidence/Action Required

6. Provide a completed copy of Checklist A-10, to include the following procedures:
 - Waste must be taken away by a licensed carrier
 - Waste must be taken to a site with an appropriate permit or exemption
 - Options must be considered for reusing or recycling waste

Wst02 Refurbishment Site Waste Management C11: Projects up to £100k - Exemplary Performance Requirements RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since the contractor might not be able to produce a compliant site waste management plan.

Evidence/Action Required

- Provide a copy (or commitment to produce) a compliant Level 1 SWMP. This must include, as a minimum:
 - Procedures and commitments for minimising non-hazardous construction waste
 - Procedures for sorting, reusing and recycling construction waste and demolition waste (if generated) into key defined waste groups. See Table - 32 (according to the waste streams generated by the scope of the works), either on site or through a licensed external contractor and measuring the amount generated and diverted from landfill
 - Licence details for the waste carrier, and permit details for the site the waste is taken to, if waste is removed offsite
 - The name or job title of the individual responsible for implementing the above

POLLUTION 0.75% weighting per credit 8 0 3 0

Pol01 Nitrous Oxide Emissions C1: Low NOx Space Heating and Hot Water Systems RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
	N/A	Not targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable since the lower ground floor will have electric heating and the Nox emission levels will be high to achieve this credit.

Evidence/Action Required

- Provide schedule/specification/schematic and manufacturer's details confirming the NOx emissions from space heating and hot water systems.

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:

- One credit where the dry NOx emissions of space heating and hot water systems are ≤ 100 mg/kWh (NOx class 4 boiler).
- Two credits where the dry NOx emissions of space heating and hot water systems are ≤ 70 mg/kWh (NOx class 5 boiler).
- Three credits where the dry NOx emissions of space heating and hot water systems are ≤ 40 mg/kWh.

Pol02 Surface Water Run Off C1-9: Up to Three Credits RIBA Stage 3(D): Recommended action	Client	Targeted	3	0	1	0
	N/A	Targeted				
Pol02 Surface Water Run Off C10-11: Exemplary Performance Criteria	N/A	Not targeted	1	0	0	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The client confirmed that drainage calculations are not required by the council and hence a drainage engineer has not been appointed. The first credit is achievable as there is no change in the size of the building footprint or hardstanding as a result of the refurbishment and no new hardstanding areas will be provided.

Evidence/Action Required

1. Provide drawings pre-refurbishment and post-refurbishment, plus confirmation that there is no change in the size of the building footprint or hand standing as a result of the refurbishment.
2. Provide specification and drawings confirming that any new hardstanding areas are permeable, this must include all new pavements, driveways and where applicable public rights of way, car parks and non-adoptable roads (e.g. community scale refurbishment projects).
3. Provide drawings and specifications confirming that where the building is being extended onto any previously permeable surfaces, or an impermeable surface that drains onto a permeable surface (e.g. paving slabs set on concrete that drained onto soft landscaped areas) the additional run-off for rainfall depths up to 5 mm caused by the area of the extension must be managed on-site using appropriate Sustainable Drainage Systems (SuDS) such as Soakaways.

OR provide confirmation that no parts of the building are being extended onto any previously permeable surfaces, or impermeable surface that drains on to a permeable surface.

4. Any calculations required must be completed by a professional with the skills and experience to champion the use of SuDS within the overall design of the development at an early stage.

The professional must be capable of understanding the site's particular surface water management needs and opportunities. In addition, they must have knowledge and experience in using SuDS-based solutions to influence the holistic design of a development's drainage system and provide the robust hydraulic design calculations referred to in key guidance documents such as The SuDS manual (CIRIA C697, 2007) and Preliminary rainfall run-off management for developments (EA/DEFRA, 2007)

Suitable professionals may be found in a variety of disciplines, such as engineering, landscape design or hydrology. Geotechnical advisors or specialists may be required for SuDS techniques that allow infiltration.

5. Achieve criteria 1-4.
6. Provide calculations confirming that all run-off from the roof for rainfall depths up to 5mm, have been managed on-site using source control methods (e.g. through infiltration, soakaways, etc.). This should include run-off from all existing and new parts of the roof.

7. Any calculations required must be completed by a professional with the skills and experience to champion the use of SuDS within the overall design of the development at an early stage.

The professional must be capable of understanding the site's particular surface water management needs and opportunities. In addition, they must have knowledge and experience in using SuDS-based solutions to influence the holistic design of a development's drainage system and provide the robust hydraulic design calculations referred to in key guidance documents such as The SuDS manual (CIRIA C697, 2007) and Preliminary rainfall run-off management for developments (EA/DEFRA, 2007)

Suitable professionals may be found in a variety of disciplines, such as engineering, landscape design or hydrology. Geotechnical advisors or specialists may be required for SuDS techniques that allow infiltration.

8. All drainage design required must be completed by a professional with the skills and experience to champion the use of SuDS within the overall design of the development at an early stage.

The professional must be capable of understanding the site's particular surface water management needs and opportunities. In addition, they must have knowledge and experience in using SuDS-based solutions to influence the holistic design of a development's drainage system and provide the robust hydraulic design calculations referred to in key guidance documents such as The SuDS manual (CIRIA C697, 2007) and Preliminary rainfall run-off management for developments (EA/DEFRA, 2007)

Suitable professionals may be found in a variety of disciplines, such as engineering, landscape design or hydrology. Geotechnical advisors or specialists may be required for SuDS techniques that allow infiltration.

9. Provide calculations detailing that where run-off as a result of the refurbishment is managed on-site using source control achieving the following requirements:
- 9.a 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.
 - 9.b 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%.
 - 9.c An allowance for climate change must be included for all of the above calculations, in accordance with the current best practice (PPS25, 2010).

Pol03 Flooding C1-5: Low Flood Risk or Flood Mitigation RIBA Stage 3(D): Recommended action	Client	Targeted	2	0	2	0
	N/A	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. Since the project is less than 2000 m2 the client confirmed that a flood risk report can be created by themselves. This would include the following -

- The Environment Agency
- Water company/sewerage undertaker
- Other relevant statutory authorities
- Site investigation (including basic surveys looking at the topography of the site)
- Local knowledge (including speaking to people who have lived in the area for a long time)

Details should be obtained from each of the above groups regarding the history of flooding in the area. From this it should be established whether there is a likely risk of flooding from these areas

Evidence/Action Required

2. Provide a copy of a flood risk assessment carried out for the assessed dwelling confirming that there is a low annual probability of flooding



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