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BREEAM Domestic Refurbishment 2014 Pre-Assessment Report

Flat 7, 22-24 Cross Street, Reading RG1 1SN



DOCUMENT CONTROL

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1. INTRODUCTION

SHA Environmental have been commissioned to prepare a BREEAM Pre-Assessment report for an extension development at 22-24 Cross Street, Reading, RG1 1SN (The Site). The proposal is to create a new flat in the roof to add a seventh floor to create a new 2 bedroom flat (The Development).

This report provides details on the proposed Sustainability Strategy based on achieving BREEAM Domestic Refurbishment Excellent Certification for the dwellings.

The development will comply with Reading Councils Core Strategy Policy CS1Planning Policy CP1 as detailed below:

Policy CS1: Sustainable Construction and Design Proposals for new development, including the construction of new buildings and the redevelopment and refurbishment of existing building stock, will be acceptable where the design of buildings and site layouts use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and take account of the effects of climate change. To meet these requirements:

- All new housing is required to meet the most up to date Eco-Homes 'Very Good' as a minimum standard, and all new commercial developments are required to meet the most up to date BREEAM 'Very Good' as a minimum standard; The development will achieve a BREEAM Domestic Refurbishment Rating of Excellent based on the methodology in this report.
- All new developments maximise the use of energy efficiency and energy conservation measures in their design, layout and orientation to reduce overall energy demand



Figure 1 Google Street View image of the Site

The objectives of the report are the following:

1. The development of the sustainability strategy for the proposed flats
2. Achieve a BREEAM Domestic Refurbishment Rating of Very Good
3. The specification of the strategy for limiting the water consumption within the dwelling below 110 litres/person/day

1.1 SITE LOCATION AND DESCRIPTION

The Development is for the conversion of three storeys of an existing building which consists of five floors including a basement level. The ground basement will remain as commercial space. The Site is located on Cross Street which is a minor street which branches off one of the main shopping streets in Reading (Broad Street).



Figure 2 Google Map of the Site

2. METHODOLOGY

This report has been based on the following drawings issued to SHA Environmental:

- A1000_Site Location Plan
- A-1027_Existing and Proposed First Floor
- A-1037_Existing and Proposed Second Floor
- A-1047_Existing and Proposed Third Floor
- A-1050_Existing Elevations
- A-1055_Proposed Elevations

This report details the predicted performance of the proposed residential accommodation against the BREEAM 2014 Domestic Refurbishment scheme. The pre-assessment was a desk based study carried out by the assessor. A breakdown of every BREEAM section (management, health & wellbeing, energy, water, materials, waste, pollution) with notes for each issue are provided. A meeting was held at SHA Environmental's Office on 22nd September 2017 to discuss the credits to be targeted for The Development.

The part refurbishment and part new construction of the existing building for use as residential units are predicted to achieve a BREEAM score of 60.01% leading to a BREEAM rating of 'Very Good' to be targeted. This prediction is based on information available from the design team, during the pre-assessment stage. The threshold for achieving a BREEAM 'Very Good' score is 55%. To consider any credits that may be lost during the evolution of the design it is recommended that a target of at least 5% above the BREEAM Very Good benchmark of 55% is set.

To achieve an 'Very Good' rating and the predicted BREEAM score, a final BREEAM assessment will need to be supported by the design team providing evidence compliant against the assessment criteria following construction.

This report represents a BREEAM pre-assessment which precedes the formal BREEAM assessment.

The BREEAM certification is a two-stage process and assesses the environmental impacts arising because of an individual building development (including external site areas) at the following stages:

- 1. Design Stage (DS) - leading to an Interim BREEAM Certificate;

- 2. Post-Construction Stage (PCS) – leading to a Final BREEAM Certificate.

The aim of this pre-assessment is to initiate discussions within the project team regarding BREEAM issues, and to identify early in the design stages areas where the BREEAM score can be improved.

The BREEAM 2014 Refurbishment Domestic Buildings Scheme Document, SD5077 – 2.2, has been used and it details the assessment criteria, compliance notes and evidence requirements for each issue. In section 3.6 there is information about further action required when carrying out the BREEAM assessment. Evidence in the form of documents will be required to demonstrate compliance at the design stage.

The requirements of the credits are very specific and can often be overlooked by the design team. Therefore, it is important at the design stage that one workshop is conducted between the design team and assessor to discuss the specific assessment criteria and ensure that these can be met and implemented within the design of the development.

It should be noted that under the BREEAM 2014 Refurbishment Domestic Buildings scheme, a Post Construction assessment is required prior to BRE issuing the final BREEAM certificate. This will require the assessor to carry out site inspection visit and the design team to provide documentation showing that the commitments made at design stage have been implemented in the development.

3. BREEAM

BREEAM is a voluntary scheme that aims to quantify and reduce the environmental burdens of buildings by rewarding those designs that take positive steps to minimise their environmental impacts.

Projects are assessed using a system of credits. The credits are grouped within the following categories / sections:

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

The assessment process results in a report covering the issues assessed together with a formal certification giving a rating on a scale of PASS, GOOD, VERY GOOD, EXCELLENT and OUTSTANDING.

3.1 BREEAM SCORING

Within each of the BREEAM categories outlined above, there are many credit requirements that reflect the options available to designers and managers of buildings.

An environmental weighting is applied to the scores achieved under each category, as shown below, to calculate the final BREEAM score. The weighting factors have been derived from consensus based research with various groups such as government, material suppliers and lobbyists. This research was carried out by BRE to establish the relative importance of each environmental issue.

The environmental weightings for BREEAM version 2014 is as follows:

BREEAM category / section	Category Weighting
Management	12%
Health & Wellbeing	17%
Energy	43%
Water	11%
Materials	8%
Waste	3%
Pollution	6%
Innovation	10%

The rating benchmarks for BREEAM version 2014 are as follows:

BREEAM rating	% score
UNCLASSIFIED	<30%
PASS	≥30%
GOOD	≥45%
VERY GOOD	≥55%
EXCELLENT	≥70%
OUTSTANDING	≥85%

3.2 MINIMUM BREEAM STANDARDS

The table below identifies those BREEAM issues that have a BREEAM minimum standard requirement. Therefore, to achieve a BREEAM rating, the minimum percentage score must be achieved as outlined in the table below and the minimum standards (i.e. number of credits achieved) applicable to that rating level complied with.

BREEAM Issue	Minimum Standards by BREEAM Rating Level				
	PASS	GOOD	VERY GOOD	EXCELLENT	OUTSTANDING
Man 01: Sustainable procurement	One credit	One credit	One credit	One credit	Two credits
Man 02: Responsible construction practices	None	None	None	One credit	Two credits
Man 04: Stakeholder participant	None	None	None	One credit (Building user information)	One credit (Building user information)
Hea 01: Visual comfort	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Hea 04: Water quality	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Ene 01: Reduction of CO ₂ emissions	None	None	None	Six credits	Ten Credits
Ene 02: Energy monitoring	None	None	One credit (First sub-metering credit)	One credit (First sub-metering credit)	One credit (First sub-metering credit)

			metering credit)		
Ene 04: Low or zero carbon technologies	None	None	None	One credit	One credit
Wat 01: Water consumption	None	One credit	One credit	One credit	Two credits
Wat 02: Water monitoring	None	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Mat 03: Responsible sourcing	Criterion 3 only	Criterion 3 only	Criterion 3 only	Criterion 3 only	Criterion 3 only
Wst 01: Construction waste management	None	None	None	None	One credit
Wst 03: Operational waste	None	None	None	One credit	One credit
LE 03: Mitigating ecological impact	None	None	One credit	One credit	One credit

3.3 SUMMARY OF BUILDING PERFORMANCE

Based on the information provided by the project team, the residential units are predicted to achieve a score of 60.01% which equates to a BREEAM rating of 'Very Good'. This rating assumes that evidence required for each of the credits will be fulfilled.

3.4 SCORE CALCULATION

The table below illustrates how the score has been calculated for the current predicted score.

	Environmental Weighting	Available credits	Current Predicted Credits	Current predicted weighted score
Management	12%	11	4	4.36%
Health & Wellbeing	17%	12	7	9.92%
Energy	43%	29	22	32.62%
Water	11%	5	2.5	5.5%
Materials	8%	45	13	2.17%
Waste	3%	5	2	1.2%
Pollution	6%	8	3	2.25%
Innovation	10%	10	2	2.00%
TOTAL =		125	55.5	60.01%

An action list has been prepared as an output of the BREEAM Pre-assessment workshop. This action list is presented in the next section. It outlines all the BREEAM issues filtered via the BREEAM 2014 Pre-assessment tool and provides a credit breakdown.

3.5 BREEAM ENERGY CALCULATION RESULTS

The following table presents the results of the achieved credits for the BREEAM assessment. The energy results are based on the energy assessment that was undertaken as part of this assessment and for the Building Regulations Part L1B compliance assessment report which has been submitted separately to this report. It is worth noting that the assessment used for a BREEAM energy analysis differ slightly to that of the Building Regulations Compliance Assessment Methodology. The results have been averaged across the Development to allow for differences within the unit types.

Dwelling Name	Floor Area (m ²)	Primary Energy kWh/year	EER Before	EER After	ENE 01 Credits	ENE 02 Credits	Averaged Primary Energy kWh/m2/year	ENE 03 Credits
Apartment 6	62	6754.32	24	75	4	3	108.98	6

3.6 CREDIT BREAKDOWN

The following section of this report provides a breakdown of the individual BREEAM issues within each category as per the BREEAM Pre-assessment workshop. The table in the following 6 pages provide information on the:

- BREEAM issue ID;
- BREEAM issue title;
- Total number of credits available;
- Predicted target credits;
- Responsibility of design team to action;
- Comments from a desk-based study and subsequent communication from team.

4. APPENDIX I_BREEAM PRE-ASSESSMENT SCORING MATRIX

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

BREEAM[®] UK

This assessment and indicative BREEAM rating is not a formal certified BREEAM assessment or rating and must

INNOVATION	Section Weighting: 10%	Indicative Section Score: 2.00%
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Comments

MANAGEMENT	Section Weighting: 12%	Indicative Section Score: 4.36%
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Man 01 Home Users Guide

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

Assessment Criteria

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

Indicative Credits

3

Comments

A compliant home user guide will be provided to all dwellings

Man 02 Responsible Construction Practices

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

Assessment Criteria

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

Large Scale - project with more than 5 units

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

Small Scale - project with 5 units or fewer

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

Exemplary Credit

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

* Small Scale Project Only

Indicative Innovation Credits Achieved

Please Select

Comments

Scope of project is too small to assess under the CCS scheme to make it financially viable

Man 03 Construction Site Impacts

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

Assessment Criteria

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

One Credit

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

Sections of Checklist

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

Same definition of small and large scale as in Man 02

Comments

Project is too small to make this viable

Man 04 Security				
No. of BREEAM credits available	2	Available contribution to overall score:	2.18%	
No. of BREEAM innovation credits	0		Minimum Standards applicable:	No
Assessment Criteria			Indicative Credits	
Where the following requirements will be met:			0	
One Credit				
Secure windows and doors				
External doors and accessible windows meet minimum standards and appropriately certified				
Principles and guidance of Secured by Design Section 2 are complied with				
Two Credits		A suitably qualified security consultant is consulted at the design stage and their recommendations are incorporated into the refurbishment		
Secured by design				
Comments				
Project is too small to make this viable				
Man 05 Protection and Enhancement of Ecological Features				
No. of BREEAM credits available	1	Available contribution to overall score:	1.09%	
No. of BREEAM innovation credits	1		Minimum Standards applicable:	No
Assessment Criteria			Indicative Credits	
Where the following requirements will be met:			1	
One Credit		Site survey carried out to determine presence of ecological features		
		Statutory Nature Conservation Organisation notified of protected species		
		Features of ecological value protected during refurbishment works		
Protecting Ecological Features				
Exemplary Credit		A suitably qualified ecologist recommends features to enhance ecology of the site		
		adopts all general ecological recommendations		
		adopts 30% of additional recommendations		
Ecological enhancement		Indicative Innovation Credits Achieved Please Select		
Comments				
There will be no change to ecological value of the site				
Man 06 Project Management				
No. of BREEAM credits available	2	Available contribution to overall score:	2.18%	
No. of BREEAM innovation credits	2		Minimum Standards applicable:	No
Assessment Criteria			Indicative Credits	
Where the following requirements will be met:			0	
One Credit		Where all of the project team are involved in the project decision making		
		Small Scale - the project manager assigns individual and shared responsibilities amongst the project team including all trades on site		
		Large Scale - the project manager assigns individual and shared responsibilities across the following key design and refurbishment stages: i. Planning and Building control notification ii. Design iii. Refurbishment iv. Commissioning and handover v. Occupation		
Project Roles and Responsibilities				
Small Scale projects: five units or fewer and less than £100k Large Scale projects: more than five units and more than £100k				
One Credit		Handover meeting arranged		
		2 or more of the following committed to: - A site inspection within 3 months of occupation - Conduct post occupancy interviews with building occupants or a survey via phone or posted information within 3 months of occupation - Longer term after care e.g. a helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupation		
		Indicative Innovation Credits Achieved		
Handover and Aftercare		1		
Exemplary Credits				
One Exemplary Credit		Where A BREEAM Accredited Professional has been appointed to oversee key stages within the project.		
		OR		
Early Design Input		Where a BREEAM Domestic Refurbishment Assessor has been appointed at an early stage of the project, prior to the production of a refurbishment specification		
One Exemplary Credit		Where Thermographic surveying and Airtightness testing have been carried out at both pre and post refurbishment stages		
		Where an improved air tightness target has been set at design stage and testing demonstrates that this has been achieved post refurbishment		
Thermographic Surveying and Airtightness Testing				
Comments				
This will be undertaken and the innovation credit has been obtained through employing Dion Mellow of SHA Environmental ltd who is an accredited BREEAM AP				

HEALTH & WELLBEING		Section Weighting: 17%		Indicative Section Score 9.92%	
Hea 01 Daylighting					
No. of BREEAM credits available	2	Available contribution to overall score		2.83%	
No. of BREEAM innovation credits	0	Minimum Standards applicable		No	
Assessment Criteria				Indicative Credits	
Where the refurbishment results in a neutral impact on daylighting or where minimum daylighting standards are met, up to two credits may be awarded as follows:				⇒ 1	
For Existing Dwellings and Change of Use Projects					
First Credit Maintaining Good Daylighting		The refurbishment results in a neutral impact on the dwellings daylighting levels in the kitchen, living room, dining room and study			
Where the property is being extended					
First Credit Maintaining Good Daylighting		New spaces achieve minimum daylighting levels			
		The extension does not significantly reduce daylighting levels in the kitchen, living room, dining room or study of neighbouring properties			
For All Properties					
Second Credit Minimum Daylighting		The dwelling achieves minimum daylighting levels in the kitchen, living room, dining room and study			
Comments					
The proposals will have a minimal impact on daylight to the internal spaces. This will be confirmed through a daylight assessment					
Hea 02 Sound Insulation					
No. of BREEAM credits available	4	Available contribution to overall score		5.67%	
No. of BREEAM innovation credits	0	Minimum Standards applicable		No	
Assessment Criteria				Indicative Credits	
To ensure the provision of acceptable sound insulation standards and so minimise the likelihood of noise complaints.				⇒ 2	
Properties where sound testing has been carried out:					
Up to Four Credits		Four credits awarded according to the improvement over building regulations. See table in additional information in Technical Manual			
Properties where sound testing is not feasible and not required by the appointed Building Control body					
Two Credits		Where existing separating walls and floors are designed to meet the requirements of Building Regulations with compliant construction details			
Up to Four Credits		Where a Suitably Qualified Acoustician (SQA) provides recommendations for the specification of all existing separating walls and floors			
		SQA confirms in their professional opinion that they have the potential to meet or exceed the sound insulation credit requirements			
		Where these recommendations are implemented			
		See table in additional information in Technical Manual			
Historic Buildings					
Up to Four Credits		Where the dwelling is a Historic Building and sound testing results demonstrate existing separating walls and floor meet the Historic Building credit requirements			
		See table in additional information in Technical Manual			
		Where sound testing is not feasible and not required by the appointed Building Control body meeting criteria 2 and 3 using Table 12			
		Properties where sound testing has been carried out, credits awarded according to the improvement over building regulations. See table in additional information in Technical Manual			
		Where the dwelling is a detached property			
		Where the dwelling is a propertywith separating walls or floors only between non habitable rooms OR Testing not required by building control body			
Detached Properties					
Four Credits		By Default			
Properties with separating walls or floors only between non habitable rooms OR Testing not required by building control body					
Four Credits		By Default			
Comments					
The partitions will be upgraded to comply with the building regulaitons part E					
Hea 03 Volatile Organic Compounds					
No. of BREEAM credits available	1	Available contribution to overall score		1.42%	
No. of BREEAM innovation credits	0	Minimum Standards applicable		No	
Assessment Criteria				Indicative Credits	
Where the refurbishment avoids the use of VOCs with new products meeting the following requirements:				⇒ 1	
One Credit Avoiding the use of VOCs		Where all decorative paints and varnishes used in the refurbishment have met the requirement listed in table 5.4 in the Technical Manual			
		Where at least five of the eight remaining product categories listed in table 5.4 have met the testing requirements and emission levels for Volatile Organic Compound (VOC) emissions against the relevant standards identified within table 5.4 in the Technical Manual			
		Where five or less products are specified within the refurbishment, all must meet the requirements in order to achieve this credit.			
Comments					
All paints and varnishes will be compliant and when further details on the specification are determined they will be assessed under this credit.					

Hea 04 Inclusive Design				
No. of BREEAM credits available	2	Available contribution to overall score	2.83%	
No. of BREEAM innovation credits	1		Minimum Standards applicable	No
Assessment Criteria			Indicative Credits	
Where an access statement has been carried out using Checklist A-8 of the Technical Manual to optimise the accessibility of the home as follows:			Please Select	
		Checklist A-8 of the Technical Manual		
		Section 1	Section 2	
One Credit		Completed with Evidence		
Minimum Accessibility				
Two Credits		Completed with Evidence	Completed with Evidence	
Advanced Accessibility				
Exemplary Performance				Indicative Innovation
One Credit	Where an access expert suitably qualified member of the design team has completed sections 1, 2 and 3 of Checklist A-8, access statement template with evidence provided of the measures implemented in the refurbishment			Credits Achieved
				Please Select
Comments				
Hea 05 Ventilation				
No. of BREEAM credits available	2	Available contribution to overall score	2.83%	
No. of BREEAM innovation credits	0		Minimum Standards applicable	Yes
Assessment Criteria			Indicative Credits	
Where the dwelling meets the following ventilation requirements:			2	
One Credit	Minimum Ventilation Requirements	A minimum level of background ventilation is provided (with trickle ventilators or other means of ventilation) for all habitable rooms, kitchens, utility rooms and bathrooms compliant with section 7, Building Regulations Approved Document Part F, 2010		
		A minimum level of extract ventilation is provided in all wet rooms (e.g. kitchen, utility and bath-rooms), compliant with section 5, Building Regulations Approved Document Part F 2010.		
		A minimum level of purge ventilation is provided in all habitable rooms and wet rooms, compliant with section 7, Building Regulations Approved Document Part F, 2010.		
		It is an historic building and meets historic building requirements in CN4 of the technical manual		
Two Credits	Advanced Requirements	Ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full		
		Where the building is a historic building and meets the requirements for Historic Buildings in compliance note 4 of the technical manual		
Comments				
There will be a central ventilation system provided to each unit which will provide ventilation in accordance with this credit.				
Hea 06 Safety				
No. of BREEAM credits available	1	Available contribution to overall score	1.42%	
No. of BREEAM innovation credits	0		Minimum Standards applicable	Yes
Assessment Criteria			Indicative Credits	
Where a fire and carbon monoxide (CO) detection and alarm system is specified as follows:			1	
One Credit	Fire and Carbon Monoxide (CO) Detection and Alarm Systems	Where a compliant fire detection and fire alarm system is provided		
		Carbon Monoxide detector installed if dwelling is supplied with mains gas or other fossil fuel		
		Mains supplied fire detection and alarm system if project involves re-wiring*		
		Battery operated fire detection and alarm system if no re-wiring* is to take place		
* see CN9 in Hea 06 for the definition of re-wiring				
Comments				
There will be smoke and heat detectors installed.				
ENERGY Section Weighting: 43% Indicative Section Score 32.62%				
Ene 01 Improvement in Energy Efficiency Rating				
No. of BREEAM credits available	6	Available contribution to overall score	8.90%	
No. of BREEAM innovation credits	0		Minimum Standards applicable	No
Assessment Criteria			Indicative Credits	
Where the following targets are met for the improvement in Energy Efficiency Rating achieved as a result of refurbishment:			4	
	Improvement in EER	Credits		
	≥ 5	0.5		
	≥ 9	1		
	≥ 13	1.5		
	≥ 17	2		
	≥ 21	2.5		
	≥ 26	3		
	≥ 31	3.5		
	≥ 36	4		
	≥ 42	4.5		
	≥ 48	5		
	≥ 54	5.5		
	≥ 60	6		
Comments				

Ene 02Energy Efficiency Rating Post Refurbishment

No. of BREEAM credits available4

No. of BREEAM innovation credits2

Available contribution to overall score5.93%

Minimum Standards applicableYes

Assessment Criteria

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

EER post refurbishment

Credits

Minimum requirements

≥50

0.5

'Pass' level EER of 50

≥55

1

'Good' level EER of 58

≥60

1.5

≥65

2

'Very Good level' EER of 65

≥70

2.5

'Excellent' level EER of 70

≥75

3

≥80

3.5

'Outstanding' level EER of 81

≥85

4

Exemplary

Credits

≥901

≥1002

Indicative Credits3

Indicative Innovation Credits AchievedPlease Select

Comments

Ene 03Primary energy demand

No. of BREEAM credits available7

No. of BREEAM innovation credits0

Available contribution to overall score10.38%

Minimum Standards applicableNo

Assessment Criteria

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

Primary Energy Demand Post Refurbishment

Credits

≤ 400

0.5

≤ 370

1

≤ 340

1.5

≤ 320

2

≤ 300

2.5

≤ 280

3

≤ 260

3.5

≤ 240

4

≤ 220

4.5

≤ 200

5

≤ 180

5.5

≤ 160

6

≤ 140

6.5

≤ 120

7

Indicative Credits6

Comments

Ene 04Renewable Technologies

No. of BREEAM credits available2

No. of BREEAM innovation credits0

Available contribution to overall score2.97%

Minimum Standards applicableNo

Assessment Criteria

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

Dwelling Type

Primary Energy Demand

Percentage from Renewables

1 Credit

2 Credits

Detached

≤ 250 kWh/m²/year

≥10%

≥20%

Semi-Detached

≥10%

≥20%

Bungalow

≥10%

≥20%

End of Terrace

≥10%

≥20%

Mid Terrace

≥10%

≥20%

Low Rise Flat

≤ 220 kWh/m²/year

≥10%

≥20%

Mid Rise Flat

≥10%

≥15%

High Rise Flat

≥10%

≥15%

Indicative Credits0

Comments

No Renewable technologies are provided to the development

Ene 05Energy Labelled White Goods

No. of BREEAM credits available2

No. of BREEAM innovation credits0

Available contribution to overall score2.97%

Minimum Standards applicableNo

Assessment Criteria

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

First Credit

Appliance

Appliance provided

Appliance not to be provided

Fridges, Freezers and Fridge-Freezers

A+ Rating under EU Energy Efficiency Labelling Scheme

EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings

Second Credit

Appliance

Appliance provided

Appliance not to be provided

Washing Machines and Dishwashers

Washing Machine A++ under EU Energy Efficiency Labelling Scheme AND Dishwasher A+ uner EU Energy Efficiency Labelling Scheme

Second credit not achieved

Washer-Dryers and Tumble Dryers

Appliances specified with A Rating under EU Energy Efficiency Labelling Scheme

EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings

Indicative Credits1

Comments

A fridge Freezer and washer dryer will be provided therefore achieving one credit

Ene 06 Drying Space				
No. of BREEAM credits available	1	Available contribution to overall score	1.48%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria				Indicative Credits
Where adequate, secure internal or external space with posts and footings or fixings is provided with the following:			⇒	1
		1 Credit		
		Number of bedrooms	Drying line required	
		1-2	4m+	
		3+	6m+	
Comments				
An internal drying line will be provided to the bathroom of each unit.				
Ene 07 Lighting				
No. of BREEAM credits available	2	Available contribution to overall score	2.97%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria				Indicative Credits
Where energy efficient internal and external lighting is provided as follows:			⇒	2
		External Lighting - 1		
		Energy Efficient Space Lighting of more than 45 lumens per circuit watt and Energy Efficient Security Lighting OR		
		Where Energy Efficient Space Lighting is provided ONLY		
		Internal Lighting - 1		
		Maximum average wattage across the total floor area of the dwelling of 9 watts/m2		
Comments				
Ene 08 Display Energy Devices				
No. of BREEAM credits available	2	Available contribution to overall score	2.97%	
No. of BREEAM innovation credits	1	Minimum Standards applicable	No	
Assessment Criteria				Indicative Credits
Where consumption data is displayed to occupants by a compliant energy display device			⇒	2
		Electricity usage data displayed	Primary Heating Fuel	
			Electricity	Other
		Electricity usage data displayed	2 credits awarded	1 credit awarded
		Primary Heating Fuel usage data displayed	N/A	1 credit awarded
		Electricity & Primary Heating Fuel usage displayed	N/A	2 credits awarded
		Exemplary Credits		
		One credit	Where the first two credits are achieved	Indicative Innovation
		Recording consumption data	Where any compliant Energy Display Device is capable of recording consumption data	Credits Achieved
			⇒	1
Comments				
An enegry display device will be provided				
Ene 09 Cycle Storage				
No. of BREEAM credits available	2	Available contribution to overall score	2.97%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria				Indicative Credits
Where individual or communal compliant cycle storage is provided as follows:			⇒	2
		Dwelling Size	One Credit	Two Credits
		Studios/ 1 bedroom	1 per two dwellings	1 per dwelling
		2-3 bedrooms	1 per dwelling	2 per dwelling
		4 bedrooms	2 per dwelling	4 per dwelling
Comments				
one cycle space will be provided per flat				
Ene 10 Home Office				
No. of BREEAM credits available	1	Available contribution to overall score	1.48%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria				Indicative Credits
Where sufficient space and services will be provided to allow occupants to set up a home office in a suitable room with adequate ventilation			⇒	1
Comments				

WATER

Section Weighting: 11%

Indicative Section Score 5.50%

Wat 01 Internal Water Use

No. of BREEAM credits available3

No. of BREEAM innovation credits1

Available contribution to overall score6.60%

Minimum Standards applicableYes

Assessment Criteria

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

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

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

Exemplary Credit

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

Indicative Credits

1.5

Indicative Innovation Credits Achieved

Please Select

Comments

Wat 02 External Water Use

No. of BREEAM credits available1

No. of BREEAM innovation credits0

Available contribution to overall score2.20%

Minimum Standards applicableNo

Assessment Criteria

Where the following requirements will be met:

Requirements:

One Credit

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

Indicative Credits

1

Comments

Wat 03 Water Meter

No. of BREEAM credits available1

No. of BREEAM innovation credits0

Available contribution to overall score2.20%

Minimum Standards applicableNo

Assessment Criteria

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

Indicative Credits

Please Select

Comments

MATERIALS

Section Weighting: 8%

Indicative Section Score 2.17%

Mat 01 Environmental Impact of Materials

No. of BREEAM credits available25

No. of BREEAM innovation credits0

Available contribution to overall score4.16%

Minimum Standards applicableNo

Assessment Criteria

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

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

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

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

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

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

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	Windows	1.4
Comments		

Mat 02 Responsible Sourcing of Materials

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

Assessment Criteria

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

Sustainable Procurement Plan (3 BREEAM credits)

The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan

OR Where the principal contractor is a Small Company (up to 3 BREEAM credits)

Checklist A-9 is filled in with supporting evidence

⇒

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

Yes

Table 1

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

Comments

Mat 03 Insulation

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

Assessment Criteria

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

Requirements

4 Credits

Where the Insulation Index for new insulation used in the buildings is ≥2

Where Green Guide ratings are determined using the Green Guide to specification tool

Requirements

4 Credits

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

Comments

WASTE

Section Weighting: 3%

Indicative Section Score 1.20%

Was 01 Household Waste

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

Assessment Criteria

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

First Credit - Recycling Facilities

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

Second credit - Composting facilities

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

Comments

Was 02 Refurbishment Site Waste Management

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

Assessment Criteria

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

Projects up to £100k

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

Projects up to £300k

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

Indicative Credits

⇒ Please Select

Indicative Innovation Credits Achieved

⇒ Please Select

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	waste generated by the project has been diverted from landfill and meets or exceeds the refurbishment & demolition waste diversion benchmarks
Projects over £300k	
First Credit Management Plan	Where a compliant Level 2; Site Waste Management Plan (SWMP) is in place
Second Credit Good Practice Waste Benchmarks	First credit achieved
	Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the resource efficiency benchmark
	Amount of waste generated against £100,000 of project value is recorded in the SWMP
	Pre-refurbishment audit of the existing building is completed
	If demolition is included as part of the refurbishment programme, then the audit should also cover demolition materials
Third Credit Best Practice Waste Benchmarks	Where the first two credits have been achieved achieved
	Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the refurbishment & demolition waste diversion benchmarks
Exemplary Credit	Where non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the <i>exemplary level resource efficiency benchmark</i>
	Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the exemplary level diversion benchmarks
Comments	

POLLUTION		Section Weighting: 6%		Indicative Section Score 2.25%	
Pol 01 NOx Emissions					
No. of BREEAM credits available	3	Available contribution to overall score		2.25%	
No. of BREEAM innovation credits	0	Minimum Standards applicable		No	
Assessment Criteria				Indicative Credits	
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:				0	
		Dry NOx Emissions			
		One Credit	≤100 mg/kWh (NOx class 4 boiler)		
		Two Credits	≤70 mg/kWh (NOx class 5 boiler)		
		Three Credits	≤40 mg/kWh		
Comments					
No credits available due to heating and hot water coming from an electrical supply					
Pol 02 Surface Water Runoff					
No. of BREEAM credits available	3	Available contribution to overall score		2.25%	
No. of BREEAM innovation credits	1	Minimum Standards applicable		No	
Assessment Criteria				Indicative Credits	
Where impacts of the refurbishment on surface water runoff are neutralised or where runoff is reduced as a result of refurbishment, up to three credits can be awarded as follows:				1	
		Requirements			
One Credit Neutral Impact on Surface Water		New hard standing areas must be permeable			
		If building on to previously permeable area additional run-off must be managed on site			
		Calculations should be carried out by an appropriately qualified professional			
		Requirements			
OR Second Credits Reducing Run-Off From Site: Basic		Where the criteria needed for One Credit has been achieved			
		Where all run-off from the roof for rainfall depths up to 5 mm, have been managed on site using source control methods			
		Include runoff from all existing and new parts of the roof.			
		An appropriately qualified professional should be used to design an appropriate drainage strategy for the site			
		Requirements			
OR Three Credits Reducing Run-Off From Site: Advanced		Where run-off as a result of the refurbishment is managed on site using source control			
		An appropriately qualified professional should be used to design an appropriate drainage strategy for the site.			
		The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 75% from the existing site.			
		The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration has been reduced by 75%.			
		An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010).			
		Requirements			
Exemplary Credit		Where all run-off from the developed site is managed on site using source control			
		The peak rate of run-off as a result of the refurbishment for the 1 in 1 year event is reduced to zero.			
		The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero.			
		There is no volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration.			
		An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010).			
Indicative Innovation Credits Achieved		Please Select			
Comments					
Pol 03 Flooding					
No. of BREEAM credits available	2	Available contribution to overall score		1.50%	
No. of BREEAM innovation credits	0	Minimum Standards applicable		Yes	
Assessment Criteria				Indicative Credits	
Where the dwelling is located in a low flood risk zone, or where in a medium to high flood risk zone and a flood resilience/resistance strategy has been implemented, up to two credits can be awarded as follows:				2	
Minimum Standards		A minimum of two credits must be achieved for this issue at the Excellent and Outstanding levels			
Option 1 - Low Flood Risk					
Two Credits		Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a low annual probability of flooding.			
Option 2 - Medium / High Flood Risk					
Two Credits		Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a medium or high annual probability of flooding.			
		Two credits are awarded where as a result of the dwellings floor level or measures to keep water away the dwelling is defined as achieving avoidance from flooding by following Checklist A-10; Decision Strategy Flow Chart.			
		Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the dwellings in accordance with recommendations made by a Suitably Qualified Building Professional			
Comments					

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



Building name	22-24 Cross Street, Reading
Indicative Building Score	60.01%
Indicative Building Rating	BREEAM Very Good

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

	Issue	Credits Available	Indicative Credits Achieved	Weighting	Section Score
Management	Man 01	3	3	12%	4.36%
	Man 02	2	0		
	Man 03	1	0		
	Man 04	2	0		
	Man 05	1	1		
	Man 06	2	0		

Health and Wellbeing	Hea 01	2	1	17%	9.92%
	Hea 02	4	2		
	Hea 03	1	1		
	Hea 04	2	0		
	Hea 05	2	2		
	Hea 06	1	1		

Energy	Ene 01	6	4	43%	32.62%
	Ene 02	4	3		
	Ene 03	7	6		
	Ene 04	2	0		
	Ene 05	2	1		
	Ene 06	1	1		
	Ene 07	2	2		
	Ene 08	2	2		
	Ene 09	2	2		
	Ene 10	1	1		

Water	Wat 01	3	1.5	11%	5.50%
	Wat 02	1	1		
	Wat 03	1	0		

Materials	Mat 01	25	5	8%	2.17%
	Mat 02	15	0		
	Mat 03	8	8		

Waste	Was 01	2	2	3%	1.20%
	Was 02	3	0		

Pollution	Pol 01	3	0	6%	2.25%
	Pol 02	3	1		
	Pol 02	2	2		

Innovation	10	2	N/A		2.00%
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	Minimum Standards				
	Pass	Good	Very Good	Excellent	Outstanding
Ene 02	✓	✓	✓	✓	✗
Wat 01	✓	✓	✓	✗	✗
Hea 05	✓	✓	✓	✓	✓
Hea 06	✓	✓	✓	✓	✓
Pol 03	✓	✓	✓	✓	✓
Mat 02	✓	✓	✓	✓	✓

