



Units 3 And 15  
Cross Deep  
Court Heath  
Road,  
Twickenham,  
TW1 1AG

BREEAM Refurbishment Domestic  
Buildings  
Pre-assessment Report

March 2023



Ref: 22-10344

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<i>Revision</i>	<i>Initial</i>	<i>Rev A</i>	<i>Rev B</i>	<i>Rev C</i>
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## Executive Summary

Syntegra Consulting Ltd has been commissioned to undertake the Building Research Establishment Environmental Assessment Method (BREEAM) for **Units 3 And 15 Cross Deep Court Heath Road, Twickenham, TW1 1AG**. The BREEAM pre-assessment aims to provide the outline sustainability strategy and act as a sustainable design guide for the construction works to be performed. In accordance with London Borough of Richmond upon Thames’s planning requirements and as derived from local policy, the proposed developments will be expected to meet a minimum BREEAM ‘Excellent’ rating demonstrating this way that the project is designed and built to minimise greenhouse gas emissions across their lifetime and incorporate sustainable design and construction measures.

The pre-assessment shows that by achieving the minimum standard requirements together the most feasible credits; the proposed project could achieve an overall score of 73.51% leading to a BREEAM rating of ‘Excellent’.

*It should be noted that the project can and is committed to achieving a minimum score of 70% only, the threshold for ‘Excellent’. The score outlined in this report is a target to ensure the required ‘Excellent’ threshold will be met. The current t BREEAM strategy may be subject to change and therefore cannot be subjected to a specific score in order to ensure future flexibility with respect to third party verification by the BRE and any changes necessitated.*

Environmental Section	Weighting	Credits Available	Credits Targeted	Weighted Score
Management	12.00%	11.0	10.0	10.91%
Health & Wellbeing	17.00%	12.0	8.0	11.33%
Energy	43.00%	29.0	21.0	31.14%
Water	11.00%	5.0	4.0	8.80%
Materials	8.00%	48.0	32.0	5.33%
Waste	3.00%	5.0	5.0	3.00%
Pollution	6.00%	8.0	4.0	3.00%
Innovation	10.00%	0.0	0	0.00%
Indicative BREEAM Score	<b>73.51% ‘Excellent’ Rating</b>			

## Introduction

This BREEAM Pre-assessment report will be included as part of the planning application that addresses the environmental impact of the development. This report focuses on the environmental strategy for the proposed scheme and how BREEAM measurements will be targeted to achieve the sustainability aspirations of this project and also to meet the planning policy requirements.

### 1.1 Existing Site

The proposal relates to a four-storey corner-plot building located on the south side of Heath Road and fronting King Street Parade, South Twickenham ward. Unit 3 fronts Cross Deep to the east and comprises a ground-floor frontage between two retail units leading to a first-floor gym (operated by Escape Fitness). The mezzanine floor was inserted as part of planning permission ref. 14/4537/FUL. Unit 15 fronts Heath Road to the north and comprises a ground-floor retail unit and ancillary first-floor storage (operated by Stevensons sports shop). Other uses (outside of the application site red line) include ground-floor commercial units including a pharmacy. The Planning Statement submitted with the application states that there are residential units on the upper floors. The basement comprises a gym (operated by Pure Gym), which was previously occupied by Rileys Snooker Hall.

### 1.1 Proposed Building

Change of use of part ground floor and part first floor to form seven apartments at Cross Deep Court (Units 3 and 15), Heath Road, Twickenham, TW1 4AG

The pre-application proposes a mixed-use development which would comprise of the following works:

- Infill of Heath Road colonnade to extend ground- and first-floor areas (as per already approved under application ref. 99/0111) to facilitate the sub-division of Unit 15 into three retail units (Class E) of 49.5sqm, 65.5sqm and 65.5sqm respectively.
- Change of use of Unit 15 first-floor retail and Unit 3 ground- and first-floor gym to form 7no. residential flats (3 x 2B3P and 4 x 1B2P)
- Associated external building operations to facilitate the change of use.

The 'proposed development' comprises of:



Figure 1: GA Layout

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## Policy Review

### London Borough of Richmond upon Thames's

#### 6.3 Sustainable Design and Construction

##### Policy LP 22 Sustainable Design and Construction

A. Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:

- Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD. A completed Checklist has to be submitted as part of the planning application.
- Development that results in a new residential dwelling, including conversions, change of use, and extensions that result in a new dwelling unit, will be required to incorporate water conservation measures to achieve maximum water consumption of 110 litres per person per day for homes (including an allowance of 5 litres or less per person per day for external water consumption).
- New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard.
- Proposals for change of use to residential will be required to meet BREEAM Domestic Refurbishment 'Excellent' standard (where feasible)



## BREEAM Refurbishment Domestic Buildings

### Introduction

The BREEAM Domestic Refurbishment scheme is intended for use on self-contained dwellings, which may include a single dwelling or multiple dwellings within a street or block of flats. A self-contained dwelling is defined as a unit designed to accommodate a single household.

The scheme is split into these assessment parts to allow the scheme to reflect the aspects of a building that are tenant or landlord responsibilities, as well as the varied life cycle stages that each component or element is upgraded.

### Mandatory Credit Issues

There are mandatory credits set which must be achieved in order to achieve the difference performance ratings. These must be achieved in addition to the optional credits to achieve the targeted ratings.

**Failure to meet the mandatory criteria may restrict a development to an UNCLASSIFIED rating, regardless of the overall percentage achieved.**

Category	BREEAM Rating	Pass	Good	Very Good	Excellent	Outstanding
	Minimum Score	<30%	<45%	<55%	<70%	<85%
Energy	Ene 02 Energy efficiency rating post-refurbishment	0.5 credits	1 credit	2 credits	2.5 credits	3.5 credits
Water	Wat 01 Internal water use	-	-	1 credit	2 credits	3 credits
Health and Wellbeing	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
Pollution	Pol 03 Flooding	-	-	-	2 credits	2 credits
Materials	Mat 01 Environmental impact of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only

### BREEAM Refurbishment Domestic Credit Weightings

BREEAM Refurbishment Domestic buildings also introduces different credit weightings, used to determine the relative value of the environmental sections used in BREEAM and their contribution to the overall BREEAM score.

The table below outlines the weightings for each of the seven environmental sections included in the BREEAM Refurbishment Domestic buildings.

Environmental section	Weighting
Management	12%
Health and Wellbeing	17%
Energy	43%
Water	11%
Materials	8%
Waste	3%
Pollution	6%
Total	100%
Innovation (additional)	10%

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### Summary credit list

The following table summarises the status of each credit and provides the assessment score and rating. All credits in the 'Green' column are targeted. The design team should be aware that above score is subject to change:

T- Targeted credit
Minimum standards by BREEAM rating level

Credit Code	Credit Title	Credits Available	T	M	Action Lead
<b>MANAGEMENT</b>					
Man 01	Home user guide	3	3		Project Manager / Client
Man 02	Responsible construction management	2	2		Principal Contractor
Man 03	Construction site impacts	1	1		Principal Contractor
Man 04	Secure windows and doors	1	0		Architect / Contractor
	Secured by design	2	2		ALO & CPDA
Man 05	Protection and enhancement of ecological features	1	0		Ecologist
Man 06	Project roles and responsibilities	1	1		Project Manager
	Handover and aftercare	1	1		Project Manager / Client
<b>HEALTH AND WELLBEING</b>					
Hea 01	Maintaining good daylighting	1	1		Architect
	Minimum daylighting	1	0		Architect
Hea 02	Sound insulation	4	3		SQA
Hea 03	Volatile organic compounds	1	1		Project manager
Hea 04	Minimum accessibility	1	1		Architect
	Advanced accessibility	2	0		Architect
Hea 05	Minimum ventilation requirements	1	1	✓	Project manager
	Advanced ventilation	1	0	✓	Project manager
Hea 06	Fire and carbon monoxide (CO) detection and alarm systems	1	1	✓	Project manager
<b>ENERGY</b>					
Ene 01	Improvement in energy efficiency rating	6	2		M&E Engineer
Ene 02	Energy efficiency rating post-refurbishment	4	3	✓	M&E Engineer
Ene 03	Primary energy demand	7	6		Energy assessor
Ene 04	Renewable technologies	2	0		Energy assessor
Ene 05	Fridges, freezers and fridges/freezers	1	1		Project manager
	washing machines, dishwashers, tumble dryers and washer-dryers	1	1		Project manager
Ene 06	Drying space	1	1		Architect

Credit Code	Credit Title	Credits Available	T	M	Action Lead
Ene 07	External lighting	1	1		M&E Engineer
	Internal lighting	1	1		M&E Engineer
Ene 08	Energy display devices	2	2		Project manager
Ene 09	Cycle storage	2	2		Architect
Ene 10	Home office	1	1		Architect
<b>WATER</b>					
Wat 01	Internal water use	3	2	✓	M&E Engineer
Wat 02	External water use	1	1		M&E Engineer
Wat 03	Water meter	1	1		M&E Engineer
<b>MATERIALS</b>					
Mat 01	Environmental impact of materials	25	15	✓	Principal Contractor
Mat 02	Sustainable procurement plan	3	3		Principal Contractor
	Responsible sourcing of materials	12	6		Developer/ Principal Contractor
Mat 03	Embodied impact	4	4		Principal Contractor
	Responsible sourcing	4	4		Principal Contractor
<b>WASTE</b>					
Was 01	Recycling facility	1	1		Principal Contractor
	Composting facilities	1	1		Principal Contractor
Was 02	Refurbishment site waste management	3	3		Principal Contractor
<b>POLLUTION</b>					
Pol 01	Low NO <sub>x</sub> space heating and hot water systems	3	1		M&E Engineer
Pol 02	Surface water run-off	3	1		Project Manager
Pol 03	Flooding	2	2	✓	FRA
<b>AI Approved Innovation</b>					
Approved Innovation		10	0		
<b>Score</b>		<b>73.51%</b>			
<b>Rating</b>		<b>Excellent</b>			

## BREEAM Domestic Refurbishment 2014

Credit criteria and requirements are contained within the BREEAM Domestic Refurbishment 2014 manual. The credits have been categorised as follows:

Credit title	Credits Available	Credits Targeted	Action Lead	Headline Requirements
<b>MANAGEMENT Credit weight =12%</b>				
<b>MAN 01 HOME USER GUIDE</b>				
<b>Home User Guide</b>	3	3	Developer	Written confirmation from the developer or in the specification that a home user guide will be: Supplied to all dwellings and will as a minimum include a list of contents showing that the guide will cover all of the issues required in the 'user guide contents list'.
<b>MAN 02 RESPONSIBLE CONSTRUCTION PRACTICE</b>				
<b>Req 3-4: Small-scale</b>	2	2	Contractor	The principal contractor addresses all mandatory items and provide detailed documentary evidence outlining the commitment to complete Checklist A-3: Small-scale refurbishment: Responsible construction practices

MAN 03 CONSTRUCTION SITE IMPACTS				
<b>Req. 2: Small-scale</b>	1	1	Contractor	Where there is evidence to demonstrate that 2 or more of the sections a-d in Checklist A-5: Small-scale refurbishments- Construction site impacts are completed.
MAN 04 SECURITY				
<b>Req. 1-2: Secure windows and doors</b>  <b>Reg. 3-4: Secured by design</b>	2	2	Security consultant	<p>Where retained, external doors and accessible windows comply with the minimum security requirements and where the following newly added features are appropriately certified:</p> <p>2.a External door sets. 2.b Windows.</p> <p>Where the principles and guidance of Secured by Design Section 2 – Physical Security are complied with and suitably qualified security consultant such as the Police Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) is consulted at the design stage and their recommendations are incorporated into the refurbishment specification.</p>

MAN 05 PROTECTION AND ENHANCEMENT OF ECOLOGICAL FEATURES				
Req 1-3: Protection and Enhancement of Ecological Features	1	0	Ecologist	<p>A site survey is carried out by a member of the project team or a suitably qualified ecologist (SQE) to determine the presence of ecological features.</p> <p>Where protected species have been identified as present on-site, the relevant Statutory Nature Conservation Organisation (SNCO) has been notified and protected species have been adequately protected.</p> <p>Where all existing features of ecological value on the refurbishment site potentially affected by the works, are maintained and adequately protected during refurbishment works.</p>
MAN 06 PROJECT MANAGEMENT				
Project Management	2	2	Project Manager	<p>1. Written confirmation indicating when the collaboration began and the roles and responsibilities of the project team. This can be provided in the form of meeting minutes, construction programme, responsibilities schedule, etc.</p> <p>2. Detailed documentary evidence to show that there is a contract in place to provide aftercare</p> <p>OR</p> <p>Evidence that there are procedures for aftercare in place and a commitment to implement them.</p>



Credit title	Credits Available		Action Lead	Headline Requirements
<b>HEALTH AND WELLBEING Credit weight =17%</b>				
<b>HEA 01 DAYLIGHTING</b>				
<b>Req 1-2: Maintaining good daylighting</b>	1	1	Architect	<p>The refurbishment results 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 1 and 2 (for existing dwellings) or parts 3 and 4 (for change of use e.g. conversions).</p> <p>New spaces achieve minimum daylighting levels and the extension does not significantly reduce daylighting levels in the kitchen, living room, dining room or study of neighbouring properties.</p>
<b>Req 3: Minimum daylighting:</b>	1	0	Architect	The dwelling achieves minimum daylighting levels in the kitchen, living room, dining room and study.

HEA 02 SOUND INSULATION				
Sound insulation	4	3	Acoustician	<p>To ensure the provision of acceptable sound insulation standards and so minimise the likelihood of noise complaints. Credits are awarded depending on the type of dwelling and whether they are subject to sound testing:</p> <p><b>Req 1:</b> Properties where sound testing has been carried out  <b>Req 2-3:</b> Properties where sound testing is not feasible and not required by the appointed building control body  <b>Req 4-6:</b> Historic buildings  <b>Req 7:</b> Detached properties  <b>Req 8:</b> Properties with separating walls or floors only between non-habitable rooms</p>
HEA 03 VOLATILE ORGANIC COMPOUNDS				
Req 1-3: Avoiding the use of VOCs	1	1	Developer + Contractor	Compliant Design Stage commitment that the VOC content of the relevant product types will comply with the standards specified within the criteria
HEA 04 INCLUSIVE DESIGN				
Inclusive design	2	1	Inclusive design champion	<p>One credit - Minimum accessibility</p> <p>two credits - Advanced accessibility</p>

HEA 05 VENTILATION				
MANDATORY REQUIREMENT: To achieve a rating of Excellent, 1 credit must be achieved for this credit.				
Req 5-6: Ventilation	2	2	Developer	<p>Ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full.</p> <p>For the requirements for historic buildings, the refurbishment should be designed to meet the requirements of Building Regulations Part F section 3.11–3.16 and reference is made to the guidance provided in:</p> <ul style="list-style-type: none"> <li>a. The guide to building services in historic buildings, CIBSE, 2002</li> <li>b. BS 7913: Guide to the principles of conservation in historic buildings</li> <li>c. Building Regulations and Historic Buildings, English Heritage 2004</li> <li>d. Guide for Practitioners, conversion of traditional Buildings, application of the Scottish Building standards, Historic Scotland, 2007</li> </ul>
HEA 06 SAFETY				
MANDATORY REQUIREMENT: To achieve a rating of Excellent, 1 credit must be achieved for this credit.				
Req 1-4: fire and carbon monoxide (CO) detection and alarm systems	1	1	Developer + Contractor	Detailed documentary evidence demonstrating that the fire detection and fire alarm system and carbon monoxide detectors are certified to the relevant standards or compliant commitment to provide.

Credit title	Credits Available		Action Lead	Headline Requirements
<b>ENERGY Credit weight =43%</b>				
<b>ENE 01 IMPROVEMENT IN NERGY EFFICIENCY RATING</b>				
<b>Req 1: Improving the dwelling's energy efficiency rating (EER)</b>	6	2	Sustainability Consultant	<p>A copy of the Design Stage Energy Performance Certificate report or SAP 2012 worksheets to confirm the dwelling's Energy Efficiency Rating pre and post refurbishment</p> <p>A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator</p>
<b>ENE 02 NERGY EFFICIENCY RATING POST-REFURBISHMENT</b>				
<b>MANDATORY REQUIREMENT: To achieve a rating of Excellent, 2.5 credit must be achieved for this credit.</b>				
<b>Req 1: EER post-refurbishment</b>	4	3	Sustainability Consultant	<p>A copy of the Design Stage Energy Performance Certificate report or SAP 2012 worksheets to confirm the dwelling's Energy Efficiency Rating post refurbishment.</p> <p>2. A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator</p>

ENE 03 PRIMARY ENERGY DEMAND				
Primary energy demand	7	6	Sustainability Consultant	<p>A copy of the Design Stage Energy Performance Certificate report and SAP 2012 worksheets to confirm the dwelling's Primary Energy Demand post refurbishment.</p> <p>A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator</p>
ENE 04 PRIMARY ENERGY DEMAND				
Req 1-5: local energy generation from renewable sources	2	0	Sustainability Consultant	<p><b>One credit:</b> Where at least 10% of the dwelling's primary energy demand per annum is supplied by low or zero carbon technologies.</p> <p><b>Two credits:</b> Where for mid to high-rise flats at least 15% of each dwelling's primary energy demand per annum is supplied by low or zero carbon technologies</p> <p>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</p>

ENE 05 ENERGY LABELLED WHITE GOODS				
<p><b>Req 1-2: Fridges, freezers, and fridges/ freezers</b></p>	<p>2</p>	<p>2</p>	<p>Developer</p>	<p>1.Detailed documentary evidence for fridges and freezers or fridges/freezers have an A+ rating or better confirming the performance of the appliances OR Compliant design stage evidence outlining the appliances to be provided with their applicable ratings under the EU Energy Efficiency Labelling Scheme</p> <p><b>Req 3-6: washing machines, dishwashers, tumble dryers and washer-dryers</b></p> <p>1.Detailed documentary for washing machines have and A++ and dishwashers have an A+ rating or better performance OR Compliant design stage evidence outlining the appliances to be provided with their applicable ratings under the EU Energy Efficiency Labelling Scheme</p> <p>2. If no white goods are provided, detailed documentary evidence as follows: a. A copy of the information that will be provided on the EU Energy Efficiency Labelling Scheme AND b. Confirmation that leaflets will be provided to each dwelling</p>

ENE 06 DRYING SPACE				
Drying space	1	1	Architect + Developer	<p>1.a )1–2 bedrooms: 4m+ of drying line. 1.b) 3+ bedrooms: 6m+ of drying line.</p> <p>1.For internal drying space, detailed documentary evidence confirming: a. Location of drying fixings b. Details and location of ventilation provided c. The length of drying lined. Details of the lock provided (for communal drying space only) e. Number of bedrooms</p> <p>2. For external drying space, detailed documentary evidence confirming: a. Location of fixings, footings or posts b. The length of drying line c. Number of bedrooms</p>
ENE 07 LIGHTING				
Req 1-3: External lighting and Internal lighting	2	2	Lighting consultant	<p>1.Detailed documentary evidence confirming: a. The types of light fitting for all external lamps b. The control systems applicable to each light fitting or group of fittings</p>



ENE 08 DISPLAY ENERGY DEVICES				
Energy Display Devices	2	2	Developer	Detailed documentary evidence confirming: <ol style="list-style-type: none"> <li>That the energy display device is dedicated to each individual dwelling</li> <li>The consumption data displayed by the energy display device</li> <li>Whether the energy display device can record consumption data.</li> </ol>
ENE 09 CYCLE STORAGE				
Cycle Storage	2	2	Architect + Developer	<ol style="list-style-type: none"> <li>Detailed documentary evidence showing:               <ol style="list-style-type: none"> <li>The number of bedrooms and the corresponding number of cycle storage spaces per dwelling</li> <li>Location, type and size of storage</li> <li>Convenient access to cycle storage</li> <li>Any security measures</li> <li>Details of the proprietary system (if applicable)</li> </ol> </li> <li>Where above cannot be produced compliant Design Stage commitment is required.</li> </ol>
ENE 10 HOME OFFICE				
Home Office	1	1	Architect	Where sufficient space and services have been provided which allow the occupants to set up a home office in a suitable room with adequate ventilation.

WATER Credit weight =11%				
WAT 01 INTERNAL WATER USE				
MANDATORY REQUIREMENT: To achieve a rating of Excellent, 2 credit must be achieved for this credit.				
Water consumption	3	2	Developer	<p>A copy of the Wat 01 Calculator showing the internal potable water use per Dwelling Type. AND Drawings describing the location, details and type of appliances or fittings that use water in the dwelling or dwellings, including any specific water reduction equipment.</p> <p>2. Where above cannot be produced compliant Design Stage commitment that the specification required to meet the targets will be implemented.</p>
WAT 02 EXTERNAL WATER USE				
Water consumption	1	1	Architect	<p>1. Detailed documentary evidence stating the : type, size and location of any rainwater collection systems OR A building and site inspection report and photographic evidence to demonstrate there is no individual or communal garden space</p> <p>2. Where above cannot be produced compliant Design Stage commitment is required of the specification to be installed.</p>

WAT 03 WATER METER				
Water meter	1	1	Electrical Engineer	Where an appropriate water meter for measuring usage of mains potable water has been provided to dwelling

Credit title	Credits Available	Credits Targeted	Action Lead	Headline Requirements
<b>MATERIALS Credit weight =8%</b>				
<b>MAT 01 ENVIRONMENTAL IMPACT OF MATERIALS</b>				
<b>Environmental Impact of Materials</b>	25	15	Architect	Specification of the installed materials and applicable elements 2. As built drawings detailing the location and areas of the elements 3. Output from the Mat 01 Calculator tool 4. Copy of the certificates or certificate numbers of the elements where applicable
<b>MAT 02 RESPONSIBLE SOURCING OF MATERIALS</b>				
Mandatory Requirement: all timber may be responsibly sourced, legally harvested and traded. This is required to achieve ANY rating for this scheme.				
<b>Req 1: Prerequisite</b>	Yes			Written confirmation that: All timber will/has come from a 'legal source' and is not on the CITES list OR in the case of Appendix III of the CITES list, it has not been sourced from the country seeking to protect this species as listed in Appendix III.
<b>Req 2 or 3: Sustainable procurement plan</b>	3	3	Developer	Where the principal contractor sources materials for the project in accordance with a documented sustainable procurement plan (see the relevant definitions in the additional information section) three credits can be awarded OR Where the principal contractor is a Micro-enterprise (according to the relevant definitions in the additional information section) up to 3 credits are available: ▪Where the principal contractor addresses part 1 OR part 2 of Checklist A-9: Sustainable procurement statement one credit can be awarded.

Credit title	Credits Available	Credits Targeted	Action Lead	Headline Requirements
<b>Req 4: Responsible sourcing of materials (RSM)</b>	12	6	Project manager	The available RSM credits (refer to Table - 44) can be awarded where the applicable building materials (refer to Table - 26) are responsibly sourced in accordance with the BREEAM methodology, as defined in steps 1 to 2 in Mat 02 Calculation Procedure B-8
<b>MAT 03 INSULATION</b>				
<b>Insulation</b>	8	8	Architect + Developer	<ol style="list-style-type: none"> <li>1. Text (on drawings or in a specification) describing the location and area (m2) and thickness (m) or volume (m3) of insulation specified AND</li> <li>2. Manufacturer's technical details confirming the thickness and thermal conductivity of the insulating materials specified.</li> </ol> AND <ol style="list-style-type: none"> <li>3. A copy of the output from the BREEAM Domestic Refurbishment Mat 03 Calculator.</li> </ol> AND <ol style="list-style-type: none"> <li>4. The Green Guide rating and element number for the assessed insulation specifications including Green Guide ratings and element numbers for each new insulation specification assessed. And where relevant, copies of the environmental certification of the materials used</li> </ol>

WASTE Credit weight =3%				
WAS 01 HOUSEHOLD WASTE				
<b>Req 1: Recycling facilities</b>	1	1	Architect + Developer	1. Detailed documentary evidence highlighting: <ul style="list-style-type: none"> <li>a. the type and sizes of internal storage bins</li> <li>b. the location of internal and external storage bins and distance to kitchen</li> <li>c. the types and sizes of external storage bins</li> </ul>
<b>Req 2-6: Composting facilities</b>	1	1	Architect + Developer	Where there is a local authority collection scheme or private recycling scheme: <ul style="list-style-type: none"> <li>2. A letter, leaflet, website or other published information from the Local Authority or private recycling scheme operator describing:               <ul style="list-style-type: none"> <li>a. the types of waste collected</li> <li>b. the frequency of collection</li> <li>c. type of collection sorting</li> </ul> </li> </ul>

WAS 02 REFURBISHMENT AND SITE MANAGEMENT				
<p><b>Req 1-16:</b> Credits are awarded depending on the scale and the estimated cost of refurbishment.</p>	<p>3</p>	<p>3</p>	<p>Contractor</p>	<p>Where no design stage assessment has been carried out a copy of the compliant Site Waste Management Plan/Checklist A-10 containing the appropriate benchmarks, commitments and procedures. OR A copy of the SWMP (22) summary datasheets or equivalent monitoring records/report confirming:</p> <ul style="list-style-type: none"> <li>a. The waste arising for the development for non-hazardous construction and demolition waste.</li> <li>b. Comparison of the waste arising against the targets</li> <li>c. Quantities of waste produced, segregated via the key waste groups</li> <li>d. Where required, the amount and proportion of waste arising that was reused, recycled and sent to landfill</li> <li>e. Custody/application/destination of reused/recycled materials.</li> </ul>



POLUTION Credit weight =6%				
POL 01 NITROGEN OXIDE EMISSIONS				
<b>Req 1: Low NOx space heating and hot water systems</b>	3	1	Boiler manufacturer	<p>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:</p> <p>1.a) One credit where the dry NOx emissions of space heating and hot water systems are ≤ 100 mg/kWh (NOx class 4 boiler).</p> <p>1.b) Two credits where the dry NOx emissions of space heating and hot water systems are ≤ 70 mg/kWh (NOx class 5 boiler).</p> <p>1.c) Three credits where the dry NOx emissions of space heating and hot water systems are ≤ 40 mg/kWh.</p>
POL 02 SURFACE WATER RUN-OFF				
	3	1	FRA	<p>Copy of all relevant calculations and information necessary to meet the requirements. AND Drawings showing the impermeable areas pre and post refurbishment</p> <p>Written confirmation of the appointment of an appropriately qualified professional to carry out the calculations and provide design criteria for all relevant elements.</p> <p>Copies of any drawings and specification text necessary to support the claims made.</p>

POL 03 FLOODING				
Low flood risk or flood mitigation	2	2	FRA	Where a flood risk assessment (FRA) has been carried out and the assessed dwellings are defined as having Low or Medium/high flood risk annual probability of flooding.

### Conclusion

In summary the project aims to achieve highest sustainability standards and would adopt features to enhance the environmental performance of the existing building. As can be seen in the table below, the proposed development can achieve 'Excellent' under BREEM Domestic Refurbishment scheme.

Environmental Section	Weighting	Credits Available	Credits Targeted	Weighted Score
Management	12.00%	11.0	10.0	10.91%
Health & Wellbeing	17.00%	12.0	8.0	11.33%
Energy	43.00%	29.0	21.0	31.14%
Water	11.00%	5.0	4.0	8.80%
Materials	8.00%	48.0	32.0	5.33%
Waste	3.00%	5.0	5.0	3.00%
Pollution	6.00%	8.0	4.0	3.00%
Innovation	10.00%	0.0	0	0.00%
Indicative BREEM Score	<b>73.51% 'Excellent' Rating</b>			

NOT FOR ISSUANCE

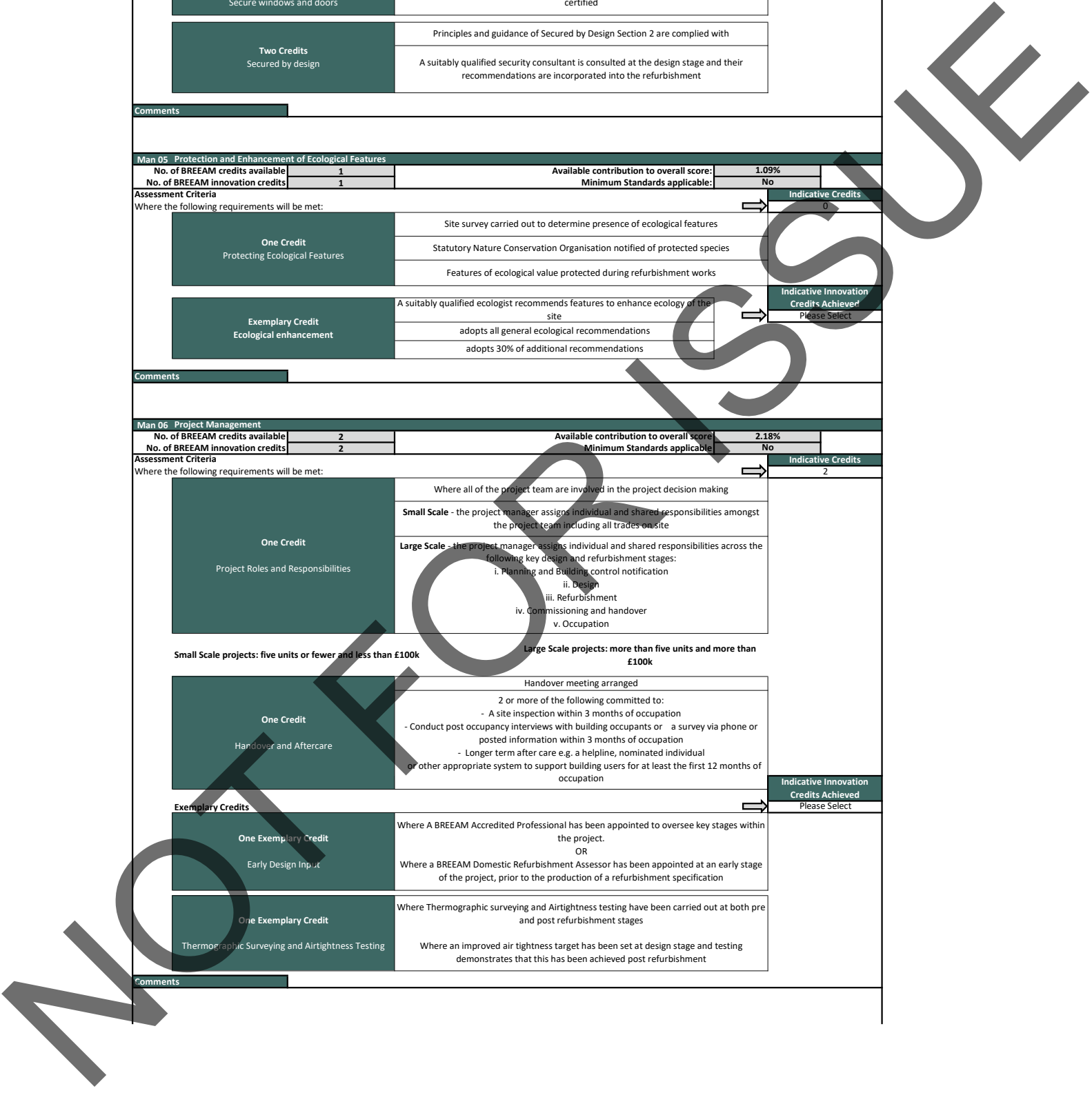
# Appendix A.

Pre-Assessment Estimator

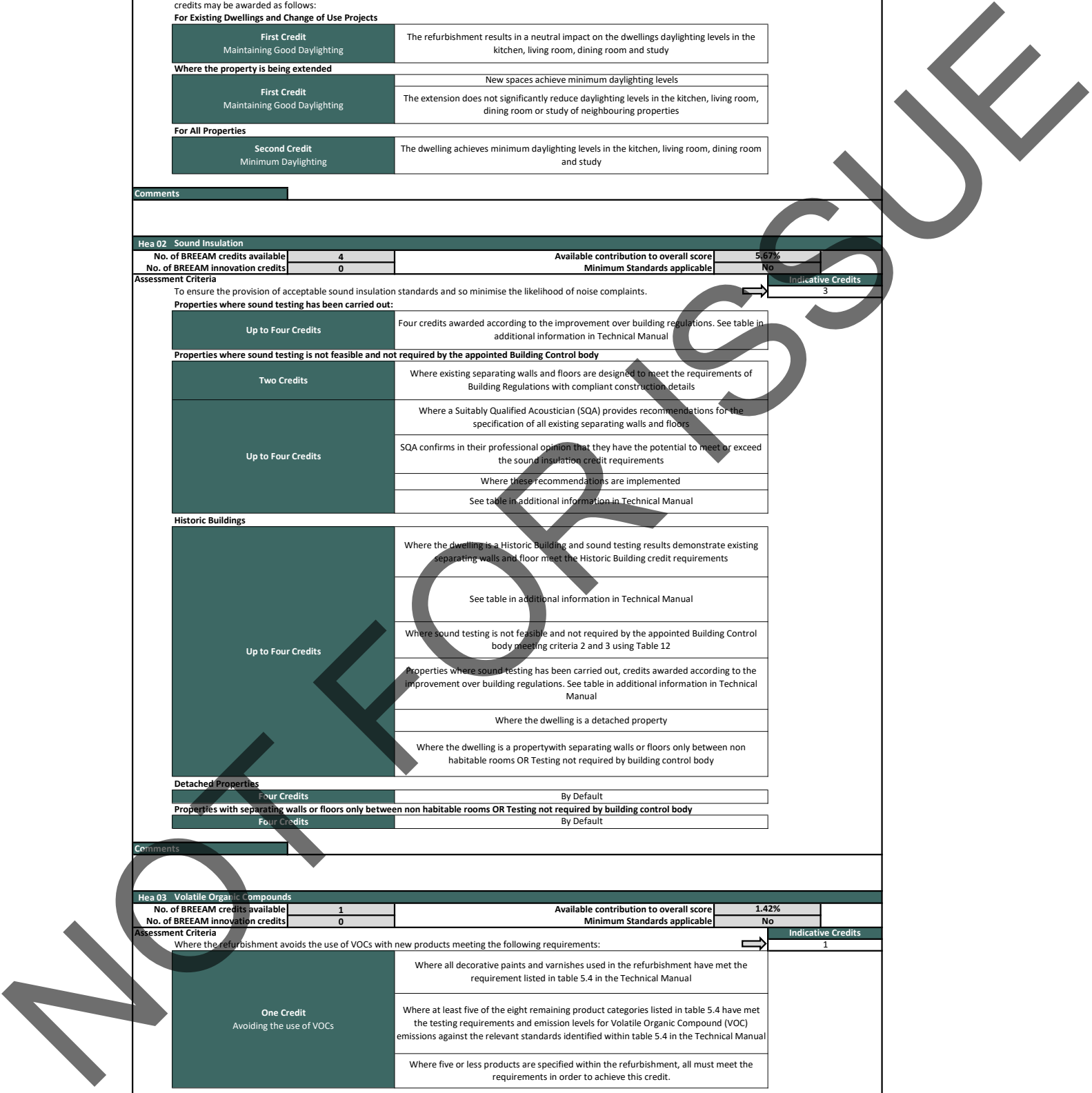
© BRE Global Ltd 2014

BREEAM UK Domestic Refurbishment 2014 Pre-Assessment Estimator v0.1		BREEAM <sup>®</sup> UK																																																		
This assessment and indicative BREEAM rating is not a formal certified BREEAM assessment or rating and must not be communicated as such. The score presented is indicative of a dwelling's potential performance and is based on a simplified pre-formal BREEAM assessment and unverified commitments given at an early stage in the design process.																																																				
Building name: <b>Cross Deep</b> Indicative building score (%): <b>73.51%</b> Indicative BREEAM rating: <b>BREEAM Excellent</b>		<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="5">Minimum Standards</th> </tr> <tr> <th>Pass</th> <th>Good</th> <th>Very Good</th> <th>Excellent</th> <th>Outstanding</th> </tr> </thead> <tbody> <tr> <td>Ene 02</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✗</td> </tr> <tr> <td>Wat 01</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✗</td> </tr> <tr> <td>Hea 05</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Hea 06</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Pol 03</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Mat 02</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> </tbody> </table>					Minimum Standards					Pass	Good	Very Good	Excellent	Outstanding	Ene 02	✓	✓	✓	✓	✗	Wat 01	✓	✓	✓	✓	✗	Hea 05	✓	✓	✓	✓	✓	Hea 06	✓	✓	✓	✓	✓	Pol 03	✓	✓	✓	✓	✓	Mat 02	✓	✓	✓	✓	✓
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Mat 02	✓	✓	✓	✓	✓																																															
Management   Health & Wellbeing   Energy   Water   Materials   Waste   Pollution		INNOVATION Section Weighting: 10% Indicative Section Score: 0.00%																																																		
Comments																																																				
MANAGEMENT Section Weighting: 12% Indicative Section Score: 10.91%																																																				
<b>Man 01 Home Users Guide</b> No. of BREEAM credits available: 3 Available contribution to overall score: 3.27% No. of BREEAM innovation credits: 0 Minimum Standards applicable: No																																																				
Assessment Criteria Where a Home Users Guide be provided to all dwellings, covering all issues set out in the 'Users Guide Contents list', three credits may be awarded					Indicative Credits: 3																																															
Comments																																																				
<b>Man 02 Responsible Construction Practices</b> No. of BREEAM credits available: 2 Available contribution to overall score: 2.18% No. of BREEAM innovation credits: 1 Minimum Standards applicable: No																																																				
Assessment Criteria Where a compliant considerate construction scheme will be used, credits are awarded depending on the score achieved as outlined below:					Indicative Credits: 2																																															
<b>Large Scale - project with more than 5 units</b> <table border="1"> <thead> <tr> <th></th> <th>One Credit</th> <th>Two Credits</th> </tr> </thead> <tbody> <tr> <td>Considerate Constructors Scheme</td> <td>Score of 25-34 with a score of 5 in each section</td> <td>Score of 35-39 with a score of 7 in each section</td> </tr> <tr> <td>Alternative Compliant Scheme</td> <td>Compliance</td> <td>Beyond Compliance</td> </tr> </tbody> </table>							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																																						
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<b>Exemplary Credit</b> Considerate Constructors Scheme: Score of 40 or more with a score of 7 in each section Alternative Compliant Scheme: Exemplary Level Compliance Checklist A-3*: All Items (Optional & Mandatory) * Small Scale Project Only					Indicative Innovation Credits Achieved: Please Select																																															
Comments																																																				
<b>Man 03 Construction Site Impacts</b> No. of BREEAM credits available: 1 Available contribution to overall score: 1.09% No. of BREEAM innovation credits: 0 Minimum Standards applicable: No																																																				
Assessment Criteria Where evidence demonstrate that site impacts will be monitored, as detailed below:					Indicative Credits: 1																																															
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Same definition of small and large scale as in Man 02																																																				
Comments																																																				

Man 04 Security			
No. of BREEAM credits available	2	Available contribution to overall score:	2.18%
No. of BREEAM innovation credits	0	Minimum Standards applicable:	No
Assessment Criteria			Indicative Credits
Where the following requirements will be met:			2
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 Secured by design	A suitably qualified security consultant is consulted at the design stage and their recommendations are incorporated into the refurbishment		
Comments			
Man 05 Protection and Enhancement of Ecological Features			
No. of BREEAM credits available	1	Available contribution to overall score:	1.09%
No. of BREEAM innovation credits	1	Minimum Standards applicable:	No
Assessment Criteria			Indicative Credits
Where the following requirements will be met:			0
One Credit Protecting Ecological Features	Site survey carried out to determine presence of ecological features		
	Statutory Nature Conservation Organisation notified of protected species		
	Features of ecological value protected during refurbishment works		
Exemplary Credit Ecological enhancement	A suitably qualified ecologist recommends features to enhance ecology of the site		Indicative Innovation Credits Achieved/ Please Select
	adopts all general ecological recommendations		
	adopts 30% of additional recommendations		
Comments			
Man 06 Project Management			
No. of BREEAM credits available	2	Available contribution to overall score:	2.18%
No. of BREEAM innovation credits	2	Minimum Standards applicable:	No
Assessment Criteria			Indicative Credits
Where the following requirements will be met:			2
One Credit Project Roles and Responsibilities	Where all of the project team are involved in the project decision making		
	<p><b>Small Scale</b> - the project manager assigns individual and shared responsibilities amongst the project team including all trades on site</p> <p><b>Large Scale</b> - the project manager assigns individual and shared responsibilities across the following key design and refurbishment stages:</p> <ul style="list-style-type: none"> <li>i. Planning and Building control notification</li> <li>ii. Design</li> <li>iii. Refurbishment</li> <li>iv. Commissioning and handover</li> <li>v. Occupation</li> </ul>		
<b>Small Scale projects: five units or fewer and less than £100k</b>		<b>Large Scale projects: more than five units and more than £100k</b>	
One Credit Handover and Aftercare	Handover meeting arranged		
	2 or more of the following committed to: - A site inspection within 3 months of occupation - Conduct post occupancy interviews with building occupants or a survey via phone or posted information within 3 months of occupation - Longer term after care e.g. a helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupation		
Exemplary Credits			Indicative Innovation Credits Achieved/ Please Select
One Exemplary Credit Early Design Input	Where A BREEAM Accredited Professional has been appointed to oversee key stages within the project.		
	OR Where a BREEAM Domestic Refurbishment Assessor has been appointed at an early stage of the project, prior to the production of a refurbishment specification		
One Exemplary Credit Thermographic Surveying and Airtightness Testing	Where Thermographic surveying and Airtightness testing have been carried out at both pre and post refurbishment stages		
	Where an improved air tightness target has been set at design stage and testing demonstrates that this has been achieved post refurbishment		
Comments			



HEALTH & WELLBEING		Section Weighting: 17%	Indicative Section Score 11.33%	
<b>Hea 01 Daylighting</b>				
No. of BREEAM credits available	2	Available contribution to overall score	2.83%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
<b>Assessment Criteria</b>				<b>Indicative Credits</b>
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
<b>For Existing Dwellings and Change of Use Projects</b>				
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			
<b>Where the property is being extended</b>				
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				
<b>For All Properties</b>				
Second Credit Minimum Daylighting	The dwelling achieves minimum daylighting levels in the kitchen, living room, dining room and study			
<b>Comments</b>				
<b>Hea 02 Sound Insulation</b>				
No. of BREEAM credits available	4	Available contribution to overall score	5.67%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
<b>Assessment Criteria</b>				<b>Indicative Credits</b>
To ensure the provision of acceptable sound insulation standards and so minimise the likelihood of noise complaints.				3
<b>Properties where sound testing has been carried out:</b>				
Up to Four Credits	Four credits awarded according to the improvement over building regulations. See table in additional information in Technical Manual			
<b>Properties where sound testing is not feasible and not required by the appointed Building Control body</b>				
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				
<b>Historic Buildings</b>				
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 property with separating walls or floors only between non habitable rooms OR Testing not required by building control body				
<b>Detached Properties</b>				
Four Credits	By Default			
<b>Properties with separating walls or floors only between non habitable rooms OR Testing not required by building control body</b>				
Four Credits	By Default			
<b>Comments</b>				
<b>Hea 03 Volatile Organic Compounds</b>				
No. of BREEAM credits available	1	Available contribution to overall score	1.42%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
<b>Assessment Criteria</b>				<b>Indicative Credits</b>
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.			
<b>Comments</b>				

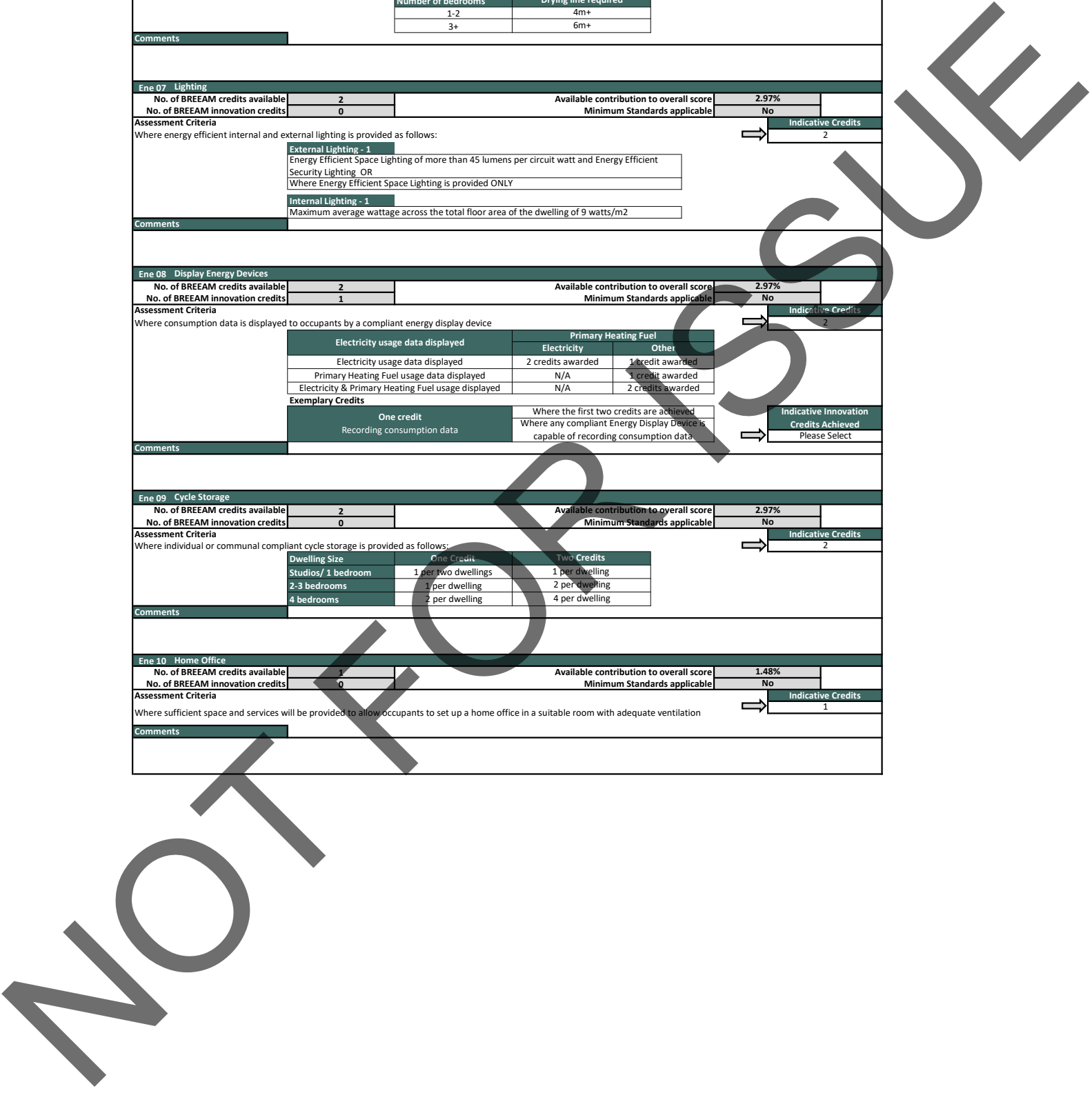


Hea 04 Inclusive Design			
No. of BREEAM credits available	2	Available contribution to overall score	2.83%
No. of BREEAM innovation credits	1	Minimum Standards applicable	No
Assessment Criteria			Indicative Credits
Where an access statement has been carried out using Checklist A-8 of the Technical Manual to optimise the accessibility of the home as follows:			1
Checklist A-8 of the Technical Manual			
		Section 1	Section 2
One Credit Minimum Accessibility		Completed with Evidence	
Two Credits Advanced Accessibility		Completed with Evidence	Completed with Evidence
Exemplary Performance			Indicative Innovation Credits Achieved
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		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:			1
One Credit Minimum Ventilation Requirements	A minimum level of background ventilation is provided (with trickle ventilators or other means of ventilation) for all habitable rooms, kitchens, utility rooms and bathrooms compliant with section 7, Building Regulations Approved Document Part F, 2010.  A minimum level of extract ventilation is provided in all wet rooms (e.g. kitchen, utility and bath-rooms), compliant with section 5, Building Regulations Approved Document Part F 2010.  A minimum level of purge ventilation is provided in all habitable rooms and wet rooms, compliant with section 7, Building Regulations Approved Document Part F, 2010.  It is an historic building and meets historic building requirements in CN4 of the technical manual		
Two Credits Advanced Requirements	Ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full  Where the building is a historic building and meets the requirements for Historic Buildings in compliance note 4 of the technical manual		
Comments			
Hea 06 Safety			
No. of BREEAM credits available	1	Available contribution to overall score	1.42%
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes
Assessment Criteria			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			
ENERGY <span style="margin-left: 100px;">Section Weighting: 43%</span> <span style="float: right;">Indicative Section Score 31.14%</span>			
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:			2
	Improvement in EER	Credits	
	≥ 5	0.5	
	≥ 9	1	
	≥ 13	1.5	
	≥ 17	2	
	≥ 21	2.5	
	≥ 26	3	
	≥ 31	3.5	
	≥ 36	4	
	≥ 42	4.5	
	≥ 48	5	
	≥ 54	5.5	
	≥ 60	6	
Comments			



Ene 02 Energy Efficiency Rating Post Refurbishment			
No. of BREEAM credits available	4	Available contribution to overall score	5.93%
No. of BREEAM innovation credits	2	Minimum Standards applicable	Yes
Assessment Criteria			Indicative Credits
Where the following Energy Efficiency Rating benchmarks will be met as a result of refurbishment:			3
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	Indicative Innovation Credits Achieved
≥90		1	Please Select
≥100		2	
Comments			
Ene 03 Primary energy demand			
No. of BREEAM credits available	7	Available contribution to overall score	10.38%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			Indicative Credits
Where the following Primary Energy Demand benchmarks will be met as a result of refurbishment:			6
Primary Energy Demand Post Refurbishment		Credits	
≤ 400		0.5	
≤ 370		1	
≤ 340		1.5	
≤ 320		2	
≤ 300		2.5	
≤ 280		3	
≤ 260		3.5	
≤ 240		4	
≤ 220		4.5	
≤ 200		5	
≤ 180		5.5	
≤ 160		6	
≤ 140		6.5	
≤ 120		7	
Comments			
Ene 04 Renewable Technologies			
No. of BREEAM credits available	2	Available contribution to overall score	2.97%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			Indicative Credits
Where the dwelling will meet the following % contribution from renewables and primary energy demand targets as a result of refurbishment			0
Dwelling Type	Primary Energy Demand	Percentage from Renewables	
		1 Credit	2 Credits
Detached	≤250 kWh/m <sup>2</sup> /year	≥10%	≥20%
Semi-Detached		≥10%	≥20%
Bungalow		≥10%	≥20%
End of Terrace		≥10%	≥20%
Mid Terrace	≤ 220 kWh/m <sup>2</sup> /year	≥10%	≥20%
Low Rise Flat		≥10%	≥20%
Mid Rise Flat		≥10%	≥15%
High Rise Flat		≥10%	≥15%
Comments			
Ene 05 Energy Labelled White Goods			
No. of BREEAM credits available	2	Available contribution to overall score	2.97%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			Indicative Credits
Where Energy Efficiency White goods are to be provided as follows:			2
First Credit			
Appliance	Appliance provided	Appliance not to be provided	
Fridges, Freezers and Fridge-Freezers	A+ Rating under EU Energy Efficiency Labelling Scheme	EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings	
Second Credit			
Appliance	Appliance provided	Appliance not to be provided	
Washing Machines and Dishwashers	Washing Machine A++ under EU Energy Efficiency Labelling Scheme AND Dishwasher A+ under EU Energy Efficiency Labelling Scheme	Second credit not achieved	
Washer-Dryers and Tumble Dryers	Appliances specified with A Rating under EU Energy Efficiency Labelling Scheme	EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings	
Comments			

Ene 06 Drying Space			
No. of BREEAM credits available	1	Available contribution to overall score	1.48%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			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			
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	
Recording consumption data		Where any compliant Energy Display Device is capable of recording consumption data	
Indicative Innovation Credits Achieved			Please Select
Comments			
Ene 09 Cycle Storage			
No. of BREEAM credits available	2	Available contribution to overall score	2.97%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			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			
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 8.80%
<b>Wat 01 Internal Water Use</b>			
No. of BREEAM credits available	3	Available contribution to overall score	6.60%
No. of BREEAM innovation credits	1	Minimum Standards applicable	Yes
<b>Assessment Criteria</b>			<b>Indicative Credits</b>
Where the dwellings water consumption meets the following consumption benchmarks, or where terminal fittings meet the following water consumption standards:			2
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 fittings 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).			
<b>Exemplary Credit</b>		If the water consumption is less than 80l/person/day	<b>Indicative Innovation Credits Achieved</b>
			Please Select
<b>Comments</b>			
<b>Wat 02 External Water Use</b>			
No. of BREEAM credits available	1	Available contribution to overall score	2.20%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
<b>Assessment Criteria</b>			<b>Indicative Credits</b>
Where the following requirements will be met:			1
<b>Requirements:</b>			
<b>One Credit</b>	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.		
<b>Comments</b>			
<b>Wat 03 Water Meter</b>			
No. of BREEAM credits available	1	Available contribution to overall score	2.20%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
<b>Assessment Criteria</b>			<b>Indicative Credits</b>
Where an appropriate water meter for measuring usage of mains potable water meter has been provided to dwelling(s), one credit may be awarded			1
<b>Comments</b>			
MATERIALS		Section Weighting: 8%	Indicative Section Score 5.33%
<b>Mat 01 Environmental Impact of Materials</b>			
No. of BREEAM credits available	25	Available contribution to overall score	4.16%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
<b>Assessment Criteria</b>			<b>Indicative Credits</b>
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:			15
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	
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
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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
Windows	1.4

Comments

NOT FOR ISSUE

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			Indicative Credits																				
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:			9																				
<p style="text-align: center;"><b>Sustainable Procurement Plan (3 BREEAM credits)</b></p> 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	<table border="1"> <thead> <tr> <th>BREEAM credits</th> <th>% of available points achieved</th> </tr> </thead> <tbody> <tr><td>12</td><td>≥54%</td></tr> <tr><td>10</td><td>≥45%</td></tr> <tr><td>8</td><td>≥36%</td></tr> <tr><td>6</td><td>≥27%</td></tr> <tr><td>4</td><td>≥18%</td></tr> <tr><td>2</td><td>≥9%</td></tr> </tbody> </table>	BREEAM credits	% of available points achieved	12	≥54%	10	≥45%	8	≥36%	6	≥27%	4	≥18%	2	≥9%								
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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			Indicative Credits																				
Where any new insulation specified for use within external walls, ground floor, roof and buildings services meet the following requirements:			8																				
<p><b>Requirements</b></p> 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																							
<p><b>Requirements</b></p> 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 3.00%																							
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			Indicative Credits																				
Where compliant recycling and composting facilities are provided, up to two credits may be awarded as follows			2																				
<p style="text-align: center;"><b>First Credit - Recycling Facilities</b></p> <table border="1"> <thead> <tr> <th>Scenario</th> <th>Internal recycling storage requirements</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Compliant collection scheme in place</td> <td>3 internal recycling containers provided where recycling is not sorted post collection</td> </tr> <tr> <td>1 internal recycling container provided where recycling is sorted post collection</td> </tr> <tr> <td>Minimum 30 litre total capacity, no single container less than 7 litre capacity</td> </tr> <tr> <td rowspan="2">No compliant collection scheme in place No adequate external storage</td> <td>Dedicated position in accordance with compliance note 1</td> </tr> <tr> <td>3 internal recycling containers provided Minimum 60 litre total capacity</td> </tr> <tr> <td rowspan="2">No compliant collection scheme in place Adequate external storage provided</td> <td>Dedicated position in accordance with compliance note 1</td> </tr> <tr> <td>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</td> </tr> </tbody> </table> <p style="text-align: center;"><b>Second credit - Composting facilities</b></p> <table border="1"> <thead> <tr> <th>With external space</th> <th>Without external space</th> </tr> </thead> <tbody> <tr> <td>Where a composting service or facility is provided for green/garden waste</td> <td>Where a composting service or facility is provided for kitchen waste</td> </tr> <tr> <td>Where a composting service or facility is provided for kitchen waste</td> <td>Where an interior container is provided for kitchen composting waste of at least 7 litres</td> </tr> <tr> <td>Where an interior container is provided for kitchen composting waste of at least 7 litres</td> <td></td> </tr> </tbody> </table>				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	No compliant collection scheme in place No adequate external storage	Dedicated position in accordance with compliance note 1	3 internal recycling containers provided Minimum 60 litre total capacity	No compliant collection scheme in place Adequate external storage provided	Dedicated position in accordance with compliance note 1	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	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	
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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			Indicative Credits																				
Up to three credits are available depending on the site waste management plan to be implemented as follows			3																				
<p><b>Projects up to £100k</b></p> Three Credits Where waste generated through the refurbishment process is managed in accordance with Checklist A-9 Exemplary Credit Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place			Indicative Innovation Credits Achieved Please Select																				
<p><b>Projects up to £300k</b></p> Three Credits Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place																							

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

NOT FOR ISSUE

POLLUTION		Section Weighting: 6%		Indicative Section Score 3.00%	
<b>Pol 01 NOx Emissions</b>					
No. of BREEAM credits available	3	Available contribution to overall score	2.25%		
No. of BREEAM innovation credits	0	Minimum Standards applicable	No		
<b>Assessment Criteria</b>				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:				1	
		<b>Dry NOx Emissions</b>			
One Credit		≤100 mg/kWh (NOx class 4 boiler)			
Two Credits		≤70 mg/kWh (NOx class 5 boiler)			
Three Credits		≤40 mg/kWh			
Comments					
<b>Pol 02 Surface Water Runoff</b>					
No. of BREEAM credits available	3	Available contribution to overall score	2.25%		
No. of BREEAM innovation credits	1	Minimum Standards applicable	No		
<b>Assessment Criteria</b>				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	
<b>Requirements</b>					
<b>One Credit</b> 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			
<b>Requirements</b>					
<b>OR Second Credits</b> 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			
<b>Requirements</b>					
<b>OR Three Credits</b> 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).			
<b>Requirements</b>					
<b>Exemplary Credit</b>		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					
<b>Pol 03 Flooding</b>					
No. of BREEAM credits available	2	Available contribution to overall score	1.50%		
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes		
<b>Assessment Criteria</b>				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	
<b>Minimum Standards</b>		A minimum of two credits must be achieved for this issue at the Excellent and Outstanding levels			
<b>Option 1 - Low Flood Risk</b>					
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.			
<b>Option 2 - Medium / High Flood Risk</b>					
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					

