

**Proposed Domestic Refurbishment & Fit Out  
12 High Street,  
Hampton Wick  
Kingston upon Thames  
KT1 4DB  
BREEAM Domestic Refurbishment & Fit Out 2014  
Pre-assessment Report**

**Project Number: 15501**

**Date: 13/05/2024**

Issue/revision	Issue 00 WIP	Revision 01	Issue 02 Draft	Issue 03 For Contract
Remarks				
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## 1 Introduction

C80 SOLUTIONS was commissioned by City Lofts London to assist with BREEAM assessment services for a proposed refurbishment of 2 residential units created by way of change of use.

The proposed scheme has been subject to a pre-assessment, carried out using the BREEAM Domestic RFO 2014 methodology. Pre-assessments are normally undertaken for funding, planning or viability purposes and are generally undertaken as early as possible in the design process, before all the design and servicing options have been confirmed. The pre-assessment has been used to evaluate the site location, existing infrastructure and proposed development against the evidential requirements of BREEAM.

The design team has set a target rating of BREEAM Very Good. The BREEAM pre-assessment has been carried out on the current proposed design to determine the BREEAM RFO 2014 rating achievable for the development, confirm the specification required and specifically identify who is responsible for each BREEAM issue to achieve BREEAM certification of Very Good.

The purpose of this report is to provide the design team and principal contractor with information relating to key actions required to achieve a successful certification. The design team should ensure that the design accounts for the BREEAM requirements identified. Where the standard specification and other construction specifications and drawings identify more onerous requirements, they will take precedence.

The implementation of the requirements shall be assessed and evaluated during the design and construction process and finalised on completion of the building by the BREEAM assessor. The principal contractor shall provide all the relevant evidence required for the assessor to review and determine if the evidence provided is sufficient to award each credit.

### **Disclaimer**

*This report has been prepared by C80 SOLUTIONS Ltd, using all reasonable skill, care and diligence on behalf of the consultant. The analysis and pre-assessment to which this report relates has been carried out in accordance with the strict quality requirements prescribed by the Building Research Establishment (BRE).*

*C80 SOLUTIONS Ltd has made use of evidence supplied by the design team. This has been both physical, e.g. documentation such as reports, drawings, plans, correspondence, etc. and verbal commitments from meetings, telephone calls, etc. C80 SOLUTIONS's professional liability is strictly limited to the provision of assessment services against criteria set out by BRE. The consultant accepts no responsibility for misinformation or inaccurate information supplied by any third party as part of this assessment.*

*This report has been prepared in accordance with the scope of C80 SOLUTIONS's appointment with its client and is subject to the terms of that appointment. It is addressed to and for the sole use of and reliance of C80 SOLUTIONS's client and only for the purposes stated in the report, for which it was prepared and provided. No person other than the client may copy (in whole or part) use or rely on the contents of this report, without prior written permission of the Company Secretary of C80 SOLUTIONS Ltd. Any advice, opinions or recommendations within this report should be read and relied upon only in the context of the document as a whole. The contents of this report are not to be construed as providing legal, business or tax advice or opinion.*

*If the reader disagrees with any statement or finds any information contained within this document to be inaccurate, C80 SOLUTIONS requests that the author is informed immediately.*

## 2 BREEAM Assessment Methodology

BREEAM (Building Research Establishment's Environmental Assessment Method) RFO is a voluntary scheme used to assess the environmental life cycle of refurbishment and fit out works on non-domestic buildings at the design and construction stages. It covers a range of different building types, including commercial (offices, industrial and retail), public (education, healthcare, prisons and law courts), multi-residential accommodation and a range of 'other' buildings including hotels, museums, community centres, conference halls, sports centres, transport hubs and research centres.

BREEAM Assessment criteria include (up to) fifty-one assessment issues, categorised in ten environmental sections of sustainability. Each issue defines a level of performance against which the assessed building demonstrates compliance, using appropriate evidence, in order to achieve the corresponding number of available BREEAM credits.

BREEAM RFO 2014 assessments are generally undertaken in two stages: firstly, the design stage, which leads to an Interim BREEAM certified rating; and secondly the post construction stage, which leads to a final BREEAM certified rating.

The full BREEAM technical guidance is available on request.

The BREEAM rating benchmarks for new construction projects assessed are as follows:

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

The BREEAM rating benchmarks enable a client and all other stakeholders to compare the performance of a newly constructed building with other BREEAM rated buildings, and the typical sustainability performance of a stock of new non-domestic buildings in the UK. In this respect each BREEAM rating broadly represents performance equivalent to:

BREEAM rating	% Score
Outstanding	Less than top 1% of UK domestic refurbishments (innovator)
Excellent	Top 10% of UK domestic refurbishments (best practice)
Very Good	Top 25% of UK domestic refurbishments (advanced good practice)
Good	Top 50% of UK domestic refurbishments (intermediate good practice)
Pass	Top 75% of UK domestic refurbishments (standard good practice)

BREEAM also sets minimum standards of performance in key areas. E.g., management, energy, water, waste, ecology etc. To achieve a particular BREEAM rating, the minimal overall percentage score and the minimum standards applicable to that rating must be complied with.

### 3 The BREEAM Process

Early awareness and implementation of the BREEAM requirements will enable the project team to adopt a consolidated approach to the environmental and sustainable aspects of a development. The most successful BREEAM projects are those where a BREEAM AP or BREEAM Assessor is engaged in the early stages to agree a brief that will:

- Suit the users of the building
- Satisfy all regulatory and BREEAM criteria
- Engage all project stakeholders and design team members
- Work on an agreed and realistic budget to keep costs under control.

A licensed **BREEAM Assessor** has a deep level of understanding and competency in the scheme for which they are licensed and monitored by BRE Global Ltd. Their role is to manage the formal assessment process, review evidence submitted by the project team for compliance and apply for certification of that assessment on behalf of the client.

The three key stages in BREEAM are:

**Pre-assessment** – A pre-assessment workshop takes place to outline the project, identify credit requirements, agree credits targeted, record commitments and agree a predicted score.

**Design Stage** – Credits are awarded as evidence is received from the project team and reviewed by the assessor. The assessor will update the report periodically throughout the project and issue to the design team on request. The assessor will submit the Design Stage/ Interim report to BRE for formal approval and certification on receipt of all compliant evidence.

**Post-construction Stage** – Following practical completion of the project, and receipt of ‘as built’ evidence from the project team, the assessor will conduct a site visit. The principal contractor will be responsible for the submission of all evidence required to obtain Post-construction Stage/ Final certification. The assessor will submit the Post-construction Stage/ Final report to BRE for formal approval and certification.

## 4 Overview

C80 SOLUTIONS was commissioned to provide BREEAM assessment services for a proposed refurbishment and development of 2 residential flats, created by change of use.

This appointment includes the setting and achievement of BREEAM performance targets for the project and the activity is undertaken during the feasibility stage (Stage 1, Preparation and Brief stage, as defined by the RIBA Plan of Work 2013 or equivalent). The defined BREEAM performance targets are then formally agreed no later than the Concept Design stage (RIBA Stage 2 or equivalent).

The appointment to monitor progress against the agreed BREEAM performance target(s) continues throughout the design process and progress is formally reported to the client and design team. The BREEAM AP attends key project/design team meetings during the Concept Design, Developed Design and Technical Design stages, as defined by the RIBA Plan of Work 2013, reporting during, and prior to, completion of each stage. The purpose of this appointment is to establish a realistic baseline for the development from which the design team can explore the options available to enhance its performance.

This pre-assessment sets out the recommended route to Very Good and identifies the most cost effective and low risk credits to target. As the project progresses some credits could be removed or added to the targeted list subject to approval from the client and wider design team (see below).

The pre-assessment report is designed to show, based on the information available and commitments provided, how the development is capable of achieving a BREEAM Very Good rating and to detail the next steps of the BREEAM assessment process.

## 5 Project Description

The proposed development is located at 12 High Street, Hampton Wick, Kingston upon Thames, KT1 4DB. The design incorporates the creation of 2 new residential apartments, located above an existing commercial unit. The 2 new units are located at High Street, Hampton Wick.

This pre-assessment considers the proposed refurbishment works and the associated areas within the site boundary. The analysis evaluates the proposed development against BREEAM requirements, and the impact of the existing site location and infrastructure.

It is recommended that in order to comfortably achieve a BREEAM Very Good rating, a score of 55% should be considered as the minimum target at this early stage in the development of the proposed scheme. This would provide a contingency to allow for unforeseen issues arising between now and the end of construction and also to allow for BRE's QA check of the final BREEAM certification assessment.

The design team advise that the proposed scheme is presently deemed to have reached but not completed RIBA Stage 4.

## 6 Pre-assessment workshops

A Stage 1 BREEAM pre-assessment workshop with the design team to talk through the BREEAM criteria took virtually. The workshop was used to develop a predicted score based on information available at that time. At the BREEAM workshop, all credits were reviewed and classified using a simple scheme to assess the ease, associated cost and likelihood with which they could be achieved by the proposed development. This provides a straightforward method for the design team to assess whether the target rating is achievable, and if so, the most cost effective options to achieve this rating.

The following members of the design team contributed to the standard store specification BREEAM workshop.

<b>BREEAM Workshop (1) Attendees</b>		
		Client Construction Consultant -
		Architecture
		Structural Engineering
		MEP
		BREEAM Assessor

After the workshop the design team was given a period of time to review the commitments made and to respond with any further comments or information. With the target rating agreed, the assessor has completed and issued the pre-assessment report based on the standard store specification.

As the scheme has progressed, site specific analyses have been undertaken and the design team has expanded to include the following members.

<b>BREEAM Workshop (2) Attendees</b>		
		Client
		Construction Architect
		Planning Consultant
		Transport Assessment and Travel Plan
		FRA and Drainage
		Ecology
		Air Quality
		Ground Investigation
		Acoustician External Noise
		Acoustician Internal Noise
		MEP
		BREEAM AP

Further consultation workshops have taken place with the design team where decisions have a direct and significant impact on the building's sustainability credentials and performance. These consultations have taken place before all the design and servicing options have been confirmed, and reflect the site location, existing infrastructure and proposed development against the evidential requirements of BREEAM.



## 7 Design Stage and Post-Construction Stage Assessments

This assessment will be monitored by Harry Hinchliffe through the BRE BREEAM Projects online internet platform and all evidence required for BREEAM certification must be submitted via this platform.

This enables the design team to issue regular BREEAM trackers to show responsibilities for achieving, information required to award and status of targeted credits.

### Substitute Credits

As described above, this pre-assessment sets out the recommended route to Very Good and identifies the most cost effective and low risk credits to target. As the project progresses some credits could be removed or added to the targeted list subject to approval from the project architect, L+ Architects.

If alternative credits to those specified are proposed, the principal contractor must submit details with the tender giving reasons for each proposed substitution. Substitutions, which have not been notified at tender stage, may not be considered.

For the avoidance of doubt, the principal contractor will be responsible for the submission of all evidence required to obtain Post-construction Stage/ Final certification. The principal contractor will be responsible for all post-construction testing.

## 8 Target BREEAM rating

A target rating of BREEAM Very Good would place the development nationally within the top 25% of UK domestic refurbishments.

The Pre-assessment Schedule (pages 13 onwards) shows the current predicted BREEAM score and rating.

The design team have undertaken an exercise to evaluate the measures required to achieve BREEAM Very Good. Potential additional credits over the standard model scheme were costed based on estimates from the various representatives of the design team. The analysis indicates that a predicted score of 55%+ for BREEAM Very Good could be achieved. However, this requires additional consultant reports and analyses and specification items over the standard model store with associated cost uplifts.

There are a number of credits that have been assumed at this stage that should be considered 'at risk', relying on analyses and activities further along the development lifecycle which may be lost if timescales are not adhered to or if actions are not carried out to BREEAM evidential requirements.

There are a number of additional credits not assumed at pre-assessment stage which may be gained at a later stage when further evidence is provide or if changes are made to the project.

As the predicted score is only just over the 55% needed for a Very Good rating the 'at risk' and additional credits should not be considered optional at this stage. To give some margin the design team should be aiming to achieve at least 60% in case any credits we have assumed in this pre assessment prove too difficult to achieve.

The pre-assessment schedule, at the end of this document, presents a route by which BREEAM Very Good could be achieved.

## 9 Early actions required to maximise BREEAM score

BREEAM outline at which RIBA stage credits should be addressed and ideally when these should be considered by the project team to achieve the highest possible BREEAM rating at the minimum cost. In certain BREEAM issues, BRE also stipulate the RIBA stage at which consultant appointment, consultation and analysis must have taken place. If these deadlines are missed and advice taken too late, the credit cannot be awarded and associated credits are also withheld.

## 10 Summary and recommendations

As described above, the BREEAM Assessment criteria include various assessment issues, categorised in ten environmental sections of sustainability. Each issue defines a level of performance against which the assessed building demonstrates compliance, using appropriate evidence, in order to achieve the corresponding number of available BREEAM credits.

The proposed scheme has been subject to a BREEAM pre-assessment and a suggested route to achieve Very Good has been identified.

The design team and principal contractor are required to review the credits associated with their discipline in more detail, noting that the required mandatory credits must be achieved to receive BREEAM certification. All BREEAM requirements will then be incorporated into the relevant contractual, sub-contractual and specification documentation.

It is recommended that all information should be submitted to the BREEAM Assessor as early as possible for certification.

A BREEAM rating of Very Good is considered viable for the site.

## 11 Pre-assessment Schedule

The following C80 SOLUTIONS BREEAM Domestic RFO 2014 pre-assessment schedule sets out the assumptions.

- BREEAM (Building Research Establishment's Environmental Assessment Method) is an environmental assessment method for buildings. It sets the standard for best practice in sustainable design and is used to describe a building's environmental performance.
- A BREEAM assessment includes ten categories of sustainability including; Management, Health & Wellbeing, Energy, Transport, Water, Materials, Waste, Land Use and Ecology, Pollution and Innovation.
- Credits are awarded in each of the ten categories according to performance. These credits are then added together to produce a single overall score on a scale of Pass, Good, Very Good, Excellent and Outstanding.
- To secure credits, evidence must be issued to the BREEAM Assessor demonstrating compliance with the credit criteria. Typically evidence will be in the form of drawings, specifications, reports, statements, letters etc.
- A BREEAM RFO assessment is a two stage assessment with a report produced at Design Stage and then Post Construction. Evidence is required at each stage to secure the BREEAM credits.
- Note that included in a BREEAM RFO 2014 assessment are Mandatory Credits which must be achieved to secure a particular rating regardless of the overall score. If the required minimum standards are not met, then the target rating will not be achieved regardless of the overall score.
- A copy of the BREEAM RFO 2014 Technical manual is available from the BREEAM Assessor on request which gives full details of all credits and compliance requirements relevant to this project. Full requirement details can also be found within the BREEAM RFO 2014 Technical manual.

		Available	Current	Comments
<b>Management</b>				
Man 01	Home Users Guide	3	3	
Man 02	Responsible construction practices	2	0	
Man 03	Construction Site Impacts	1	0	
Man 04	Security	2	1	
Man 05	Protection & Enhancement of Ecological Features	1	1	
Man 06	Project Management	2	0	
<b>Management Totals: (+exemplary)</b>		<b>9</b>	<b>5</b>	
<b>Management weighting totals:</b>		<b>12</b>	<b>5.45%</b>	
<b>Health &amp; Wellbeing</b>				
Hea 01	Daylighting	2	0	
Hea 02	Sound Insulation	4	2	
Hea 03	Volatile Organic Compounds	1	1	
Hea 04	Inclusive Design	2	0	
Hea 05	Ventilation	2	2	
Hea 06	Safety	1	1	
<b>Health &amp; Wellbeing Totals: (+exemplary)</b>		<b>13</b>	<b>6</b>	
<b>Health &amp; Wellbeing weighting totals:</b>		<b>17</b>	<b>8.50%</b>	
<b>Energy</b>				
Ene 01	Improvement In Energy Efficiency Rating	6	6	
Ene 02	Energy Efficiency Rating Post Refurbishment	4	3.5	
Ene 03	Primary Energy Demand	7	7	
Ene 04	Renewable Technologies	2	0	
Ene 05	Energy Labelled White Goods	2	2	
Ene 06	Drying Space	1	1	
Ene 07	Lighting	2	2	
Ene 08	Display Energy Devices	2	2	
Ene 09	Cycle Storage	2	0	
Ene 10	Home Office	1	1	
<b>Energy Totals: (+exemplary)</b>		<b>29</b>	<b>24.5</b>	
<b>Energy weighting totals:</b>		<b>43</b>	<b>36.33%</b>	
<b>Water</b>				
Wat 01	Internal Wall Use	3	1	
Wat 02	External Water Use	1	1	
Wat 03	Water Meter	1	0	
<b>Water Totals: (+exemplary)</b>		<b>5</b>	<b>2</b>	
<b>Water weighting totals:</b>		<b>11</b>	<b>4.40%</b>	

Materials				
Mat 01	Environmental Impact Of Materials	25	5	
Mat 02	Responsible Sourcing Of Materials	15	0	
Mat 03	Insulation	8	8	
<b>Materials Totals: (+exemplary)</b>		<b>48</b>	<b>13</b>	
<b>Materials weighting totals:</b>		<b>8</b>	<b>2.17%</b>	
Waste				
Was 01	Household Waste	2	2	
Was 02	Refurbishment Site Waste Management	3	0	
Wst 03	Operational waste	1	1	
Wst 05	Adaptation to climate change	1	0	
Wst 06	Design for disassembly and adaptability	1	0	
<b>Waste Totals: (+exemplary)</b>		<b>8</b>	<b>3</b>	
<b>Waste weighting totals:</b>		<b>3</b>	<b>1.20%</b>	
Pollution				
Pol 01	NOx Emissions	3	3	
Pol 02	Surface Water Runoff	3	0	
Pol 03	Flooding	2	0	
<b>Pollution Totals: (+exemplary)</b>		<b>12</b>	<b>8</b>	
<b>Pollution weighting totals:</b>		<b>6</b>	<b>2.5%</b>	
Innovation				
AI	Approved Innovation	10	2	
<b>Innovation Totals: (+exemplary)</b>		<b>0</b>	<b>0</b>	
<b>Innovation weighting totals:</b>		<b>10</b>	<b>2</b>	
<b>OVERALL SCORE TOTALS:</b>		<b>61</b>	<b>62.29%</b>	

\*Team to review and advise any amendments

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## 12 Appendix A BREEAM Minimum Standards

To achieve a BREEAM rating, the minimum percentage score (55%) must be achieved and the minimum standards applicable to that rating level (refer to the table below) must be complied with. The 'Very Good' related credits are highlighted, issues which cannot be compromised within the scope of the development.

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 <sub>2</sub> 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)
Ene 04: Low or zero	None	None	None	One credit	One credit

carbon technologies					
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

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