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# BREEAM Pre-Assessment Report Hall School – Godwin Scheme

UK16111-0300D-T039-RPT-ENV-01 REV 1

September 2022

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## APPENDIX A – EVIDENCE

## DISCLAIMER

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## DOCUMENT CONTROL

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Issue	Description	Date	Prepared By	Signed Off
0.0	Draft for Review	14/09/2022	Ben Pratt	Scott Smith
1.0	BREEAM NC v6	28/09/2022	Ben Pratt	Scott Smith

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## EXECUTIVE SUMMARY

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Dar Al-Handasah Consultants (Shair & Partners) (UK) Ltd (Dar) have been appointed to undertake a pre-assessment of the feasibility of achieving a BREEAM Certification for the construction of an extension to the Hall School in Camden

BREEAM is an environmental assessment method, certified by the Building Research Establishment. It sets a standard for sustainable building design that takes into account a variety of environmental factors including 'Health and Well Being', 'Energy' and 'Transport', amongst others.

The pre-assessment has drawn upon early stage design information. As a refurbishment, the appropriate method of assessment would be via the BREEAM UK New Construction v6 system, which is the current system for this type of development.

It should be noted that under BREEAM, there are certain mandatory requirements that have to be met to achieve a desired rating, a table within section 3.2 of this report identifies the minimum standards that are applicable to the desired rating.

The London Borough of Camden states that all developments in the borough should be compliant with the energy and sustainability requirements of the London Plan 2016, as well as Camden's Core Strategy and Development policies (including CC1: Climate Change Mitigation and CC2: Adapting to Climate Change).

### Next Steps:

1. The decision on whether to pursue formal BREEAM Certification should be made prior to the end of RIBA Stage 1. This will ensure that any 'time critical' credits (i.e. credits that must be completed before the end of a set RIBA stage) are available to the project, maximising the project's potential to obtain a rating.
2. In addition, the design team will have to consider any additional costs of meeting BREEAM requirements, including registration costs, consultancy fees, additional capital expenditure and BRE certification costs.
3. If a BREEAM rating is desired post-planning, a number of activities will be triggered; this will include design stage workshop(s) and the creation of a tracker document, to ease the team through the process. BREEAM requirements will need to be incorporated within the contractor prelims with support provided to ensure that those tendering for the project are fully aware of additional commitments.

# 1 BREEAM SUMMARY

## 1.1 BREEAM SCORECARD

The scorecard provides a summary score of the BREEAM rating, with an overall BREEAM rating of 71.20% calculated using the BRE online pre-assessment tool. In producing the report, Dar has presumed that all of the 'mandatory requirements' are, and will be achieved. The score of 71.20% with the mandatory requirements met gives BREEAM: Excellent rating.

Pre-assessment : Design (Interim) : test (Hall School NCv6)

BREEAM Rating					
	Credits available	Credits achieved	% Credits achieved	Weighting	Category score
Man	21.0	14.0	66.67%	11.00%	7.33%
Hea	18.0	13.0	72.22%	14.00%	10.11%
Ene	24.0	20.0	83.33%	16.00%	13.33%
Tra	12.0	7.0	58.33%	10.00%	5.83%
Wat	9.0	5.0	55.56%	7.00%	3.88%
Mat	14.0	8.0	57.14%	15.00%	8.57%
Wst	10.0	8.0	80.00%	6.00%	4.80%
LE	13.0	11.0	84.62%	13.00%	11.00%
Pol	12.0	8.0	66.67%	8.00%	5.33%
Inn	10.0	1.0	10.00%	10.00%	1.00%
Total	143.0	95.0	66.43%	-	71.20%
Rating	-	-	-	-	★★★★★ Excellent

Figure 1: BREEAM Scorecard

## 1.1 BASIS OF PRE-ASSESSMENT

- **The pre-assessment is not a guarantee of a rating under BREEAM.** Final ratings are provided by the Building Research Establishment (BRE). Evidence of compliance with BREEAM requirements is required. This must be provided to a licensed assessor, who will produce and submit their report to the BRE. The report and associated evidence is then subject to the BRE's Quality Assurance process.
- **The pre-assessment has been undertaken against SD5079: v1.0 of BREEM UK New Construction v6.** This is the current version of the standard. If a new version is released prior to assessment of the project this version would be used, along with any adaptations that feature within it.
- **Pre-assessment is subject to review.** Elementa has based the pre-assessment on credits that they believe to be achievable. A pre-assessment meeting will be scheduled with the design team to confirm these assumptions.
- **The scoring algorithm used by BREEAM automatically caps the BREEAM rating at the lowest of the 'Mandatory Requirements'** (i.e. if a building had a score of 90%, but only achieved the mandatory requirements for Good, it would get a rating of 50%).
- **The pre-assessment is not a guarantee of a rating under BREEAM.** Final ratings are provided by the Building Research Establishment (BRE). Evidence of compliance with BREEAM requirements is required. This must be provided to a licensed assessor, who will produce and submit their report to the BRE. The report and associated evidence is then subject to the BRE's Quality Assurance process

## 1.2 COSTS OF CERTIFICATION

At the time of writing, the costs of registration for a project (<500m<sup>2</sup>) under this scheme are as follows:

Registration:	£300
Design Interim Certification:	£1,140
<u>Post Construction Final Certification:</u>	<u>£375</u>
<b>Total:</b>	<b>£1,815</b>

The above costs do not include for consultancy and assessor services required to manage BREEAM documentation and support the team throughout the process. Furthermore, the costs are based on a project that is certified within 3 years of project registration, where this is not the case, the £375 Post Construction figure will increase. It does not allow for other fees the BRE may charge due to excessive technical queries, re-submission of QA reports, fast-tracking the QA report, or any other additional BRE service.

## 1.3 ACHIEVABLE BREEAM RATING

This BREEAM pre-assessment signifies the team's intention to target a BREEAM rating of Excellent (70%), and the team are committed to developing the BREEAM strategy as the project develops in order to achieve this rating upon completion of the project.

The current score that is being targeted is 71.20%. We would normally recommend that a 'buffer' is included above the threshold score, in order to provide a degree of safety if credits become unavailable as the project develops. This buffer is to be established by the project team when a more in depth BREEAM review can be carried out, to identify further achievable credits.

## 2 THE BREEAM STANDARD

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance.

### 2.1 SECTION OVERVIEW

A BREEAM assessment uses recognised measures of performance, which are set against established benchmarks, to evaluate a building's specification, design, construction and use. The measures used represent a broad range of issues and includes ten categories:



**Management** – This category encourages the adoption of sustainable management practices throughout all phases of the projects duration. Issues in this section focus on the integrating sustainable design through key stages from project conception to completion.



**Health and Wellbeing** – This category encourages designers to incorporate comfort, health and safety of the occupants and users of the building. The issues within the section aim to improve life quality within the building.



**Energy** – Within the energy section, BREEAM encourages energy efficient building solutions, systems and equipment. This is to support the sustainable use of energy, and associated management of energy during the buildings operation.



**Transport** – Encouraging access to sustainable transport for occupants influences the wider environment. There is a focus on accessibility of public transport and encouraging transport options that reduce car journeys, and hence congestion and emissions.



**Water** – The aim of this section is to encourage sustainable water use during the buildings operation. There is a focus on reducing water consumption through the specification of efficient features, as well minimising loss through leakage.



**Materials** – Reducing the impact of construction materials ensures they have a low embodied impact over their life cycle. The section also focuses on ensuring the materials are responsibly sourced.



**Waste** – Sustainable management of construction and operational waste encourages good design can optimise material reuse. Where materials cannot be re used, diverting them from landfill benefits the wider environment.



**Land Use & Ecology** – This section aims to encourage habitat protection and development. Improving the long-term biodiversity of the site.



**Pollution** – Addressing the prevention and control of pollution and surface water run-off. These factors are influenced by reducing impacts on surrounding communities and environments from light pollution, noise, flooding and emissions.



**Innovation** – Bonus credits can be obtained under innovation where exemplary performance is demonstrated. The category supports innovation with sustainability related benefits which are not rewarded elsewhere.



## 2.2 BREEAM SCORING

The ten categories are then broken down into specific criteria, each with a direct impact on environmental stress mitigation. These criteria measure and define these individual issues and range from a thorough review of water consumption to an assessment of light quality.

Each environmental issue has a set number of ‘credits’ available and these credits are awarded where the building demonstrates that it complies with the requirements of that issue. Each credit specifies a process for measuring individual aspects of the credit environmental impact and supporting it with the required documentation.

## 2.3 MINIMUM STANDARDS

Within these sections, there are certain pre-requisites that need to be met – these are mandatory requirements for various BREEAM ratings. Minimum standards for each rating can be seen below:

Minimum Standard by BREEAM rating level					
BREEAM Issue	Pass	Good	Very Good	Excellent	Outstanding
<b>MAN 03: Responsible Construction Practices</b>	None	None	None	One Credit (Considerate Construction)	Two Credits (Considerate Construction)
<b>MAN 04: Commissioning &amp; Handover</b>	None	None	None	Building User Guide	Building User Guide
<b>MAN 05: Aftercare</b>	None	None	None	Seasonal Commissioning	Seasonal Commissioning
<b>ENE 01: Reduction of energy use &amp; carbon emissions</b>	None	None	None	Five Credits (out of 12)	Eight Credits (out of 12)
<b>ENE 02: Energy Monitoring</b>	None	None	One Credit (First Sub-metering credit)	One Credit (First Sub-metering credit)	One Credit (First Sub-metering credit)
<b>WAT 01: Water Consumption</b>	None	One Credit (out of 5)	One Credit (out of 5)	One Credit (out of 5)	Two Credits (out of 5)
<b>WAT 02: Water Monitoring</b>	None	Mains Water Meter (Pulsed)	Mains Water Meter (Pulsed)	Mains Water Meter (Pulsed)	Mains Water Meter (Pulsed)
<b>MAT 03: Responsible Sourcing of Materials</b>	Legally Sourced Timber	Legally Sourced Timber	Legally Sourced Timber	Legally Sourced Timber	Legally Sourced Timber
<b>WST 01: Construction Waste Management</b>	None	None	None	None	One Credit (out of 4)
<b>WST 03: Operational Waste</b>	None	None	None	One Credit (out of 1)	One Credit (out of 1)
<b>LE03: Minimise impact on existing site ecology</b>	None	None	One Credit (out of 2)	One Credit (out of 2)	One Credit (out of 2)

## 2.4 ENVIRONMENTAL WEIGHTINGS

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

**Table 1 - BREEAM Scoring and Weighting (BREEAM-NC)**

Category	Weighting	Credits Available	Value of credit
Management	11%	21	0.48%
Health and Wellbeing	14%	18	0.78%
Energy	16%	24	0.67%
Transport	10%	12	0.83%
Water	7%	9	0.78%
Materials	15%	14	1.07%
Waste	6%	10	0.60%
Land Use and Ecology	13%	13	1.00%
Pollution	8%	12	0.87%
Innovation (additional)	10%	10	1.00%
<b>Total</b>	<b>110%</b>	<b>143</b>	

## 2.5 RATING BENCHMARKS

The BREEAM certification levels enable a client and all other stakeholders to compare the performance of a project with other BREEAM rated buildings in the UK. BREEAM consists of five certification levels to measure the project's impact - for example, a building that obtains a cumulative final score of 0.73 (73%) would achieve an 'Excellent' rating:

The BREEAM rating benchmarks for projects assessed using the v6 version of BREEAM UK New Construction (NC) are as follows:

**Table 2 – BREEAM Rating Benchmarks**

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

The certification will indicate the parts that have or have not been assessed along with the number of relevant credits assessed. This ensures that the scheme does not penalise projects for what may be outside of their control, yet also provides comparable performance across the property market.

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## 3 CONCLUSION

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This pre-assessment illustrates the score and rating that is believed to be feasible under the BREEAM UK New Construction v6 method of assessment. A score of 71.20% (BREEAM: Excellent) has been established as possible given the site and current design concept.

Formal assessment and certification of the ratings requires submission of design stage and post construction reports to the BRE. The aim would be to submit the interim design report at the end of RIBA Stage 4, and for the final construction report to be submitted during RIBA Stage 6.

We would normally recommend that a 2-5% buffer is included within the target score, giving protection against any credits that may become unachievable as the design develops. This allows the project to maximise chances of certification at both the interim design, and final construction stages of assessment.

With that in mind, discussion with the design team is desired to identify additional credits that are feasible, so a buffer over the target rating can be established.

If a BREEAM rating is pursued by the design team, the immediate next step would be to confirm the strategy, register the project with the BRE, and begin the Design Stage Assessment stage of the process.

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## **APPENDIX A – EVIDENCE**

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### **APPENDIX A – BRE PRE-ASSESSMENT SUMMARY**

## BREEAM UK New Construction Version 6

Hall School - Godwin Scheme  
Pre-assessment

28 September 2022      Assessment Report



Marks & Spencer's BREEAM Excellent Cheshire Oaks store (Image: Marks & Spencer)

## Assessment references

<b>Registration number:</b>	P22-10252	<b>Date created:</b>	9/9/2022
<b>Created by:</b>	Ben Pratt		

## Site details

**Site name:**

**Address:**

**Town:**

**County:**

**Post code:**

**Country:**


## Certificate details

The certificate will have the name of the architect (if entered above) and the name of the developer (from above).

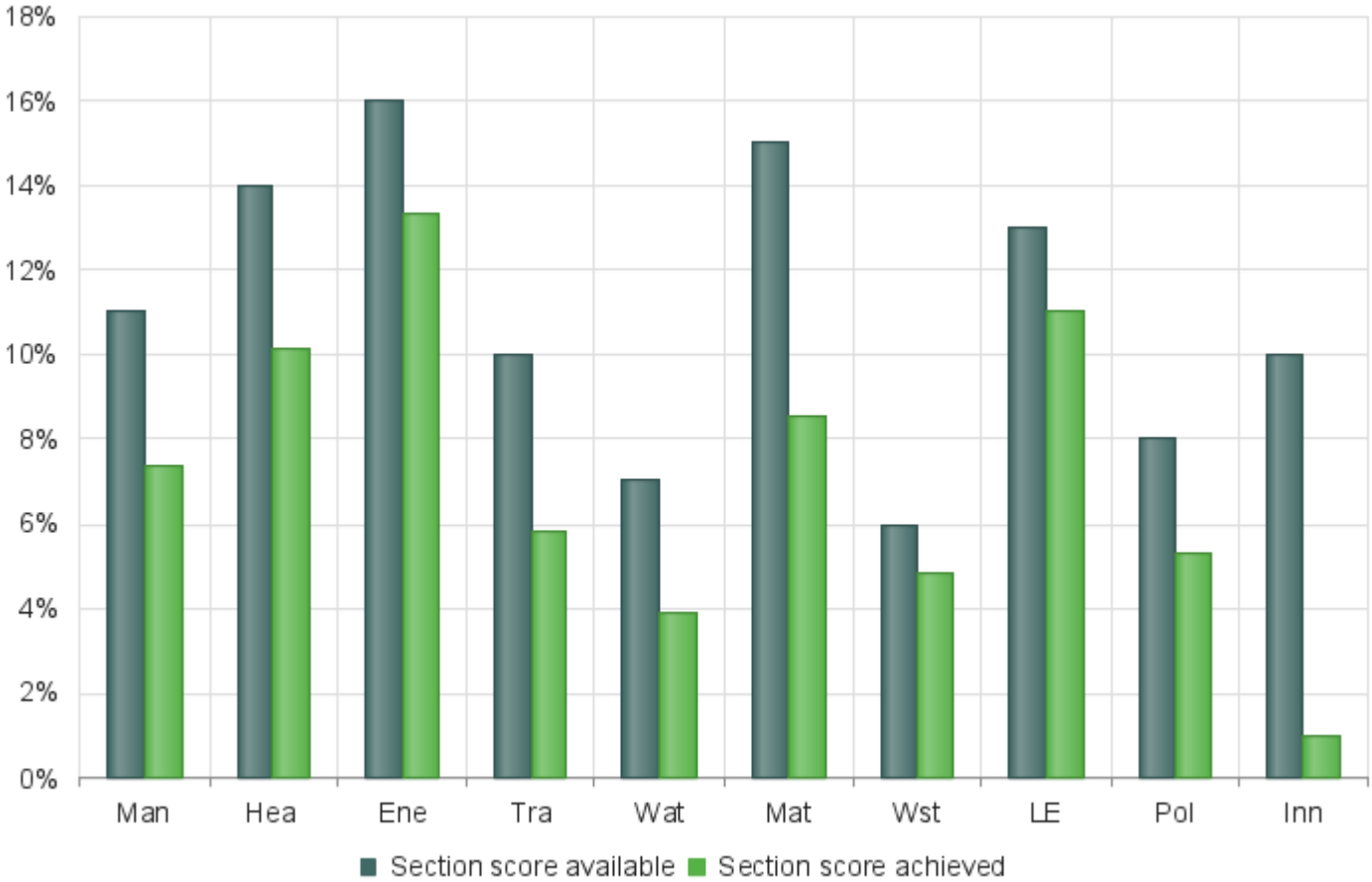
Any other names to appear on the certificate are listed below:

Name	Label
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## BREEAM Rating

	Credits available	Credits achieved	Credits targeted	% Credits achieved	Weighting	Category score	Target score
<b>Man</b>	21.0	14.0	14.0	66.67%	11.00%	7.33%	7.33%
<b>Hea</b>	18.0	13.0	13.0	72.22%	14.00%	10.11%	10.11%
<b>Ene</b>	24.0	20.0	20.0	83.33%	16.00%	13.33%	13.33%
<b>Tra</b>	12.0	7.0	7.0	58.33%	10.00%	5.83%	5.83%
<b>Wat</b>	9.0	5.0	5.0	55.56%	7.00%	3.88%	3.88%
<b>Mat</b>	14.0	8.0	8.0	57.14%	15.00%	8.57%	8.57%
<b>Wst</b>	10.0	8.0	8.0	80.00%	6.00%	4.80%	4.80%
<b>LE</b>	13.0	11.0	11.0	84.62%	13.00%	11.00%	11.00%
<b>Pol</b>	12.0	8.0	8.0	66.67%	8.00%	5.33%	5.33%
<b>Inn</b>	10.0	1.0	1.0	10.00%	10.00%	1.00%	1.00%
<b>Total</b>	143.0	95.0	95.0	66.43%	-	71.20%	71.20%
<b>Rating</b>	-	-	-	-	-	 <b>Excellent</b>	Excellent

Performance by environmental category





## Issue scores

Please Note: X means the exemplary credit for the relevant issue

### Management

Man 01 Project Brief and design

**2 / 4**

Man 02 Life cycle cost and service life planning

**1 / 4**

Man 03 Responsible construction practices

**5 / 6** X: 1 / 1

Man 04 Commissioning and handover

**3 / 4**

Man 05 Aftercare

**3 / 3**

### Health and Wellbeing

Hea 01 Visual comfort

**2 / 5** X: 0 / 2

Hea 02 Indoor air quality

**3 / 4** X: 0 / 1

Hea 04 Thermal comfort

**2 / 3**

Hea 05 Acoustic performance

**3 / 3**

Hea 06 Security

**1 / 1** X: 0 / 1

Hea 07 Safe and Healthy Surroundings

**2 / 2**

### Energy

Ene 01 Reduction of energy use and carbon emissions

**13 / 13** X: 0 / 5

Ene 02 Energy monitoring

**2 / 2**

Ene 03 External lighting

**1 / 1**

Ene 04 Low carbon design

**2 / 3**

Ene 05 Energy efficient cold storage

**N/A**

Ene 06 Energy efficient transportation systems

**N/A**

Ene 07 Energy efficient laboratory systems

**0 / 3**

Ene 08 Energy efficient equipment

**2 / 2**

## Transport

Tra 01 Transport assessment and travel plan

**2 / 2**

Tra 02 Sustainable transport measures

**5 / 10**

## Water

Wat 01 Water consumption

**3 / 5** X: 0 / 1

Wat 02 Water monitoring

**1 / 1**

Wat 03 Water leak detection

**1 / 2**

Wat 04 Water efficient equipment

**0 / 1**

## Materials

Mat 01 Life cycle impacts

**3 / 7** X: 0 / 3

Mat 02 Environmental impacts from construction products

**1 / 1**

Mat 03 Responsible sourcing

**2 / 4** X: 0 / 1

Mat 05 Designing for durability and resilience

**1 / 1**

Mat 06 Material efficiency

**1 / 1**

## Waste

Wst 01 Construction waste management

**4 / 5** X: 0 / 1

Wst 02 Use of recycled and sustainably sourced aggregates

**0 / 1** X: 0 / 1

Wst 03 Operational waste

**1 / 1**

Wst 04 Speculative finishes (Offices only)

**N/A**

Wst 05 Adaptation to climate change

**1 / 1** X: 0 / 1

Wst 06 Design for disassembly and adaptability

**2 / 2**

## Land use and ecology

LE 01 Site selection

**1 / 2**

LE 02 Ecological risks and opportunities

**2 / 2** X: 0 / 1

LE 03 Managing impacts on ecology

**3 / 3**

LE 04 Ecological change and enhancement

**3 / 4** X: 0 / 1

LE 05 Long term ecology  
management and  
maintenance

**2 / 2**

## Pollution

Pol 01 Impact of refrigerants

**1 / 3**

Pol 02 Local air quality

**2 / 2**

Pol 03 Flood and surface  
water management

**3 / 5**

Pol 04 Reduction of Night  
Time Light Pollution

**1 / 1**

Pol 05 Noise attenuation

**1 / 1**

## Innovation

Inn 01 Innovation

**0 / 0** X: 0 / 10

## Initial details

Technical manual issue number : Issue 0.0

Project scope : Fully fitted

Building type (main description) : Education

Sub-group : Schools and sixth form colleges

Assessment stage : Design (interim)

Building floor area (GIA) : 400 m<sup>2</sup>

Building floor area (NIFA) : 400 m<sup>2</sup>

Is the building designed to be untreated? : No

Building services - heating system type : Wet system

Building services - cooling system type : None

Does the building have external areas within the boundary of the assessed development? : No

Are commercial or industrial-sized refrigeration and storage systems specified? : No

Are building user lifts present? : No

Are building user escalators or moving walks present? : No

Are there any water demands present other than those assessed in Wat 01? : Yes

Are there statutory requirements, or other issues outside of the control of the project, that impact the ability to provide outdoor space : No

Are there any systems specified that contribute to the unregulated energy load? : Yes

Are the Post-occupancy evaluation credits targeted in Ene 01 issue? : Yes

Are laboratories present? : Yes

What % of total building area do laboratories represent? : >= 10% but < 25% of total area

Are there fume cupboard(s) and/or other containment devices present? : Yes

## Category assessment

### Management (Man)

#### Man 01 Project Brief and design

To optimise final building design through recognising and encouraging an integrated design process and robust stakeholder engagement.

##### Assessment criteria

Stakeholder consultation (interested parties) :	Yes
Project delivery planning :	Yes
Prerequisite: Have the client and the contractor formally agreed performance targets? :	Yes
BREEAM Advisory Professional (Concept Design) :	No

**Credits awarded : 2**

#### Man 02 Life cycle cost and service life planning

To promote the business case for sustainable buildings and to deliver whole life value by encouraging the use of life cycle costing to improve design, specification, through-life maintenance and operation.

##### Assessment criteria

Elemental LCC :	
Component level LCC options appraisal :	
Capital cost reporting :	Yes
Capital cost of the project :	5 Â£k/m <sup>2</sup>

**Credits awarded : 1**

#### Man 03 Responsible construction practices

To recognise and encourage construction sites which are managed in an environmentally and socially considerate, responsible and accountable manner.

##### Assessment criteria

Prerequisite: Are all timber and timber-based products used during the	Yes
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construction process of the project 'legally harvested and traded timber'? :	
Environmental management :	Yes
Prerequisite: Have the client and the contractor formally agreed performance targets? :	Yes
BREEAM Advisory Professional (site) :	No
Responsible construction management :	2
Monitoring of construction site impacts :	Yes
Utility consumption :	Yes
Transport of construction materials and waste :	Yes
Exemplary level criteria - Responsible construction management :	Yes

#### Key Performance Indicators: Construction site energy use

Energy consumption (total) - site processes :	544 kWh
Energy consumption (intensity) - site processes :	54 kWh/project value

#### Key Performance Indicators: Construction site greenhouse gas emissions

Process greenhouse gas emissions (total) - site processes :	54 KgCO <sub>2</sub> eq
Carbon dioxide emissions (intensity) - site processes :	54 KgCO <sub>2</sub> eq/project value

**Credits awarded : 5**

**Exemplary credits awarded : 1**

## Man 04 Commissioning and handover

To encourage a properly planned handover and commissioning process that reflects the needs of the building occupants.

#### Assessment criteria

Commissioning testing schedule and responsibilities :	Yes
Commissioning - design and preparation :	Yes
Testing and inspecting building fabric :	
Handover - have a technical and a non-technical building user guide been developed prior to handover? :	Yes

Handover - have a technical and a non-technical training schedule been prepared around handover? : Yes

**Credits awarded : 3**

## Man 05 Aftercare

To ensure the building operates in accordance with the design intent and operational demands, through providing aftercare to the building owner and occupants during the first year of occupation.

### Assessment criteria

Is this a speculative development? :

Aftercare support : Yes

Commissioning - implementation : Yes

Post occupancy evaluation : Yes

The client or building occupier commits funds to pay for the POE in advance. : Yes

**Credits awarded : 3**



## Health and Wellbeing (Hea)

### Hea 01 Visual comfort

To encourage best practice in visual performance and comfort by ensuring daylighting, artificial lighting and occupant controls are considered.

#### Assessment criteria

Control of glare from sunlight : Yes

Daylighting (building type dependent) : 0

View Out :

Internal and external lighting levels, zoning and controls : Yes

Exemplary level criteria- Internal and external lighting levels, zoning and control :

**Credits awarded : 2**

### Hea 02 Indoor air quality

To encourage and support healthy internal environments with good indoor air quality.

#### Assessment criteria

Prerequisite: Indoor air quality (IAQ) plan : Yes

Are you complying with the Ventilation criteria? : Yes

Emissions from construction products : 2

Sampling of TVOC and formaldehyde levels in post-construction : No

Exemplary level criteria: Emissions from construction products :

#### Key Performance Indicators

Formaldehyde concentration :  $3.0 \hat{1}\frac{1}{4}\text{g/m}^3$

Total volatile organic compound (TVOC) concentration :  $3.0 \hat{1}\frac{1}{4}\text{g/m}^3$

**Credits awarded : 3**

### Hea 04 Thermal comfort

To ensure the building is capable of providing an appropriate level of thermal comfort.

#### Assessment criteria

Thermal modelling : Yes

Design for future thermal comfort :

Thermal zoning and controls : Yes

**Credits awarded : 2**

## Hea 05 Acoustic performance

To ensure the building is capable of providing an appropriate acoustic environment to provide comfort for building users.

#### Assessment criteria

Criteria performance requirements or SQA bespoke requirements? : Criteria performance requirements

Sound insulation : 1

Indoor ambient noise level : Yes

Room acoustics : Yes

**Credits awarded : 3**

## Hea 06 Security

To encourage the planning and implementation of effective measures that provide an appropriate level of security to the building and site.

#### Assessment criteria

Security of site and building : Yes

Exemplary level criteria :

**Credits awarded : 1**

## Hea 07 Safe and Healthy Surroundings

To encourage the provision of safe access around the site and outdoor space that enhances the wellbeing of building users. .

**Assessment criteria**

Safe Access : Yes

Outside Space : Yes

**Credits awarded : 2**

# Energy (Ene)

## Ene 01 Reduction of energy use and carbon emissions

To minimise operational energy demand, primary energy consumption and CO<sub>2</sub> emissions.

### Energy performance

Country :	England
Upload building '_brukl.inp' file :	Hall-School---Be-Gre
Is space heating provided by a district (network) heating? :	No

### Towards carbon negative (exemplary credits)

Zero net CO <sub>2</sub> -eq emissions :	No
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### Energy performance - Building score

Heating and cooling demand energy performance ratio (EPRdem) :	0.327
Primary consumption energy performance ratio (EPRpc) :	0.327
CO <sub>2</sub> -eq energy performance ratio (EPRco2-eq) :	0.327
Overall building energy performance ratio (EPRnc) :	0.98
Total BREEAM credits achieved :	9.0

### Prediction of operational energy consumption

Has a passive design analysis been carried out? :	Yes
Have you undertaken detailed energy modelling (including scenario analysis) to predict operational energy consumption? :	Yes
Have you reported predicted energy consumption targets? :	Yes
Have you demonstrated that scenario analysis has informed improvements to the design, operational, maintenance and handover strategies? :	Yes

### Post-occupancy evaluation (exemplary credits)

Has the maximum credit score been achieved in Ene 02 Energy monitoring? :	Yes
Has the client or building occupier committed funds to pay for the post-occupancy evaluation? :	Yes
Has the energy model been submitted to BRE or retained by the building owner/named third party? :	

### Credits awarded : 13

## Ene 02 Energy monitoring

To encourage the installation of energy sub-metering that facilitates the monitoring of operational energy consumption. To enable managers and consultants post-handover to compare actual performance with targets in order to inform ongoing management and help in reducing the performance gap.

### Assessment criteria

Sub-metering of end use categories :	Yes
Sub-metering of high energy load and tenancy areas :	Yes

**Credits awarded : 2**

## Ene 03 External lighting

To reduce energy consumption through the specification of energy efficient light fittings for external areas of the development.

### Assessment criteria

External lighting has been designed out? :	No
Is external lighting specified in accordance with the relevant criteria? :	Yes

**Credits awarded : 1**

## Ene 04 Low carbon design

To encourage the adoption of design measures, which reduce building energy consumption and associated carbon emissions and minimise reliance on active building services systems.

### Assessment criteria

Has the first credit within Hea 04 been achieved? :	Yes
Passive design analysis :	Yes
Free cooling :	
Low and zero carbon technologies :	Yes

### KPI

Total on-site and/or near-site LZO energy generation :

Expected energy consumption and CO<sub>2</sub>-eq emissions reduction resulting from passive design measures :

Expected energy consumption and CO<sub>2</sub>-eq emissions reduction resulting from passive design measures as a percentage :

Expected reduction in CO<sub>2</sub>-eq emissions resulting from the LZC technologies :

Expected reduction in CO<sub>2</sub>-eq emissions resulting from the LZC technologies as a percentage :

: 2

**Credits awarded**

## Ene 05 Energy efficient cold storage

To encourage the installation of energy efficient refrigeration systems, in order to reduce operational greenhouse gas emissions resulting from the system's energy use.

**Assessment criteria - N/A**

## Ene 06 Energy efficient transportation systems

To encourage the specification of energy efficient transport systems within buildings.

**Assessment criteria - N/A**

## Ene 07 Energy efficient laboratory systems

To encourage laboratory areas that are designed to minimise their operational energy consumption and associated CO<sub>2</sub> emission

**Assessment criteria**

Design specification :

Laboratory containment devices and containment areas :

Best practice energy efficient measures (table 33) :

**Credits awarded : 0**

## Ene 08 Energy efficient equipment

To encourage installation of energy efficient equipment to ensure optimum performance and energy savings in operation

### Assessment criteria

Swimming pool present? :

Laundry facilities with commercial-sized appliances present? :

Data centre present? :

IT-intensive operating areas present? : Yes

Major impact? : Yes

Domestic scale appliances (individual and communal facilities) present? : Yes

Major impact? : Yes

Healthcare equipment present? :

Kitchen and catering facilities present? :

Other contributors :

Significant majority contributors BREEAM compliant : Yes

**Credits awarded : 2**

## Transport (Tra)

### Tra 01 Transport assessment and travel plan

To reward awareness of existing local transport and identify improvements to make it more sustainable.

#### Assessment criteria

Travel plan :	Yes
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**Credits awarded : 2**

### Tra 02 Sustainable transport measures

To maximise the potential for local public, private and active transport through provision of sustainable transport measures appropriate to the site.

#### Assessment criteria

Prerequisite :	Yes
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Location type (based on existing AI) :	AI <25
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Number of points achieved overall :	5
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**Credits awarded : 5**



# Water (Wat)

## Wat 01 Water consumption

To reduce the consumption of potable water for sanitary use in new buildings through the use of water efficient components and water recycling systems.

### Assessment criteria

Please select the calculation procedure used : Standard approach

Credits awarded : 3

Exemplary performance :

### Key Performance Indicators

Standard approach data: :

Water Consumption from building micro-components :

Water demand met via greywater/rainwater sources :

Total net water consumption :

Improvement on baseline performance :

Key Performance Indicator - use of freshwater resource: :

Total net Water Consumption :

Default building occupancy :

**Credits awarded : 3**

## Wat 02 Water monitoring

To reduce the consumption of potable water in new buildings through the effective management and monitoring of water consumption.

### Assessment criteria

Water meter on the mains water supply to each building : Yes

Sub-metering/monitoring equipment on supply to plant/building areas : Yes

Pulsed output or other open protocol communication output and BMS Yes

connection :

The water monitoring strategy used enables the identification of all water consumption for sanitary uses as assessed under Wat 01 (L/person/day) :

**Credits awarded : 1**

## Wat 03 Water leak detection

To reduce the consumption of potable water in new buildings through minimising wastage due to water leaks.

### Assessment criteria

Leak detection system :	No
Flow control devices :	Yes

**Credits awarded : 1**

## Wat 04 Water efficient equipment

To reduce water consumption for uses not assessed under Wat 01 by encouraging specification of water efficient equipment.

### Assessment criteria

Water efficient consumption :

**Credits awarded : 0**

# Materials (Mat)

## Mat 01 Life cycle impacts

To reduce the burden on the environment from construction products by recognising and encouraging measures to optimise construction product consumption efficiency and the selection of products with a low environmental impact (including embodied carbon), over the life cycle of the building.

### Assessment criteria

Total Mat 01 credits achieved - taken from the Mat 01/02 Results 3

Submission Tool :

Total Exemplary credits achieved - taken from the Mat 01/02 Results 0

Submission Tool :

**Credits awarded : 3**

## Mat 02 Environmental impacts from construction products

To encourage availability of robust and comparable data on the impacts of construction products through the provision of EPD.

### Assessment criteria

Mat 02 credit achieved - Taken from the Mat 01/02 Results Submission 1

Tool. :

**Credits awarded : 1**

## Mat 03 Responsible sourcing

To facilitate the selection of products that involve lower levels of negative environmental, economic and social impact across their supply chain including extraction, processing and manufacture.

### Assessment criteria

Prerequisite: All timber and timber based products are 'Legally harvested and traded timber' : Yes

Has the enabling sustainable procurement credit been achieved? : Yes

Mat 03 minimum scope level : Superstructure

Percentage of available for percentage of RSM points achieved : 20 %

**Credits awarded : 2**

## Mat 05 Designing for durability and resilience

To reduce the need to repair and replace materials resulting from damage to exposed elements of the building and landscape.

### Assessment criteria

Protecting vulnerable parts of the building from damage and exposed parts Yes  
of the building from material degradation :

**Credits awarded : 1**

## Mat 06 Material efficiency

To avoid unnecessary materials use arising from over specification without compromising structural stability, durability or the service life of the building.

### Assessment criteria

Material optimisation measures investigated and implemented at all Yes  
relevant stages :

**Credits awarded : 1**

# Waste (Wst)

## Wst 01 Construction waste management

To reduce construction waste by encouraging reuse, recovery and best practice waste management practices to minimise waste going to landfill.

### Assessment criteria

Is demolition occurring under the developer's ownership for the purpose of enabling the assessed development? : Yes

Pre-demolition audit : Yes

Compliant Resource Management Plan : Yes

Have waste materials been sorted into separate key waste groups? : Yes

Exemplary level criteria :

### KPI

Measure/units for the data being reported : tonnes

Non-hazardous construction waste (excluding demolition/excavation) - fill in to award 'Construction resource efficiency' credits : 6.5 tonnes/100m2

Total non-hazardous construction waste generated :

Non-hazardous non-demolition construction waste diverted from landfill - fill in to award diversion from landfill credit : 95 %

Total non-hazardous non-demolition construction waste diverted from landfill :

Non-hazardous demolition waste diverted from landfill - fill in to award diversion from landfill credit : 95 %

Total non-hazardous demolition waste generated :

Total non-hazardous demolition waste to disposal :

Non-hazardous excavation waste diverted from landfill - fill in to award credit : 95 %

Material for reuse :

Material for recycling :

Material for energy recovery :

Hazardous waste to disposal :

**Credits awarded : 4**

## Wst 02 Use of recycled and sustainably sourced aggregates

To encourage the use of more sustainably sourced aggregates, encourage reuse where appropriate and avoid waste and pollution arising from disposal of demolition and other forms of waste.

### Assessment criteria

Is demolition occurring under the developer's ownership for the purpose of enabling the assessed development? : Yes

Pre-requisite: pre-demolition audit :

**Credits awarded : 0**

## Wst 03 Operational waste

To encourage the recycling of operational waste through the provision of dedicated storage facilities and space.

### Assessment criteria

Compliant recycling and non-recyclable waste storage allocated : Yes

Static waste compactor(s) or baler(s) : N/A

Vessel(s) for composting suitable organic waste and water outlet : N/A

**Credits awarded : 1**

## Wst 04 Speculative finishes (Offices only)

To minimise the wastage associated with the installation of floor and ceiling finishes in lettable areas in speculative buildings where tenants have not been involved in their selection.

**Assessment criteria - N/A**

## Wst 05 Adaptation to climate change

To minimise the future need of carrying out works to adapt the building to take account of more extreme weather changes resulting from climate change and changing weather patterns.

### Assessment criteria

Resilience of structure, fabric, building services and renewables installation Yes

:  
Exemplary level - responding to climate change :

**Credits awarded : 1**

## Wst 06 Design for disassembly and adaptability

To avoid unnecessary materials use, cost and disruption arising from the need for future adaptation works as a result of changing functional demands and to maximise the ability to reclaim and reuse materials at final demolition in line with the principles of a circular economy.

### Assessment criteria

Design for disassembly and functional adaptability - recommendations :      Yes

Disassembly and functional adaptability - implementation :                              Yes

**Credits awarded : 2**

# Land use and ecology (LE)

## LE 01 Site selection

To encourage the use of previously occupied or contaminated land and avoid land which has not been previously disturbed.

### Assessment criteria

Percentage of proposed development's footprint on previously occupied land: : 100 %  
Contaminated land :

**Credits awarded : 1**

## LE 02 Ecological risks and opportunities

To determine the existing ecological value associated with the site and surrounding areas, and the risks and opportunities for ecological protection and enhancement.

### Assessment criteria

Assessment route selection : Comprehensive  
Prerequisite - Statutory obligations : Yes  
Survey and Evaluation : Yes  
Determining ecological outcomes : Yes  
Exemplary level - Wider site sustainability :

**Credits awarded : 2**

## LE 03 Managing impacts on ecology

To avoid, or limit as far as possible, negative ecological impacts associated with the site and surrounding areas resulting from the project.

### Assessment criteria

Assessment route : Comprehensive  
Prerequisite - Ecological risks and opportunities : Yes  
Planning and measures on-site : Yes



Managing negative impacts :	2
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**Credits awarded : 3**

## LE 04 Ecological change and enhancement

To enhance ecological value of the area associated with the site in support of local, regional and national priorities.

### Assessment criteria

Assessment route :	Comprehensive
Prerequisite - Managing negative impacts on ecology :	Yes
Ecological enhancement (Comprehensive route only) :	Yes
Change and enhancement of ecology (Comprehensive route only) :	2

**Credits awarded : 3**

## LE 05 Long term ecology management and maintenance

To secure ongoing monitoring, management and maintenance of the site and its habitats and ecological features, to ensure intended outcomes are realised for the long term.

### Assessment criteria

Assessment route :	Comprehensive
At least one credit achieved under LE 04 for 'Change and Enhancement of Ecology' :	Yes
Prerequisite - Statutory obligations, planning and site implementation :	Yes
Management and maintenance throughout the project :	Yes
Landscape and ecology management plan :	Yes

**Credits awarded : 2**

## Pollution (Pol)

### Pol 01 Impact of refrigerants

To reduce the level of greenhouse gas emissions arising from the leakage of refrigerants from building systems.

#### Assessment criteria

Refrigerant containing systems installed in the assessed building? :	Yes
Prerequisite: All systems (with electric compressors) comply with BS EN 378:2016 (parts 2 and 3) and (where applicable) Institute of Refrigeration Ammonia Refrigeration Systems code of practice? :	Yes
Total Direct Effect Life Cycle CO <sub>2</sub> eq (DELCO). Emissions from the system : Global Warming Potential (GWP) of the specified refrigerant(s) 10 or less? :	200 kgCO <sub>2</sub> eq/kW

#### Leak detection

Are all the systems hermetically sealed? :

**Credits awarded : 1**

### Pol 02 Local air quality

To contribute to a reduction in local air pollution through the use of low emission combustion appliances in the building.

#### Assessment criteria

Is the project required to connect to a District Heating system, and it supplies all heating and hot water demands to the building? :	No
How many credits have been achieved? :	2

**Credits awarded : 2**

### Pol 03 Flood and surface water management

To avoid, reduce and delay the discharge of rainfall to public sewers and watercourses, thereby minimising the risk and impact of localised flooding on-site and off-site, watercourse pollution and other environmental damage.

#### Assessment criteria

Prerequisite: Has an appropriate consultant demonstrated and confirmed the development's compliance with all criteria? :	Yes
Has a site-specific flood risk assessment been conducted? :	Yes

Annual probability of flooding :	Low
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Has the pre-requisite for the Surface Water Run-Off credits been achieved? :	Yes
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Has the Surface Water Run-Off - Rate credit been achieved? :	Yes
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Has the Surface Water Run-Off - Volume credit been achieved? :	
--	--

Minimising watercourse pollution :	
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**Credits awarded : 3**

## Pol 04 Reduction of Night Time Light Pollution

To ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.

### Assessment criteria

External lighting has been designed out? :	No
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Does external lighting meet all relevant criteria? :	Yes
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**Credits awarded : 1**

## Pol 05 Noise attenuation

To reduce the likelihood of noise arising from fixed installations on the new development affecting nearby noise-sensitive buildings.

### Assessment criteria

Noise-sensitive areas/buildings within 800m radius of the development :	Yes
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Is the site compliant with all relevant criteria? :	Yes
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**Credits awarded : 1**

# Innovation (Inn)

Inn 01 Innovation	
To support innovation within the construction industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.	
Assessment criteria	
Number of 'approved' innovation credits achieved? :	0
Credits awarded : 0	

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