

HELMSLEY HOUSE CARE HOME

BREEAM NEW CONSTRUCTION 2018: PRE-ASSESSMENT REPORT



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HELMSLEY HOUSE
CARE HOME
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REPORT

Document Status

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Prepared by:

Prepared for:

RPS Consulting Services Ltd

Russell Pitter
Senior BREEAM Assessor

Streate Place, St Peters Road
Bournemouth, Dorset BH1 2LT

T 01202 208012
E russell.pitter@rpsgroup.com

Brackley Investments Limited

David Brill
Director

Unit 6, Lower Farm Barns
Bainton Road, Bucknell, Bicester, OX27 7LT

T 01869 244848
E david.brill@brackley-investments.co.uk

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EXECUTIVE SUMMARY

RPS has been commissioned by Brackley Investments Limited to produce a BREEAM 2018 Pre-Assessment for the construction of a new 64 bed residential care home.

It is our understanding that local planning policy requires an Excellent BREEAM rating to be achieved.

This report is based on information received to date, detailed within the main body of the report and a BREEAM Pre-Assessment meeting held with the design team dated 20/05/20. Where specific information was not available, assumptions have been made in order to set up the BREEAM strategy.

This report outlines the credit strategy to be followed by the development in order to achieve the required BREEAM rating. If the strategy outlined in this report is followed together with the suggested recommendations it is considered that the development can achieve an 'Excellent' BREEAM rating. The full credit strategy for the report is detailed within the Section 5 of the report.

1.0 INTRODUCTION

This report outlines the sustainable design principles of the scheme in relation to the BREEAM New Construction 2018 requirements.

The development will be assessed under the BREEAM New Construction 2018 'Multi-Residential' version of the methodology and it is our understanding that a minimum of BREEAM 'Excellent' is required.

BREEAM assessment and certification is generally carried out in three phases:

- A preliminary assessment to set up the strategy to meet the BREEAM target.
- An initial assessment and interim certification is carried out at the design stage
- Final assessment and certification is carried out after construction.

A BREEAM assessment measures the sustainability of a development against design categories, rating the design and construction process as a whole package. The categories included within a BREEAM assessment are:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Ecology
- Pollution

BREEAM has a scoring system of six levels. The different levels are made up by achieving both the appropriate mandatory minimum standards together with a proportion of the other credits so that a score is achieved. The scores required for the corresponding ratings are summarised in the table below.

BREEAM rating	Points score
Unclassified	< 30
Pass	≥ 30
Good	≥ 45
Very Good	≥ 55
Excellent	≥ 70
Outstanding	≥ 85

Table 1: BREEAM rating scoring system

BREEAM Pre-Assessment

This Pre-Assessment follows the guidance set out in the BREEAM NC 2018 technical manual, and thus the resulting score is based on version (SD5078 3.0).

The details for each category in the environmental ratings are in the completed Pre-Assessment below together with details of how the development intends to achieve this. This BREEAM pre-assessment has been completed based upon a review of the plans and the reports that form part of the planning submission.

The rating obtained by using this BREEAM Pre-Assessment is for guidance only. The predicted ratings may differ from those obtained through a formal assessment, which will be carried out by an appropriately licensed BREEAM assessor. Advice should be sought from a licensed assessor at an early stage in a project to ensure the estimated rating will be obtained.

Design Stage Review

Design specifications are assessed for each individual building, before construction begins. A rating is determined, and (subject to quality assurance) a Design Stage or Interim Certificate is awarded for each building. Registered assessors can apply for assessment of a site, compile and submit a design report for assessment and monitor the assessment status online.

Post Construction Stage Review

The Post Construction Stage (PCS) assessment confirms that buildings have either been built to the Design Stage specifications or to (documented) variations from the Design Stage. Variations must be re-assessed so that new scores and BREEAM levels can be calculated for each affected building. Where a Design Stage assessment has been undertaken, it is used to inform the PCS assessment.

2.0 SUMMARY OF PREDICTED SCORE

The tables in the following section set out the predicted BREEAM score likely to be achieved for the proposed development, based on the commitments and assumptions from the design team. Overall, it is predicted that the proposed development should achieve a score of **60.02%**, thereby achieving an '**Very Good**' rating. Note for an 'Excellent' rating a score of at least 70% is required

BREEAM Rating					
	Credits available	Credits achieved	% Credits achieved	Weighting	Category score
Man	21.0	13.0	61.90%	11.00%	6.80%
Hea	19.0	13.0	68.42%	14.00%	9.57%
Ene	23.0	13.0	56.52%	16.00%	9.04%
Tra	12.0	7.0	58.33%	10.00%	5.83%
Wat	9.0	6.0	66.67%	7.00%	4.66%
Mat	14.0	6.0	42.86%	15.00%	6.42%
Wst	9.0	7.0	77.78%	6.00%	4.66%
LE	13.0	8.0	61.54%	13.00%	8.00%
Pol	12.0	6.0	50.00%	8.00%	4.00%
Inn	10.0	1.0	10.00%	10.00%	1.00%
Total	142.0	80.0	56.34%	-	60.02%
Rating	-	-	-	-	 Very Good

Figure 1: Predictive Score

3.0 RECOMMENDATIONS TO ACHIEVE EXCELLENT

Credit reference	Criteria / Comment
Hea 01 Internal lighting exemplar level	Requirements are that lighting in each zone can be manually dimmed by occupants down to 20% of the maximum light output using dimmer switches positioned in accessible locations. Credit weighted 1%. Cost TBC.
Mat 01 Life Cycle Impacts	Consultant to undertake a building Life Cycle Assessment (LCA) options appraisal of 4 significantly different superstructure design options and 6 different substructure & hard landscaping options using IMPACT compliant software to appraise the different environmental impacts of each design using a building LCA tool that is recognised by BREEAM. 7 credits weighted at 1.07% each plus 1 exemplar level credit weighted at 1%. Total 8.49%. Approximate cost is £7,000
Pol 01 Impact of refrigerants	If systems using refrigerants have a DELC of $\leq 1000\text{kgCO}_2\text{-eq/kW}$ cooling and heating capacity then 1 additional credit would be achieved. If a refrigerant leak detection system is included then an additional credit would be achieved. Total 2 credits weighted at a combined 1.34%. Cost TBC.
Pol 02 Local air quality	If the heating and hot water source is by gas boilers an additional credit could be achieved if the specified NOx emissions of the boilers are below 27mg/kWh. Credit weighted 0.67%. Cost TBC.
Pol 05 Reduction of noise pollution	Background noise survey to be undertaken. The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night. Credit weighted 0.67%. Cost TBC.

4.0 SCORE IF RECOMMENDATIONS INCLUDED

BREEAM Rating					
	Credits available	Credits achieved	% Credits achieved	Weighting	Category score
Man	21.0	13.0	61.90%	11.00%	6.80%
Hea	19.0	13.0	68.42%	14.00%	9.57%
Ene	23.0	13.0	56.52%	16.00%	9.04%
Tra	12.0	7.0	58.33%	10.00%	5.83%
Wat	9.0	6.0	66.67%	7.00%	4.66%
Mat	14.0	13.0	92.86%	15.00%	13.92%
Wst	9.0	7.0	77.78%	6.00%	4.66%
LE	13.0	8.0	61.54%	13.00%	8.00%
Pol	12.0	10.0	83.33%	8.00%	6.66%
Inn	10.0	3.0	30.00%	10.00%	3.00%
Total	142.0	93.0	65.49%	-	72.19%
Rating	-	-	-	-	 Excellent

In addition, performance against the minimum standards required for an Excellent rating under each scenario is summarised below. If the required minimum standards are not met, then the target rating will not be achieved regardless of overall score.

Issue	Minimum / Mandatory Requirements Targeted
Man 03 – Responsible construction practices – Need to achieve at least 1 credit for responsible construction management	Yes
Man 04 – Commissioning & handover – Need to achieve the credit for commissioning test schedule & responsibilities	Yes
Man 04 – Commissioning & handover – Need to produce a Building User Guide	Yes
Ene 01 – Reduction of energy use and carbon emissions – Need to achieve at least 4 credits for energy performance or prediction of operational energy consumption	Yes
Ene 02 – Energy Monitoring – Installation of energy sub-metering that facilitates the monitoring of operational energy consumption	Yes
Wat 01 – Installation of efficient water-consuming components that result in a 12.5% improvement over baseline building water consumption	Yes
Wat 02 – Water Monitoring – Installation of a water meter on each mains water supply to each building (criterion 1).	Yes
Mat 03 – Responsible Sourcing of Materials – All timber and timber-based products used on the project are to be legally harvested and traded timber (criterion 1).	Yes
Wst 03 – Operational waste – Need to achieve credit by providing dedicated storage space for recyclable waste	Yes

Table 2: Minimum mandatory requirements for Excellent

Based on the information received to date, detailed within the main body of the report it is considered that the development can achieve the required 'Excellent' BREEAM rating if the suggested recommendations are implemented.

5.0 DETAILED PRE-ASSESSMENT

The following pages provide a summary of which credits are being pursued as part of the BREEAM assessment.

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

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

Credits awarded : 2

Comments :

Project delivery planning credits not targeted.

Requirement is that prior to completion of the Concept Design, the project delivery stakeholders meet to identify and define for each key phase of project delivery:

1.a Roles

1.b Responsibilities

1.c Contributions.

2 Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project:

2.a End user requirements

2.b Aims of the design and design strategy

2.c Particular installation and construction requirements or limitations

2.d Occupiers' budget and technical expertise in maintaining any proposed systems

2.e Maintainability and adaptability of the proposals

2.f Operational energy

2.g Requirements for the production of project and end user documentation

2.h Requirements for commissioning, training and aftercare support

RPS will undertake the role of BREEAM Advisory Professional at both concept design and developed design stages.

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 :	No
Component level LCC options appraisal :	No
Capital cost reporting :	Yes
Capital cost of the project :	100 Â£k/m ²

Credits awarded : 1

Comments :

Elemental life cycle cost plan credit not targeted. We are not aware that an elemental LCC plan will be produced before the end of concept design stage giving an indication of future replacement costs over a period of analysis of 20, 30, 50 or 60 years including service life, maintenance and operation cost estimates.

Component level LCC options appraisal credit not targeted. We are not aware that a component level LCC will be carried out by the end of Process Stage 4.

Capital cost credit targeted. Requirement is that the capital cost for the building in pounds per square metre of gross internal floor area is included as part of the submission to BRE for benchmarking purposes.

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 construction process of the project 'legally harvested and traded timber'? :	Yes
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
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Exemplary level criteria - Responsible construction management :	Yes
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Key Performance Indicators: Construction site energy use

Energy consumption (total) - site processes :	1 kWh
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Energy consumption (intensity) - site processes :	1 kWh/project value
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Key Performance Indicators: Construction site greenhouse gas emissions

Process greenhouse gas emissions (total) - site processes :	1 KgCO ₂ eq
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Carbon dioxide emissions (intensity) - site processes :	1 KgCO ₂ eq/project value
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Credits awarded : 5

Exemplary credits awarded : 1

Comments :

The principal contractor will be required to operate an Environmental Management System and achieve all the items listed above and referred to in table 4.1 Responsible Construction Management items.

Site related energy and water impacts are to be monitored and recorded on a monthly basis.

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
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Commissioning - design and preparation :	Yes
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Testing and inspecting building fabric :	No
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Handover - have a technical and a non-technical building user guide been developed prior to handover? :	Yes
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Handover - have a technical and a non-technical training schedule been prepared around handover? :	Yes
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Credits awarded : 3

Comments :

1 credit targeted for commissioning undertaken in accordance with Building Regulations, BSRIA and CIBSE guidelines.

1 credit targeted for undertaking design reviews and giving advice on suitability for ease of commissioning. Providing commissioning management input to construction programming and during installation stages. Management of commissioning, performance testing and handover or post-handover stages.

Credit not targeted for completing post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through airtightness testing and a thermographic survey).

1 credit targeted for developing two building user guides for the following users: Non-technical user guide for distribution to the building occupiers. Technical user guide for the premises facilities managers

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? :	No
Aftercare support :	Yes
Commissioning - implementation :	Yes
Post occupancy evaluation :	No
The client or building occupier commits funds to pay for the POE in advance. :	No

Credits awarded : 2

Comments :

Aftercare support credit targeted - The Contractor will provide the necessary infrastructure and resources to provide aftercare support to the building occupier.

Commissioning implementation credit targeted - The building occupier will commit to collecting energy and water consumption data for a period of 12 months after initial occupation.

Post Occupation Evaluation credit not targeted - Requires the client or building occupier

commit to carrying out a post occupancy evaluation (POE) exercise one year after initial building occupation and to disseminate the findings in terms of the buildings post occupancy performance.

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 :	No
Daylighting (building type dependent) :	2
View Out :	Yes
Internal and external lighting levels, zoning and controls :	Yes
Exemplary level criteria - Daylighting :	No
Exemplary level criteria- Internal and external lighting levels, zoning and control :	No

Credits awarded : 4

Comments :

Visual Comfort - Credit not targeted. Requirements are that a glare control strategy designs out potential glare in all relevant building areas where risk has been identified. This should be achieved through building form and layout or building design measures. The glare control strategy does not increase energy consumption used for lighting. This is achieved by: Maximising daylight levels in all weather, cloudy or sunny and ensuring the use or location of shading does not conflict with the operation of lighting control systems. Occupant controlled blinds are an acceptable solution in bedrooms with desks however curtains will be provided.

Daylighting credits targeted - The requirement for 2 credits is that daylighting calculations demonstrate that 80% of rooms achieve a daylight factor of 2%.

View out - Credit targeted. Requirement is that 95% of the floor area in relevant building areas will be within 8m of a wall which has a window or permanent opening that provides an adequate view out and the window or opening is greater than 20% of the surrounding wall area. The floor plans indicate that this should be achievable.

Internal and external lighting - Credit targeted. Internal lighting to be in accordance with SLL Code for Lighting 2012. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7. All external lighting to be specified in accordance with BS 5489-1:2013 and BS EN 12464-2:2014

Hea 02 Indoor air quality

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

Assessment criteria

Pre requisite: Indoor air quality (IAQ) plan :	Yes
Ventilation :	Yes
Emissions from building products :	1
Post-construction indoor air quality measurement :	Yes
Exemplary level criteria- Emissions from building products :	

Key Performance Indicators

Formaldehyde concentration :	1 $\hat{1}/_4\text{g}/\text{m}^3$
Total volatile organic compound (TVOC) concentration :	1 $\hat{1}/_4\text{g}/\text{m}^3$

Credits awarded : 3

Comments :

Pre-requisite: Targeted. A site-specific indoor air quality plan is required to be produced and implemented. The plan must be produced no later than the end of Concept Design. The objective of the plan is to facilitate a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan must consider the following:

- 1.a Removal of contaminant sources
- 1.b Dilution and control of contaminant sources:
- 1.c Procedures for pre-occupancy flush out
- 1.d Third party testing and analysis
- 1.e Maintaining good indoor air quality in-use.

Ventilation credit targeted. Requires the building to be designed to minimise the indoor concentration and recirculation of pollutants in the building as follows:

Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. In naturally ventilated buildings or spaces: sensors either have the ability to alert the building owner or manager when CO₂ levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows or roof vents. For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates in accordance with CIBSE AM10.

Emissions from buildings. 1 credit is targeted which requires three out of the five product types to meet the emission limits, testing requirements and any additional requirements listed in Table 5.11 (Please refer to page 92 and 93 of the BREEAM Technical Manual SD5078 BREEAM New Construction 2018 Version 3.0)

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 :	No
Thermal zoning and controls :	Yes

Credits awarded : 2

Comments :

Thermal modelling credit targeted. Requires thermal modelling to be carried out using software in accordance with CIBSE AM11 Building Energy and Performance Modelling. The modelling demonstrates that for air-conditioned buildings, summer and winter operative temperatureranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design.

Design for future thermal comfort credit not targeted. Requires thermal modelling to be undertaken for a projected climate change scenario:

Dynamic thermal simulation software packages provide the facility for building designs to be assessed under external climatic conditions specific to geographic location. Industry standard weather data for the UK is available in the form of Test Reference Years (TRYs) and Design Summer Years (DSYs) provided by CIBSE (2016) (<https://www.cibse.org/weatherdata>). This weather data enables thermal analysis of building designs under current climatic conditions, yet no account is taken of the projected variations in weather data that will occur during the building's life cycle as a result of climate change. The following probabilistic DSY weather data files should be used to establish the projected climate change environment against which the design is evaluated:

Naturally ventilated buildings

Time period: 2050s

Emissions scenario: Medium (A1B)

50th percentile DSY 2 and DSY 3

Mechanically ventilated or mixed mode buildings

Time period: 2020s

Emissions scenario: High (A1F1)

50th percentile DSY 2 and DSY 3

Thermal zoning and controls credit targeted. Requires the thermal modelling analysis to inform the temperature control strategy for the building and its users.

Hea 05 Acoustic performance

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

Assessment criteria

Sound insulation :	0
Indoor ambient noise level :	Yes
Room acoustics :	Yes

Credits awarded : 2

Comments :

Sound insulation not targeted. Requirement for 1 credit is that airborne sound insulation values are at least 3 dB higher and impact sound insulation values are at least 3 dB lower than the performance standards in the relevant building regulations or standards.

Ambient noise level credit targeted. Requires indoor ambient noise levels to comply with the design ranges given in Section 7 of BS 8233:2014.

Room acoustics credit targeted. Achieve the requirements relating to sound absorption within residential spaces and within the common spaces of the building described in the relevant building regulations.

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

Comments :

Credit targeted. Requirement is that a Security Needs Assessment (SNA) is undertaken by a security expert (Architectural Liaison Officer, Crime Prevention Design Adviser or security consultant) during or prior to Concept Design (RIBA Stage 2 or equivalent). The purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development. The controls and recommendations shall be incorporated into proposals and implemented in the as-built development.

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 :	No
Outside Space :	Yes

Credits awarded : 1

Comments :

Safe access credit not targeted. Requires dedicated cycle route to cycle storage, delivery areas are not accessed through general parking areas.

Outside space credit targeted. Outside Space Credit targeted. Requirement is that there is an outside space providing building users with an external amenity area which is of an appropriate size to provide enough amenity for the predicted number of building users during coffee or lunch breaks to gather, socialise, relax and connect with the natural environment. The space is open to the sky, has appropriate seating areas and is non-smoking, it is located to ensure it is accessible to all building users and avoids areas that will have disturbances from sources of noise (e.g. building services, car parks, busy roads, delivery areas etc.)

The development includes outside terrace areas and extensive gardens.

Energy (Ene)

Ene 01 Reduction of energy use and carbon emissions

To minimise operational energy demand, primary energy consumption and CO₂ emissions.

Energy performance

Country :	England
Can a .inp file be uploaded? :	No
Without the .inp file being uploaded only the standard methodology can be used. This may impact the number of credits that can be awarded. :	
Energy Production by Technology :	
Energy & CO ₂ Emissions Summary :	
Actual building energy demand :	50 MJ/m ² yr
Notional building energy demand :	55 MJ/m ² yr
Actual building primary energy consumption :	50 kWh/m ² yr
Notional building primary energy consumption :	55 kWh/m ² yr
Actual building CO ₂ -eq emissions (BER) :	50 KgCO ₂ -eq/m ² yr
Notional building CO ₂ -eq emissions (TER) :	55 KgCO ₂ -eq/m ² yr
Does this building contain areas that require a SAP assessment? :	No

Energy performance - Building score

Total BREEAM credits achieved :	4.0
Heating and cooling demand energy performance ratio (EPRdem) :	0.101
Primary consumption energy performance ratio (EPRpc) :	0.254
CO ₂ -eq energy performance ratio (EPRco2-eq) :	0.07
Overall building energy performance ratio (EPRnc) :	0.425
% improvement BER/TER :	9.1 %

Towards carbon negative (exemplary credits)

Zero net CO₂-eq emissions :

Prediction of operational energy consumption

Has a design workshop focusing on operational energy performance been carried out? : No

Post-occupancy stage (exemplary credits)

Maximum credits achieved in Ene 02 Energy monitoring? : Yes

The client or building occupier commits funds to pay for the post-occupancy stage? :

The energy model is submitted to BRE and retained by the building owner? :

Credits awarded : 4

Comments :

Up to nine credits - Energy performance: Require design stage Part L calculation (BRUKL Output Document) to be carried out asap. Assumed that an Energy Performance Ratio of 0.4 will be achieved equating to 4 credits.

Four credits - Prediction of operational energy consumption. Credits not targeted at this stage.

- Involve relevant members of the design team in an energy design workshop focusing on operational energy performance.
- Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures.
- Report predicted energy consumption targets by end use, design assumptions and input data (with justifications).
- Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process.

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

Comments :

Sub metering of end use credit targeted. Requirements are that energy metering systems are installed so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories. This can be via an energy monitoring and management system or individual sub meters with pulsed outputs.

Sub metering of high energy load or tenancy areas credit targeted. Requires sub metering of relevant function areas or departments in single occupancy buildings.

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**Comments :**

Credit targeted. Requirement is that external light fittings have:
Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt
Automatic control to prevent operation during daylight hours
Presence detection in areas of intermittent pedestrian traffic

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 :	No
Low and zero carbon technologies :	Yes

KPI

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

Expected energy demand and CO₂-eq emissions reduction resulting from passive design measures :
Expected energy demand and CO₂-eq emissions reduction resulting from passive design measures as a percentage :

Expected reduction in CO₂-eq emissions resulting from the LZC

technologies :

Expected reduction in CO₂-eq emissions resulting from the LZC

technologies as a percentage :

Credits awarded

: 2

Comments :

One credit - Passive design analysis. Credit targeted. Requirements are that the project team analyses the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures:

1. Site location
2. Site weather
3. Microclimate
4. Building layout
5. Building orientation
6. Building form
7. Building fabric
8. Thermal mass or other fabric thermal storage
9. Building occupancy type
10. Daylighting strategy
11. Ventilation strategy
12. Adaptation to climate change.

Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings.

Free cooling: Credit not targeted. Requires a free cooling analysis to be undertaken demonstrating consideration of the following technologies:

1. Night time cooling (which could include the use of a high exposed thermal mass)
2. Ground coupled air cooling
3. Displacement ventilation (not linked to any active cooling system)
4. Ground water cooling
5. Surface water cooling
6. Evaporative cooling, direct or indirect
7. Desiccant dehumidification and evaporative cooling, using waste heat
8. Absorption cooling, using waste heat.

Low and zero carbon feasibility study: Credit targeted. Requires an energy specialist to complete a feasibility study by the end of Concept Design.

Establish the most appropriate recognised local (on-site or near-site) low and zero carbon (LZC) energy sources for the building, based on the feasibility study. Specify local LZC technologies for the building or development in line with the feasibility study

recommendations. It is our understanding that the Local Planning Authority requires 19% of the developments energy demand to be met by renewables therefore a LZC feasibility study should be undertaken.

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

Energy consumption : Yes

Energy efficient features - Lifts : Yes

Credits awarded : 2

Comments :

Energy consumption credit targeted. Requirement is to analyse the transportation demand and usage patterns for the building to determine the optimum number and size of lifts.

Energy efficient features credit targeted. Requires specification of the following three energy efficient features for each lift:

- A standby condition for off-peak periods
- The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of 70 luminaire lumens per circuit Watt
- Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.

Ene 07 Energy efficient laboratory systems

To encourage laboratory areas that are designed to minimise their operational energy consumption and associated CO2 emission

Assessment criteria - N/A

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? :	No
Laundry facilities with commercial-sized appliances present? :	Yes
Major impact? :	No
Data centre present? :	No
IT-intensive operating areas present? :	No
Domestic scale appliances (individual and communal facilities) present? :	Yes
Major impact? :	Yes
Healthcare equipment present? :	No
Kitchen and catering facilities present? :	Yes
Major impact? :	Yes
Other contributors :	
Significant majority contributors BREEAM compliant :	Yes

Credits awarded : 2

Comments :

Credits targeted. If the following white goods are provided they must achieve the following ratings (or better) under the EU Energy Efficiency Labelling Scheme:

1. Fridges, fridge-freezers: A+ rating
2. Washing machines: A++ rating
3. Dishwashers: A+ rating
4. Washer-dryers: A rating
5. Tumble dryers: A rating

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

Credits awarded : 2

Comments :

Credit targeted. Requirements are as follows:

- 1 No later than Concept Design stage, undertake a site-specific transport assessment (or develop a travel statement) and draft travel plan, which can demonstrably be used to influence the site layout and built form.
- 2 The site-specific travel assessment (or statement) shall cover as a minimum:
 - 2.a If relevant, travel patterns and attitudes of existing building or site users towards cycling, walking and public transport, to identify relevant constraints and opportunities.
 - 2.b Predicted travel patterns and transport impact of future building or site users.
 - 2.c Current local environment for pedestrians and cyclists, accounting for any age-related requirements of occupants and visitors.
 - 2.d Reporting of the number and type of existing accessible amenities within 500m of the site.
 - 2.e Disabled access accounting for varying levels and types of disability, including visual impairment.
 - 2.f Calculation of the existing public transport Accessibility Index (AI)
 - 2.g Current facilities for cyclists.
- 3 Following a transport assessment (in accordance with the requirements set out in criteria 2), develop a site specific travel plan that provides a long term management strategy which encourages more sustainable travel.

The travel plan includes measures to increase or improve more sustainable modes of transport and movement of people and goods during the building's operation.
- 4 If the occupier is known, involve them in the development of the travel plan.
- 5 Demonstrate that the travel plan will be implemented and supported by the building's management in operation.

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

Location type (based on existing AI) :

AI <25

Number of points achieved overall :

5

Credits awarded : 5

Comments :

Pre-requisite: Travel Plan to be provided.

- Cycle spaces. Requirement is 1 space per 10 staff and 1 space per 10 visitors or beds.

Based upon 64 beds, 6.4 rounded up to 7 secure and covered cycle spaces are required plus 3 for staff. Architect has confirmed that 10 secure and covered cycle spaces will be provided.

- Cyclist Facilities credit targeted. Requires provision of at least two compliant cyclists' facilities for the building users from the following: Showers / Changing facilities / Lockers / Drying spaces.

- The site plan shows 29 parking spaces. Provide electric recharging stations of a minimum of 3kW for at least 10% of the total car parking capacity for the development. Credit targeted.

- Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities. Credit targeted.

- Set up a car sharing group or facility to facilitate and encourage building users to car share. Allocate at least 5% of car spaces for car share. Credit targeted.

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 : 2

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 : 2

Comments :

The following specification will achieve 2 credits:

WC's 4 litre flush

WHB taps 6 litres per minute

Showers 8 litres per minute

Kitchen taps 7 litres per minute.

Note Policy CS14 states that particular attention should be made to water efficiency measures.

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

Credits awarded : 1

Comments :

1 credit targeted for specification of a water meter with a pulsed output on the mains water supply.

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 :	Yes
Are WC facilities only provided within the residential areas of a long-term residential accommodation? :	No
Flow control devices :	Yes

Credits awarded : 2

Comments :

One credit targeted for a leak detection system. Requirements are installation of a leak detection system capable of detecting a major water leak on the utilities water supply within the buildings, to detect any major leaks within the buildings

AND

Between the buildings and the utilities water supply, to detect any major leaks between the utilities supply and the buildings under assessment.

One credit targeted for flow control devices. Requires installation flow control devices that regulate the water supply to each public WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework. A common solution is a solenoid valve linked to the PIR lighting. (Note this is only required to public WC areas and not required to individual ensembles in bedrooms)

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 : Yes

Credits awarded : 1

Comments :

1 credit targeted as no mains fed irrigation systems specified. Landscaping will rely on precipitation or manual watering using an outside tap.

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 0

Submission Tool :

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

Submission Tool :

Credits awarded : 0

Comments :

Credits not targeted on the baseline pre-assessment. Requirement is that during Concept Design before planning submission is applied for carry out a building Life Cycle Assessment (LCA) options appraisal of 4 significantly different superstructure design options and 6 different substructure and hard landscaping options to appraise the different environmental impacts of each design using a building LCA tool that is recognised by BREEAM.

Note there are 2 options:

First option is where the design team undertake a LCA using the BREEAM Simplified LCA Tool which would achieve 3 credits.

Second option is where a suitably qualified consultant undertakes the LCA using an uncapped recognised tool such as ETool or OneClickLCA which would achieve 7 credits plus 1 exemplar level credit for being third party verified. If an Excellent rating is required we recommend that this is undertaken as it is worth 8.5% towards the overall assessment score.

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

Comments :

Credit targeted. Requires specification of products with a recognised environmental product declaration (EPD). Architect to refer to greenbooklive.com

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 :	plus Substructure and hard landscaping / Internal Finishes
Percentage of available for percentage of RSM points achieved :	20 %

Credits awarded : 3

Comments :

Prerequisite - Legal and sustainable timber. Targeted Requires 100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy.

Sustainable Procurement Plan credit targeted. A sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products. The plan must:

- Be in place before Concept Design. Include sustainability aims, objectives and strategic targets to guide procurement activities.
- Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible.

Responsible Sourcing of Materials 2 credits targeted. Requires written commitment from Contractor to commit to achieving at least 20% of the available responsible sourcing points for superstructure, internal finishes, substructure and hard landscaping.

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 of the building from material degradation :	Yes
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Credits awarded : 1

Comments :

Credit targeted. Requires protection measures to be incorporated into the building's design and construction to reduce damage to the building's fabric or materials in case of accidental or malicious damage occurring. These measures must provide protection against:

- 1.a Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.).
- 1.b Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas.
- 1.c External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building facade and where delivery areas or routes are within 2 metres of the facade, i.e. specifying bollards or protection rails.
- 1.d Potential malicious damage to building materials and finishes, in public and common areas where appropriate.

Protecting exposed parts of the building from material degradation: Key exposed building elements are required to be designed and specified to limit long and short term degradation due to environmental factors.

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 relevant stages : Yes

Credits awarded : 1

Comments :

Credit targeted. Requirements are as follows:

- 1 At the Preparation and Brief and Concept Design stages, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages.
 - 1.a Preparation and Brief
 - 1.b Concept Design
 - 1.c Developed Design
 - 1.d Technical Design
 - 1.e Construction.
- 2 Develop and record the implementation of material efficiency, during:
 - 2.a Developed Design
 - 2.b Technical Design
 - 2.c Construction.
- 3 Report the targets and actual material efficiencies achieved.

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? : No

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 : m³

Non-hazardous construction waste (excluding demolition/excavation) - fill in to award 'Construction resource efficiency' credits : 7.5 m³/100m²

Total non-hazardous construction waste generated :

Non-hazardous non-demolition construction waste diverted from landfill - fill in to award diversion from landfill credit : 80 %

Total non-hazardous non-demolition construction waste diverted from landfill : 80 m³

Non-hazardous demolition waste diverted from landfill - fill in to award diversion from landfill credit : 80 %

Total non-hazardous demolition waste generated : 7.5 m³

Total non-hazardous demolition waste to disposal :

Non-hazardous excavation waste diverted from landfill - fill in to award credit : 80 %

Material for reuse :

Material for recycling :

Material for energy recovery :

Hazardous waste to disposal :

Credits awarded : 3

Comments :

2 credits targeted for construction resource efficiency. Requires main Contractor to prepare a

compliant Resource Management Plan (RMP) covering:
Non-hazardous waste materials from on-site construction and dedicated off-site manufacture or fabrication. Accurate data records on waste arisings and waste management routes.

Contractor to commit to achieving a construction waste benchmark of 7.5m³ or 6.5 Tonnes or less per 100m² GIFA which will achieve 2 credits.

1 credit targeted for diversion from landfill. Requirement is that at least 70% of waste by volume or 80% by tonnage is diverted away from landfill.

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? : No
Projects Sustainable Aggregate points :

KPI

Total quantity of aggregate :

% of high - grade aggregate that is recycled/ secondary aggregate by application :

Credits awarded : 0

Comments :

Credit not targeted. Requires 3.5 to 6 Project Sustainable Aggregate Points to be achieved. The Wst 02 calculator combines scores for regional mineral depletion, social cost of transport and carbon footprint. Requirements to be reviewed with Engineer.

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 :	Yes

Multi-residential buildings with self-contained dwellings or bedsits only Yes
criteria achieved :
Multi-residential buildings with individual bedrooms and communal Yes
facilities only criteria achieved :

Credits awarded : 1

Comments :

Credit targeted. Requires a dedicated space for the segregation and storage of operational recyclable waste generated. The space needs to be:

1.a Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams

1.b Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors

1.c Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates.

Additionally requirements for multi-residential buildings with individual bedrooms and communal facilities include provision of three internal storage containers with a minimum total capacity of 30 litres with no individual container smaller than 7 litres for every 6 bedrooms. Provide home composting facilities and a home composting information leaflet within the kitchen area or communal space.

Where food waste is stored on site prior to collection ensure that there is a water outlet for wash down purposes.

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

Comments :

Credit targeted. Requirements are as follows: Conduct a climate change adaptation strategy appraisal using:

1.a A systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects and includes:

1.a.i Hazard identification

1.a.ii Hazard assessment

1.a.iii Risk estimation

1.a.iv Risk evaluation

1.a.v Risk management.

As a guide, all adaptation plans should consider the following impacts of climate change and extreme weather events and describe how the design mitigates against them, where appropriate:

a. Flooding

b. Storms (including high winds)

c. Cold events

d. Heat waves (including temperature increases)

e. Drought (including reduced summer rainfall)

f. Milder winters

g. Wetter winters (including increased moisture and driving rain)

h. Warmer summers and increased solar radiation

i. Temperature variation

j. Precipitation, e.g. rain and snow

k. Subsidence or ground movement.

2 Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during Concept Design, that aim to mitigate the identified impact.

3 Provide an update during Technical Design demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective.

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**Comments :**

2 credits targeted:

First credit - Design for disassembly and functional adaptability - recommendations:

1 Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design.

2 Develop recommendations or solutions based on the study, during or prior to Concept Design, that aim to enable and facilitate disassembly and functional adaptation.

The study must consider the following as a minimum:

- Feasibility: The likelihood to contain multiple or alternative building uses, area functions and different tenancies over the expected life cycle, e.g. related to the structural design of the building.

- Accessibility: Design aspects that facilitate the replacement of all major plant within the life of the building, e.g. panels in floors and walls that can be removed without affecting the structure, providing lifting beams and hoists. Accessibility also involves access to local services, such as local power, data infrastructure etc.

- Versatility: The degree of adaptability of the internal environment to accommodate changes in working practices.

- Adaptability: The potential of the building ventilation strategy to adapt to future building occupant needs and climatic scenarios.

- Convertibility: The degree of adaptability of the internal physical space and external shell to accommodate changes of in-use.

- Expandability: The potential for the building to be extended, horizontally or vertically.

- 'Refurbishment potential': The potential for major refurbishment, including replacing the façade.

Second credit - Disassembly and functional adaptability - implementation

3 Achieve criteria 1 and 2

4 Provide an update, during Technical Design, on:

4.a How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor.

4.b Changes to the recommendations and solutions during the development of the Technical Design.

5 Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.

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: :	0 %
Contaminated land :	No

Credits awarded : 0

Comments :

Previously occupied land: Not targeted. Requirement is that at least 75% of the proposed development is on previously occupied land.

Contaminated land: Not targeted. Requirement is that the site is significantly contaminated and remediation is undertaken.

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

Comments :

Prerequisite - Statutory obligations: The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.

Comprehensive route (Route 2). Credit targeted. Requires a Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site

preparation works, layout and, where necessary, strategic planning decisions (typically preparation and brief stage)

The SQE's survey and evaluation determines the site's ecological baseline including:
Current and potential ecological value and condition of the site and related areas within the Zone of Influence.

Direct and indirect risks to current ecological value from the project.

Capacity and feasibility for enhancement of the site's ecological value.

Determining ecological outcomes: Credit targeted. Requires the project team to liaise and collaborate with representative stakeholders early enough to influence key planning decisions (typically Concept Design stage), to:

Identify the optimal ecological outcomes for the site.

Identify, appraise and select measures to meet the optimal ecological outcomes for the site.

Two trees (T3 and T4) within the proposed care centre site are proposed to be protected.

SQE to complete BREEAM 2018 Ecology Template to firm up on the number of credits achievable.

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 :	1

Credits awarded : 2

Comments :

Prerequisite - Ecological risks and opportunities. LE 02's 'Survey and evaluation and Determining ecological outcomes' criteria have been achieved using the Comprehensive route (Route 2).

One credit - Planning and measures on-site. Further planning to avoid and manage negative ecological impacts on-site is carried out early enough to influence the concept design and design brief as well as site preparation planning (typically Concept Design stage).

On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice (e.g. mitigation measures to protect existing

ecological features)

Criteria 2-3 are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02.

Ecological risks and opportunities.

Up to two credits - Managing negative impacts.

1 credit targeted. Negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy, in line with the SQE's recommendations and the loss of ecological value has been minimised. SQE to complete BREEAM 2018 Ecology Template to firm up on the number of credits achievable.

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) :	1

Credits awarded : 2

Comments :

One credit - Ecological enhancement comprehensive route.

Requirements are that measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02.

Measures are implemented in the following order:

- On site, and where this is not feasible,
- Off site within the Zone of Influence.

Credit targeted as an extensive landscaping plan will be provided.

Up to three credits - Change and enhancement of ecology comprehensive route (Route 2).

Credits are awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology - Route 2. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats. Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.

SQE to complete BREEAM 2018 Ecology Template to firm up on the number of credits achievable.

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

Comments :

Prerequisite - Statutory obligations, planning and site implementation. The client or contractor is to confirm that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.

The following must be achieved, according to the route being assessed:

Comprehensive route (Route 2) - Criterion 8 in LE 03 has been achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' has been awarded.

5 year landscape and ecology plan to be produced.

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? : No
Total Direct Effect Life Cycle CO₂eq (DEL_{LC}). Emissions from the system :
Global Warming Potential (GWP) of the specified refrigerant(s) 10 or less? No
:

Leak detection

Are all the systems hermetically sealed? : No

BREEAM compliant automatic refrigerant leak detection system installed and able to manage the remaining refrigerant charge : No

Credits awarded : 0

Comments :

It is a prerequisite that all systems with electric compressors comply with the requirements of BS EN 378:2016.

One credit available for impact of refrigerant. Requires systems using refrigerants to have a DEL_{LC} of less than 1000kgCO₂eq/kW cooling and heating capacity. TBC

One credit available for leak detection. Requirement is that all systems are hermetically sealed or only use environmentally benign refrigerants.

OR

Where the systems are not hermetically sealed: Systems have:

A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks.

OR

An inbuilt automated diagnostic procedure for detecting leakage is enabled.

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? :	0

Credits awarded : 0

Comments :

2 credits achievable if all heating and hot water is supplied by non-combustion systems. For example, only powered by electricity.
 Require details of the heating and hot water source. If all heating and hot water is supplied by non-combustion systems then 2 credits can be awarded.
 Alternatively emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 12.4 and Table 12.5

Pol 03 Flood risk management and reducing surface water run-off

To avoid, reduce and delay the discharge of rainfall to public sewers and watercourses, thereby minimising the risk and impact of localised flooding on 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 sought credits? :	Yes
Has a site-specific flood risk assessment been conducted? :	Yes
Annual probability of flooding :	Low
Has the pre-requisite for the Surface Water Run-Off credits been achieved? :	Yes
Has the Surface Water Run-Off - Rate credit been achieved? :	Yes
Has the Surface Water Run-Off - Volume credit been achieved? :	Yes
Minimising watercourse pollution :	Yes

Credits awarded : 5

Comments :

Requirement is that a site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA takes all current and future sources of flooding into consideration. Flood map for planning confirms that the site is located in zone 1 with a low risk of flooding.

Surface run-off rate credit targeted: BREEAM requirement is that for Greenfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events.

Surface run-off volume credit targeted: Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.

Last credit for minimising watercourse pollution targeted. Requires no discharge from the developed site for rainfall up to 5 mm.

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
Does external lighting meet all relevant criteria? :	Yes

Credits awarded : 1

Comments :

Credit targeted. Requirement is that the external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.

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
Is the site compliant with all relevant criteria? :	No

Credits awarded : 0

Comments :

Not Targeted: Requirement is that as there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact

assessment compliant with BS 4142:2014 is commissioned. Noise levels must be measured or determined for:

2.a Existing background noise levels:

2.a.i at the nearest or most exposed noise-sensitive development to the proposed assessed site

2.b Noise rating level from the assessed building.

3 The noise impact assessment must be carried out by a suitably qualified acoustic consultant.

4 The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night.

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	