



AFSRC Wrexham

Target Report

BREEAM AP

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1.0 Introduction

Scott Hughes Design has been appointed as BREEAM consultant to facilitate BREEAM certification for this development, using BREEAM 2008 Bespoke criteria.



Sustainability is defined as the ability to meet the needs of today, without compromising the ability of future generations to provide for the needs of tomorrow. It can be described as the equilibrium between environmental and financial considerations, and the needs of the community. A truly sustainable development will achieve a balance between fitness-for-purpose, value-for-money and environmental impact and will achieve this via integration as part of a larger, sustainable community.

2.0 Final Bespoke Criteria

The 'Kick Off' meeting was held at ARUP offices in Wrexham on 14.09.2010 based on assumed criteria. The BRE Final Bespoke criteria for the project has since been received and was reviewed at a meeting in BAM offices in Manchester, in January 2010. This report is based on that information, and a desktop review of the design information on A-site.

3.0 Project Description

The development is a multi- disciplinary Emergency Service Terminal incorporating an Ambulance, Police and Fire Station, also providing community use areas and catering. The building will house offices, training rooms, changing and kit areas, plant and operational space, as well as vehicle storage and maintenance areas. There are also a small number of bedrooms to sleep between one and four overnight staff.

3.1 Materials Information

The construction materials are not yet fully defined – this will be clarified as the design progresses. It is recommended that the materials selection favours the use of materials which achieve an A / A+ rating, according to the [BRE's Green Guide to Specification Online](#), where possible. This reduces the embodied energy of the building over the lifecycle and so will help to maximise BREEAM scoring.

3.2 M&E Information

The building is designed for a mixed mode ventilation system, incorporating radiators and radiant panels fed from efficient, low-NOx gas boilers for space heating, and mechanical cooling as required. The inclusion of a renewable / LZC energy source will be essential to a BREEAM Excellent Rating.

3.3 External Works

The majority of the site has been previously developed, although there are areas of soft landscaping, including trees which may be removed as part of development. It is recommended that an Ecologist is asked to review the site in accordance with BREEAM guidelines (see Guidance Notes LE3, LE4, LE5 and LE6), and that the recommendations made are adhered to such that any potential loss of biodiversity can be mitigated as far as possible based on the current site layout.

Post-development, there will be hard standing areas including vehicle manoeuvring, training and car parking areas, as well as some soft landscaping features. Due to the use as an Emergency Service terminal, the car parking and manoeuvring areas will be a significant aspect, although ideally the site would incorporate areas of native groundcover and tree planting.

4.0 Project Programme

The development is being submitted for planning.

5.0 Background to Sustainable Design and BREEAM

BREEAM Bespoke 2008 is part of the BREEAM family of environmental assessment methods (BRE's Environmental Assessment Method). It is a voluntary scheme that aims to quantify and reduce the environmental burdens of buildings by rewarding those designs that take positive steps to minimize their environmental impacts.

There are number of standard schemes under which certain building types can be assessed. These include Offices, Education, Healthcare, Industrial, Prisons, Retail and Court buildings. Where a non domestic building cannot be assessed under one of these schemes it can be assessed under the Bespoke BREEAM scheme.

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

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

BREEAM Section	New Build, Extension & Major Refurb.
Management	12%
Health & Wellbeing	15%
Energy	19%
Transport	8%
Water	6%
Materials	12.5%
Waste	7.5%
Land Use & Ecology	10%
Pollution	10%

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

Due to the nature of Bespoke BREEAM projects not every credit is applicable to all function areas. To reflect this, credit scores are area weighted according to the floor area within the building that the credits have been achieved for. This recognises the environmental benefits of achieving a credit in an area that represents a large proportion of the building compared to where a credit is achieved in only a small proportion of the building.

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

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

A BREEAM process flow chart is attached to this report. The process of certification has been explained and the pros and cons of early certification were discussed.

6.0 Early Actions Required to Help Achieve BREEAM Targets

There are various key actions that should be / have been incorporated during stage C and D to help maximise the, BREEAM potential, these include but are not limited to:

- Consultation with key stakeholders
- Detailed investigations in to low-carbon and low-water design;
- Local ecological advice;
- Secured-by-Design advice;
- Thermal modelling and imaging;
- Transport planning;
- Waste benchmarking, minimisation and recycling;
- Pollution minimisation;
- Flood risk engineering;
- Responsible materials specification.



7.0 Required Consultants and the Design Process

In adhering to the BREEAM 2008 requirements, the development will also need to employ a variety of consultants from the local Sustainable Development sector. Technical services required in addition to the standard disciplines may include:

- Commissioning Specialist;
- Consultation with an Architectural Liaison Officer;
- Acoustician;
- Low / Zero Carbon Technologies Specialist;

- Transport Consultant;
- Ecologist;
- Flood Risk Assessor;
- Provision of daylight calculations;
- Dynamic Thermal modelling.

The BREEAM Accredited Professional appointed will be given the opportunity to attend all design team meetings and will be provided with copies of all meeting minutes to ensure that the design is being carried out to account for the requirements of sustainability from the outset and throughout.

8.0 Review of Mandatory Credits

In advance of the full pre-assessment being carried out, it is useful to make the design team aware of the key inclusions required to enable a given BREEAM rating to be achieved. BREEAM contains a number of mandatory credits depending upon the rating targeted and if these credits are not achieved, the certification will be withheld.

To achieve an **EXCELLENT** rating, the following Mandatory credits **must** be achieved:

Ref	Credit	Mandatory Requirement
Man 1	Commissioning (1 credit of 2 available)	In addition to the standard commissioning requirements, the team will need to appoint a specialist commissioning monitor prior to the end of the design period to review the location and type of plant to be specified and an appropriate commissioning programme.
Man 4	Building User Guide	A non-technical BUG must be provided for use by general users and the FM team.
Hea 4	High Frequency Lighting	It should be a standard requirement to provide high frequency ballasts in all fluorescent and compact florescent light fittings.
Hea 12	Microbial Contamination	All water and HVAC systems must be designed and installed in accordance with HSE, ACoP L8 – "Legionnaires' Disease: The Control of Legionella Bacteria in Water Systems".
Ene 1	Energy Consumption	The building must achieve an EPC of 40 or less.
Ene 2	Sub metering of substantial energy uses	Additional sub metering will be required to that required by Building Regulations, in particular sub metering of the following

		would be required: • Space heating • Lighting & small power for each floor • Hot water • Chillers/AHU's • Major pumps & fans • Lift • Kitchens
Ene 5	LZC Technology	A feasibility study into potential sources of LZC Technology must be carried out, and the results implemented.
Wat 1	Water consumption (1 credit of 3 available)	The mandatory credit should be achieved by specifying low water usage sanitary fitting such as 6/4 dual flush toilets, 4.5ltr disabled toilet, auto shut off taps, individual PIR controlled urinals and 9ltr/min showers.
Wat 2	Water meter	A new pulsed water meter will need to be installed on the incoming water supply.
Wst 3	Recyclable Waste Storage	At least 2m ² per 1000m ² floor area of dedicated recyclable waste storage must be provided on site (4m ² per 1000m ² of floor area, where catering is provided).
LE 4	Mitigating ecological impact (1 cr of 2 available)	The change in ecological value of the site as a result of development must result in a loss of species of no greater than - 9 species per hectare.

9.0 Innovation credits

BREEAM now contains the potential to score an additional 10% of Innovation credits. There are three sources of innovation credits:

9.1 Existing BREEAM credits

The development will seek to achieve the Exemplar Criteria in the following areas:

Man 1 – Considerate Constructors: A CCS Score of 36 must be achieved, with no section less than 3.

Wat 2 – Water Meter: Any water use making up over 10% of the total for the development will be sub-metered e.g. catering, vehicle wash.

Ene 5 – LZC Technology: The building will achieve a 20% CO2 reduction, as a result of the specification of LZC technology.

Mat 5 – Responsible Sourcing: Over 95% by volume of materials employed in the building fabric and services will be procured from suppliers with at least one of ISO14001 / BES6001 / FSC / PEFC Certification.

9.2 New innovative technologies

The development will not seek to achieve credits based on unlisted innovations. The BRE charge £1500 to review any innovations prior to authorisation.

9.3 Use of BREEAM AP

Two Credits can be achieved if sustainability is addressed at concept stage and retained through to project delivery. The requirements are as detailed below:

- The BREEAM AP has been given effective involvement in the design during RIBA Stage B onwards;
- The recommendations contained within the report must be incorporated into the final design;
- The BREEAM AP must be invited to and copied in on minutes to all project, client, site and consultation meetings;
- The development must achieve a minimum of a BREEAM 'Very Good' certificate for both Interim and Final stages.

10.0 BREEAM Strategy and Targets

A BREEAM rating of EXCELLENT is required by key stakeholders. The development will be built-out in a single phase, and so a single assessment will be carried out to cover the entire site.

It was recommended that whatever targets were finally agreed, a comfort margin of at least 4-5% would ideally be built in to allow for credit losses during detailed design and construction.

A BREEAM process flow chart is attached to this report. The process of certification has been explained during the meeting and the pros and cons of early certification discussed.

11.0 BREEAM AP - General Recommendations

To retain the BREEAM AP credits, the following should have been incorporated to the maximum degree possible for the development:

- The development seeks to target a minimum of a VERY GOOD rating;
- An Ecologist is employed prior to the start on site, to identify and maximise the potential of the ecological credits;
- The feasibility of low carbon technology is explored, and Energy Performance criteria are demonstrated;
- The Travel Plan is updated / commissioned in accordance with BREEAM requirements;
- The materials selection favours the use of materials which achieve an A / A+ rating, according to the [BRE's Green Guide to Specification Online](#), where possible.

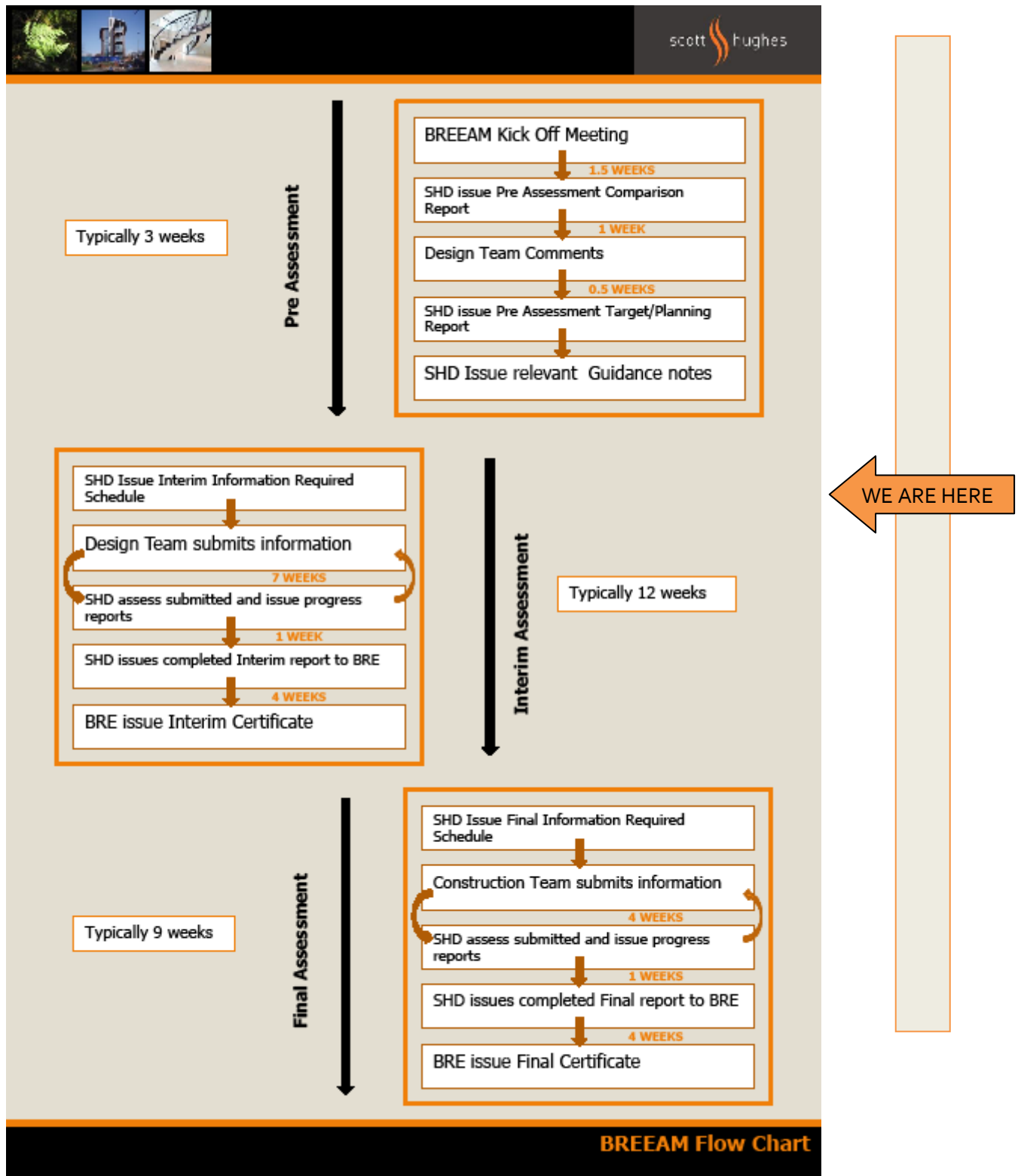
12.0 Summary

The tables within Appendix D confirm a target score of 73.94%, which achieves a BREEAM rating of EXCELLENT, including for a 3.94% margin for change.

The design team should review the information within Sections 6 – 11 to ensure that opportunities to maximise the BREEAM score are not missed.

Appendices A and B describe the ideal timing of BREEAM assessment, and the current progress..

13.0 Appendix A – BREEAM Process Flow Chart



14.0 Appendix B – BREEAM Assessment by RIBA Stage

There are various actions that should be carried out to achieve an optimum BREEAM score, many of which have time restraints placed upon them, based on the RIBA Stages of Work. Specific credits affected in this way are reviewed separately.

The below shows the different BREEAM assessment stages, and where they should ideally be carried out, according to the RIBA Stages of Work:

RIBA Stage A

RIBA Stage B

RIBA Stage C

RIBA Stage D

RIBA Stage E

RIBA Stage F

RIBA Stage J

RIBA Stage K

RIBA Stage L



BREEAM AP Consultation

BREEAM Pre-Assessment

Begin BREEAM Interim Assessment

Complete BREEAM Interim Assessment

BREEAM Final Assessment

15.0 Appendix C – BREEAM Credits with Time Constraints

The following BREEAM credits all require action **during RIBA STAGES A – C** of a BREEAM assessed project. If these credits are not addressed in time, then the potential BREEAM scoring for a given development is significantly reduced:

Consultation

Ensure that pre-defined, relevant stakeholders are consulted via a planned out series of letters meeting and events. Feedback must be provided to Consultees and changes to the design adopted.

Security

Ensure that the Architectural Liaison Officer from the local police force is consulted ,with suggestions incorporated within the design.

Renewable and Low Emission Energy

Commission feasibility study into renewable and low carbon technologies that could be employed on site.

Transport

Commission a Travel Consultant to undertake a Site Specific Travel Survey & to produce a detailed Travel Plan addressing all types of travel, with the aim to influence final design.

Flood Risk

Ascertain the site flood risk to ensure that the building and access levels, and attenuation systems are designed appropriately.

Ecology

Ascertain the presence or other wise of ecologically valuable features to be retained / protected within the design, the overall value of the site and legal issues arising from habitats present on site and within surrounding area. Ensure that necessary precautions are made.

16.0 Appendix D – BREEAM Target Report

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BREEAM: Bespoke 2008 - Target Report



BREEAM Rating Bands	
PASS	30
GOOD	45
VERY GOOD	55
EXCELLENT	70
OUTSTANDING	85

MANDATORY CREDITS: Credits with bold, italic text and thicker borders are 'MANDATORY' standards and so must be attained in order that a BREEAM Rating of EXCELLENT can be achieved.

RESULTS SUMMARY				ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT	
Sector	Weighting	Total Available	Credit expectation	Sector Score	
Management	12.0%	15	13	10.40%	
Health & Wellbeing	15.0%	14	9	10.76%	
Energy	19.0%	24	14	11.40%	
Transport	8.0%	11	6	4.36%	
Water	6.0%	10	8	4.80%	
Materials	12.5%	15	11	9.17%	
Waste	7.5%	7	5	5.36%	
Land Use& Ecology	10.0%	10	4	4.00%	
Pollution	10.0%	13	10	7.69%	
Total Predicted Score				67.94%	
Maximum level based on mandatory credits				EXCELLENT	
Innovation Credits Achieved				6.00%	
Final Predicted BREEAM Score				73.94%	
Final Predicted BREEAM Rating				EXCELLENT	

General Information					ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT	
REF	Description	Responsibility	Value of 1 Credit	Credits Available	Credit expectation	Assumptions
MANAGEMENT						
Man1	Commissioning	ARUP / BAM	0.8	2	2	a) Commissioning will be carried out in accordance with current Building Regulations and in line with CIBSE, BSRIA where applicable; ARUP b) An appropriate member of the design team will be appointed to co-ordinate all appropriate contractors and trades on site, AND to monitor pre-commissioning, commissioning and any required re-commissioning on behalf of the client; ARUP c) The main contractor will account for the commissioning programme, responsibilities and requirements within the main programme of works; BAM d) A specialist commissioning manager will be appointed to provide design input into the commission ability of complex systems, and to carry out this commissioning; ARUP e) The BMS will be commissioned in accordance with specific BREEAM requirements. ARUP f) A programme of seasonal commissioning will be carried out in accordance with Guidance Note Man1. ARUP Please see Guidance Note Man 1 and SHD Guidance for full details.
Man2	Considerate Constructors	BAM	0.8	2	2	The Contractor will comply with the Considerate Constructors Scheme and will achieve a score of at least 32 under formal certification, with no section scoring under 3.
Man3	Construction Site Impacts	BAM	0.8	4	4	The contractor can demonstrate that 6 or more of items a-g (listed below) have been employed on site a. Monitor, report and set targets for CO2 or energy arising from site activities b. Monitor, report and set targets for CO2 or energy arising from transport to and from site c. Monitor, report and set targets for water consumption arising from site activities d. Implement best practice policies in respect of air (dust) pollution arising from the site e. Implement best practice policies in respect of water (ground and surface) pollution occurring on the site f. Main contractor has an environmental materials policy, used for sourcing of construction materials to be utilized on site g. Main contractor operates an Environmental Management System. Furthermore, it is assumed that at least 80% of site timber is responsibly sourced and 100% is legally sourced.
Man4	Building User Guide	ALL, LED BY BAM	0.8	1	1	A simple, standalone building user guide covering all aspects described within the SHD Guidance will be produced that is suitable for general building users as well as the facilities management team. Please see SHD Guidance for full details.
Man6	Consultation	CLIENT / NIGHTINGALES	0.8	2	2	Consultation has been or will be undertaken and feedback given to the local community and building users. In addition advice should also have been sought from any relevant national and local history, archaeological bodies or military history groups regarding the heritage value of the site/surroundings. In addition to above evidence will be provided to demonstrate that changes to the design and/or action has been taken as a result of the above consultation process. Please see Guidance Note Man 6 for full credit compliance requirements.
Man8	Security	NIGHTINGALES	0.8	1	1	It can be demonstrated that an <i>Architectural Liaison Officer</i> (ALO) or <i>Crime Prevention Design Advisor</i> (CPDA) from the local police force has been consulted at the design stage (Riba Stage C or before) and their recommendations incorporated into the design of the building and its parking facilities (if relevant). Please see Guidance Note Man 8 for full details.
Man9	Publication of Building Information	CLIENT	0.8	1	1	The environmental performance of the building will be published on the Architect's Web site and will be updated with information on the progress of the design and construction. Furthermore, site visits will be arranged for future building users. Please see Guidance note Man 9 for full details
Man12	Life Cycle Costing	N/A	0.8	2	0	Although the building life-cycle costs have been analysed, this may not have been in full accordance with the BREEAM criteria.

General Information						ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT
REF	Description	Responsibility	Value of 1 Credit	Credits Available	Credit expectation	Assumptions
HEALTH & WELLBEING						
Hea1	Day Lighting	ARUP	1.3	1	0	The day lighting criteria will not be met for the development
Hea2	View Out	NIGHTINGALES	0.29	1	0	Not all spaces with workstations are within 7m of a window, with a view-out.
Hea3	Glare Control	NIGHTINGALES	0.38	1	1	All windows, glazed doors and skylights in the WORKSHOPS, RECEPTION, OFFICES, MEETING, TRAINING and REST ROOMS will be fitted with occupant controllable blinds to control glare.
Hea4	High Frequency Lighting	ARUP	1.3	1	1	High frequency ballasts will be specified for all fluorescent or compact fluorescent light fittings in the development.
Hea5	Internal & External Lighting Levels	ARUP	1.3	1	1	The lighting system will be installed such that all internal and external lighting will be specified in accordance with the appropriate maintained illuminance levels (in LUX) recommended by CIBSE. Please see Guidance Note Hea 5 for full details.
Hea6	Lighting Controls and Zones	ARUP	1.28	1	1	All areas aside from the sports hall, gym, swimming pool and changing rooms will be appropriately zoned and occupant controllable with the option for commonly required lighting settings to be selected quickly and easily. Please note that this credit does not apply to the GYM. Please see Guidance Note Hea 6 for full details.
Hea7	Potential for Natural ventilation	N/A	1.3	1	0	Adequate natural ventilation may not be possible in all areas.
Hea8	Indoor Air Quality	N/A	1.3	1	0	This credit is unachievable as openable windows / ventilators are less than 10m from sources of external pollution.
Hea9	Volatile Organic Compounds	NIGHTINGALES / BAM	1.3	1	1	The emissions of VOCs and other substances from key internal finishes and fittings comply with best practice levels. Please see Guidance Note Hea 9 for full details.
Hea10	Thermal Comfort	ARUP	1.3	1	1	A CIBSE AM11 compliant, full dynamic thermal analysis of the building will be carried out in order to confirm that the thermal comfort conditions outlined in CIBSE Guide A have been achieved. Please see Guidance Note Hea 10 for full details
Hea11	Thermal Zoning	ARUP	1.3	1	1	Heating systems will be designed to provide OCCUPANT control to reflect differing heating demands to different spaces. Spaces within 7m of an external wall will be controlled separately from those outside 7m of an external wall.
Hea12	Microbial Contamination	ARUP	1.3	1	1	All water systems in the development, including existing systems have been designed or tested to be in accordance with ACoP L8 or CIBSE TM13.
Hea13a	Acoustic Performance - Internal Noise Levels	ACOUSTICIAN	1.28	1	1	All occupied areas will achieve the BREEAM required indoor ambient noise levels following PC testing, and that where necessary, remediation will be carried out. BREEAM requirements are based on BS8233:1999, with testing to be compliant with BS EN ISO 140-4:1998 and the guidance in Annex B of Approved Document E. This credit does not apply to the RECEPTION / FOYER. Please see Guidance Note Hea 13 for full details.
Hea13b	Acoustic Performance - Reverberation Times	N/A	0.04	1	0	This credit is not achievable as there is currently no post testing of acoustics planned.

General Information						ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT
REF	Description	Responsibility	Value of 1 Credit	Credits Available	Credit expectation	Assumptions
ENERGY						
Ene1	Reduction of CO2 Emissions	ARUP	0.76	15	8	The building will achieve a CO2 index (EPC rating) of 31 or less.
Ene2	Sub-metering of substantial Energy Uses	ARUP	0.76	1	1	Separate, accessible sub-meters, labelled with the end energy consuming use are provided for the following systems: a) Space heating; b) Domestic hot water; c) Cooling; d) Lighting; e) Small Power; f) Covered carpark / vehicle wash. Please see Guidance Note Ene 2 for full details.
Ene4	External lighting	ARUP	0.76	1	1	All external lighting is controlled via a time switch / daylight sensor to prevent activation during daylight hours. Furthermore, all fittings will be specified with efficacies and colour renderings in accordance with Guidance Note Ene 4.
Ene5	Low and Zero Carbon Technologies	ARUP	0.76	3	3	A study into low or zero carbon technologies, covering all points of Guidance Note Ene 5, will be carried out and the results implemented. Furthermore, a 20% reduction in CO2 emissions will be achieved via the specification of LZC technologies, to allow the attainment of the INNOVATION CREDIT. Please see Guidance Note Ene 5 for full credit compliance requirements.
Ene7	Cold Storage Equipment		0.76	3	0	This credit is not sought
Ene14	BMS	ARUP	0.76	1	1	A BMS with the ability to monitor and control the following has been installed: a. Boiler plant b. Chiller, air handling units and pumps (where specified) c. Internal environmental conditions The BMS must have the ability to draw to the attention of the user out of range operational values, and monitor internal environmental conditions within the assessed building. The BMS must have the ability to control heating output so that internal temperatures are maintained within an appropriate pre-determined range. This control must not automatically override local heating controls, where such controls are provided.
TRANSPORT						
Tra1	Provision of Public Transport- Building Type 1	NIGHTINGALES	0.73	3	3	Based on the building location and the public transport provision in the locality, it is assumed that at least three credits can be achieved in this area. For an accurate assessment please provide details of the location and service from all train, bus or tram stops within 1000m of the building entrance.
Tra2	Proximity to Amenities	N/A	0.73	1	0	The building is outside of 500m of more than 3 the following the following: a. Grocery shop and / or food outlet b. Post box c. Cash machine d. Pharmacy e. Doctor's surgery / medical centre
Tra3	Cyclist Facilities- Building Type 1	NIGHTINGALES	0.73	2	2	Covered, secure and well-lit cycle storage facilities are to be incorporated, providing 1 space per every 10 building users. In addition, at least one locker will be provided per bike rack, with associated changing areas accessible for both male and female users, and one shower per ten cycle storage spaces. Please see Guidance Note TRA3 for full details.
Tra4	Pedestrian and Cycle Safety- Building Type 1	N/A	0.73	1	0	Whilst this aspect is already well considered, it has been assumed that the credit requirements may not be met due to spatial restrictions on site.
Tra5	Travel Plan	MACE	0.73	1	1	A travel plan that has been tailored to the specific needs of the development will be developed in accordance with Guidance Note Tra 5 .
Tra6	Maximum Car Parking Capacity	N/A	0.73	2	0	More than one parking space is provided for every three building users.
Tra8	Deliveries & Manoeuvring	N/A	0.73	1	0	Whilst this aspect is already well considered, it has been assumed that the credit requirements may not be met due to spatial restrictions on site.

General Information					ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT	
REF	Description	Responsibility	Value of 1 Credit	Credits Available	Credit expectation	Assumptions
WATER						
<i>Wat1</i>	<i>Water Consumption</i>	<i>ARUP</i>	<i>0.6</i>	<i>3</i>	<i>3</i>	The sanitary ware specification will be compliant with the following: - 6/4 litre, dual-flush WC's & 6 litre single flush Disabled WC's; - ALL WCs provided with DELAYED ACTION INLET VALVES; - Taps limited to a flow rate of less than 6 litres/minute with automatic shut of mechanisms; - Urinals fitted with individual presence detectors or they are ultra low flush/waterless - Showers limited to a flow rate of 9 litres/minute Please see Guidance Note WAT1 for full details.
<i>Wat2</i>	<i>Water Meter</i>	<i>ARUP</i>	<i>0.6</i>	<i>1</i>	<i>1</i>	<i>The main supply to the building will be fitted with a water meter with a pulsed output for future connection to a BMS.</i> <i>In addition, an Innovation credit is to be sought for this credit via the specification of an additional sub-meter for the VEHICLE WASH.</i>
Wat3	Major Leak Detection		0.6	1	0	This credit cannot be achieved due to the highly variable water demand.
Wat4	Sanitary Supply Shut Off	ARUP	0.6	1	1	Solenoid valves are to be installed on the water supply to each toilet area in the building. The flow of water through that supply is to be controlled by either Infra-red movement detectors within each toilet facility or sensors/switches placed at or on entry doors to each facility.
Wat5	Water Recycling	N/A	0.6	1	0	No formal provision has been made with regard to this credit.
Wat6	Irrigation Systems	ARUP	0.6	1	1	Soft-landscaping will be irrigated either via precipitation, recycled water or manually by ground staff - no mains fed system will be employed.
Wat7	Water Recirculation	ARUP	0.6	2	2	The vehicle washing system reclaims and recycles water that falls on, and drains from the vehicle pad. The system must be fully automatic.

General Information						ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT
REF	Description	Responsibility	Value of 1 Credit	Credits Available	Credit expectation	Assumptions
MATERIALS						
Mat1	Materials Specification	NIGHTINGALES	0.83	6	5	Although the materials specification has not yet been fully defined, it is assumed that materials will be selected as types that are A or A+ rated according to the BRE's Green Guide to Specification Online (www.thegreenguide.org). As such, a score of 5 credits has been assumed.
Mat2	Hard Landscaping and Boundary Protection	ARUP	0.83	1	1	At least 80% of the materials specified for the hard landscaping and boundary protection will be A rated according to the Green Guide (www.thegreenguide.org). This can typically be achieved by using recycled sub-base under hard standing areas.
Mat3	Re-use of Building Façade	N/A	0.83	1	0	This credit is unachievable as the building is entirely new build.
Mat4	Re-use of Building Structure	N/A	0.83	1	0	This credit is unachievable as the building is entirely new build.
Mat5	Responsible Sourcing of Materials	NIGHTINGALES / ARUP / BAM QS	0.83	3	3	There will be significant responsible sourcing of materials for the key building elements, as follows: a. Structural Frame - Steel - ISO14001 b. Ground floor - Concrete / Reinforcement / Aggregate - BES6001 'Very Good' c. Upper floors (including separating floors) - Concrete / Reinforcement / Aggregate - BES6001 'Very Good' d. Roof - Various - ISO14001, concrete to BES6001 'Very Good' e. External walls - Various - ISO14001, concrete blocks to BES6001 'Very Good' f. Internal walls - Plasterboard / drylining to ISO14001, concrete blocks to BES6001 'Very Good' g. Foundation/substructure - Concrete / Reinforcement / Aggregate - BES6001 'Very Good' h. Staircase - Concrete / Reinforcement / Aggregate - BES6001 'Very Good'
Mat6	Insulation	NIGHTINGALES / ARUP / BAM QS	0.83	2	1	All insulation products used will have a low embodied impact when compared to their thermal properties. Please see Guidance Note Mat 6 for full compliance requirements.
Mat7	Designing for Robustness	NIGHTINGALES	0.83	1	1	All internal and external areas at risk from vehicular, trolley and pedestrian movement will be identified by the design team and suitable durable protection measures taken. Suitable measures include: a) Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares; b) Protection against internal vehicular / trolley movements within 1m of the internal building fabric in storage, delivery, corridor & kitchen areas; c) Protection from any potential vehicular collision where parking and manoeuvring occurs within 1m of the external building fabric for all car parking areas and within 2m for all delivery area. Please see Guidance Note Mat 7 for full details.
WASTE						
Wst1	Construction Site Waste Management	BAM	1.07	4	2	A Site Waste Management Plan will be produced that includes procedures to minimize site waste and maximise recycling, such that at least 70% by weight / 65% by volume of waste produced will be diverted from landfill for re-use / recycling. Furthermore LESS THAN 16.6m ³ / 8.5 T PER 100m ² of non-hazardous construction waste (excluding excavation waste) will be generated for the development. Please see Guidance Note Wst 1 for full details.
Wst2	Recycled Aggregates	BAM	1.07	1	1	The existing ground floor slabs will provide for over 25% of aggregate requirements by volume.
Wst3	Recyclable Waste Storage	NIGHTINGALES	1.07	1	1	A central, dedicated and clearly labelled space within 20m of the building entrance for the storage of recyclable waste will be provided. This must be positioned in a location with good vehicular access to facilitate collections. The space must provide 2m² per every 1000m² of net floor area, up to a maximum of 10m².
Wst 5	Composting	NIGHTINGALES	1.07	1	1	The following will be incorporated on site: - A vessel for composting suitable food waste resulting from the building's daily operation and use; - Adequate space for storing segregated food waste and composted organic material; - At least one water outlet is provided for cleaning in and around the facility.

General Information						ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT
REF	Description	Responsibility	Value of 1 Credit	Credits Available	Credit expectation	Assumptions
LAND USE & ECOLOGY						
LE1	Reuse of Land		1	1	0	Less than 75% of the proposed development's footprint is on an area of land which has previously been developed for use by industrial, commercial or domestic purposes in the last 50 years.
LE2	Contaminated Land		1	1	0	The site CANNOT be classed as being 'significantly contaminated'.
LE3	Ecological Value of land & protection of Ecological Features	Ecologist / BAM / SHD	1	1	0	The appointed Ecologist will NOT be able to confirm that the site can be classed as 'Land of Low Ecological Value' and that features will be removed.
LE4	Mitigating Ecological Impact	SHD / ECOLOGIST	1	2	1	A 'suitably qualified ecologist' will be appointed to ensure that there will no more than a small negative change (less than 9 species per hectare) in the number of species on site. Please see Guidance Note LE 4 for full details.
LE5	Enhancing Site Ecology	SHD / ECOLOGIST	1	3	1	A suitably qualified ecologist will be employed and will make recommendations for the general enhancement and protection of the site ecology. Please see Guidance Note LE 5 for full details.
LE6	Long term Impact on Biodiversity	SHD / ECOLOGIST / BAM	1	2	2	The appointed ecologist will be able to confirm adherence to all relevant EU and UK legislation and produce a 5 year management plan for site biodiversity. The specification of a Green Roof would aid attainment of this credit. Furthermore, it is assumed that at least FOUR of the additional requirements outlined within Guidance Note LE 6 will be incorporated into the design / planning.
POLLUTION						
Pol1	Refrigerant GWP - Building Services		0.77	1	0	This credit is not sought, over 5kg of refrigerant will be specified, of undefined type.
Pol2	Preventing Refrigerant Leaks	ARUP	0.77	2	2	EITHER no refrigerants are to be used OR no more than 5kg of refrigerants with GWP>5 will be specified within any single hermetic system / no cooling.
Pol3	Refrigerant GWP Cold Storage		0.77	1	0	This credit is not sought.
Pol4	NOx Emissions from Heating Source	ARUP	0.77	3	3	The sole heating source for the development will be efficient gas boilers with NOx emissions of less than 40 mg per kWh.
Pol5	Flood Risk	ARUP	0.77	3	2	a) A flood risk assessment has been carried out concluding that the site is in a zone defined as having a medium or high annual probability of flooding AND the ground level of the building, car parking and access is 600mm above the design flood level for the site's location; b) A SUDS drainage system will be specified to ensure that water run off prior to development will be less than or equal to the site run-off prior to development. Please see Guidance Note Pol 5 for full details.
Pol6	Minimizing Watercourse Pollution	ARUP	0.77	1	1	Effective on site treatment such as SUDs or oil separators will be specified in areas that are or could be a source of watercourse pollution. Please see Guidance Note Pol 6 for full details.
Pol7	Reduction of Night Time Light Pollution	ARUP	0.77	1	1	All external lighting will be controlled via time switch to deactivate between the hours of 2300 to 0700 and that the lighting system will be specified fully in accordance with Table 1 (and associated notes) of the ILE's Guidance Notes for the Reduction of Obtrusive Light, 2005. Note : Security lighting can be active between these hours provided that this part of the lighting system complies with the lower lighting levels recommended during these hours in table 1 of the ILE's Guidance Notes.
Pol8	Noise Attenuation	AEC	0.77	1	1	An acoustician will be appointed to confirm that the noise generated by the development does not increase the background noise level at the nearest noise sensitive development. Where the background noise level is found to have increased, it is assumed that mitigation will be put in place at the source to negate this. Please see Guidance Note Pol8 for full details.

General Information					ENHANCED SPECIFICATION TO ACHIEVE EXCELLENT	
REF	Description	Responsibility	Value of 1 Credit	Credits Available	Credit expectation	Assumptions
INNOVATION CREDITS						
Man2	Considerate Constructors	BAM	1	1	1	The contractor will achieve a score of 36 or more under the Considerate Constructors Scheme.
Hea1	Day lighting	N/A	1	1	0	A 4% daylight factor will not be achieved.
Ene1	Reduction of CO2 Emissions	N/A	1	2	0	The building will not achieve the exemplary credit in this area.
Ene5	Low or Zero Carbon Technologies	ARUP	1	1	1	The building will achieve a 20% CO2 reduction as a result of the use of LZC technologies.
Wat2	Water Meter	ARUP	1	1	1	An additional water meter will be specified for the VEHICLE WASH.
Mat1	Materials Specification	N/A	1	1	0	The building will not achieve the exemplary credit in this area.
Mat5	Responsible Sourcing of Materials	BAM	1	1	1	Over 95% by volume of specified materials will be procured from suppliers who can provide one of ISO14001 / FSC / PEFC / BES6001 accreditation.
Wst1	Construction Site Waste Management	N/A	1	1	0	Site Waste Management WILL NOT NECESSARILY achieve: a) Benchmarks of less than 9.2 m ³ or 4.7 tonnes of waste per 100 m ² of floor area; b) The diversion of 90% by weight / 80% by volume of non-hazardous construction waste from landfill, for either returning to supplier via 'take back' scheme, recycling or re-use.
Special	BREEAM AP	ALL	1	2	2	First Credit 1. BREEAM performance objectives are agreed, (and must be achieved at final certification) – no later than the end of the design brief stage (e.g. RIBA Stage B or equivalent procurement stage). 2. The appointed BREEAM Accredited Professional or SQA is given the opportunity to attend key design team meetings held from the start of RIBA Stage B (Design Brief) up to and including Stage E (Technical Design) or equivalent, and is to be included on the circulation list for minutes from all meetings. 3. A Design stage assessment report is submitted to BRE for interim certification. Second Credit 4. The project is reviewed against BREEAM performance objectives by the appointed BREEAM Accredited Professional or Suitably Qualified BREEAM Assessor (SQA) no later than the end of the Pre-Construction stage (e.g. RIBA Stage H (Tender Action) or equivalent procurement stage). 5. The appointed BREEAM Accredited Professional or SQA is given the opportunity to attend key design team meetings held from the start of RIBA Stage F (Production Information) up to and including Stage K (Construction to Practical Completion) or equivalent, and is to be included on the circulation list for minutes from all meetings. 6. A Post Construction stage assessment report is submitted to BRE for final certification.
Unlisted, BRE Approved Innovations		N/A	1	10	0	The development will not apply for BRE Approved innovation credits.
Total Innovation Score				10	6.00%	