



Eastern Command and Custody Facility

BREEAM Strategy Report

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Police and Crime Commissioner of North Wales



BREEAM Strategy Report

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1. Introduction

1.1 Overview

This Building Research Establishment Environmental Assessment Method (BREEAM) Strategy Report has been prepared for the Police and Crime Commissioner of North Wales' Eastern Command and Custody Facility.

The report shows how a BREEAM 'Very Good' rating of at least 55% can be achieved for the project. The current indicative score is 60.14% (to be confirmed when BRE Global Ltd issue the final BREEAM New Construction 2014 Bespoke Criteria).

A summary of the features which will enable a BREEAM 'Very Good' rating to be achieved is provided in Section 2.2. Full credit details are provided in Appendix A.

1.2 BREEAM Overview

BREEAM is an internationally recognised approach to assessing and certifying the environmental performance of building projects.

BREEAM is designed to enable clients and developers to demonstrate environmental performance in the design and construction of major building projects over and above existing legal minimum requirements.

During a formal BREEAM assessment the development proposals and constructed scheme are checked against a best practice checklist covering the following nine issue areas:

- Management
- Health and wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land use and ecology
- Pollution

Public claims about the BREEAM rating of any scheme can only be made once the scheme has been registered with BRE, assessed by a BRE licensed assessor, and a final certificate has been issued by BRE.

The output of a formal BREEAM assessment is a final (post construction) certified BREEAM report with a BREEAM score (%) and rating. Table 1.1 sets out how the BREEAM rating relates to the BREEAM score. The table also summarises the 'minimum standard' credits required for each BREEAM rating. These credits must be achieved, in addition to the overall required score, in order to achieve a particular BREEAM rating.

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Table 1.1 Summary of BREEAM 2014 Rating Requirements

BREEAM rating	BREEAM score required	'Minimum Standard' Credits Required for BREEAM New Construction 2014
Pass	≥30%	Mat 03: Responsible sourcing of materials – criterion 1 only
Good	≥45%	As above and: Wat 01: Water consumption – 1 credit Wat 02: Water monitoring – criterion 1 only
Very Good	≥55%	As above and: Ene 02: Energy monitoring – 1 st credit LE 03: Minimising impact on existing site ecology – 1 credit
Excellent	≥70%	As above and: Man 03: Responsible construction practices – 1 st credit (Considerate Construction) Man 04: Commissioning and handover – criterion 10 only (Building User Guide) Man 05: Aftercare – 1 credit (seasonal commissioning) Ene 01: Reduction of energy use and carbon emissions – 5 credits Wst 03: Operational waste – 1 credit
Outstanding	≥85%	As above and: Man 03: Responsible construction practices – 2 nd credit (Considerate Construction) Ene 01: Reduction of energy use and carbon emissions – 8 credits Wat 01: Water consumption – 2 credits Wst 01: Construction waste management – 1 credit

2. BREEAM Strategy

2.1 Methodology

The BREEAM Strategy discussions have been led by Helen Davies (Senior Sustainability Consultant, Licensed BREEAM Assessor and BREEAM Accredited Professional) of Jacobs UK Ltd. Jacobs is licensed by BRE to undertake BREEAM Assessments for a range of building types including non-residential buildings such as warehouses, offices, retail, nurseries, medical centres and fitness/ sports facilities.

During the BREEAM Strategy discussions between Helen Davies, the design team and the client, the criteria for meeting each credit were reviewed, along with an initial assessment of the likelihood that the credit could be achieved.

Each potential BREEAM credit was reviewed and categorised as follows:

Table 2.1 Summary of terms used

Pre- Assessment Category	Description
“BREEAM Strategy Target”	Credit either mandatory as a ‘minimum standard’ for required rating, and/or recommended by BREEAM Assessor based on verbal information provided by the Design Team at the BREEAM Strategy discussions to achieve the required rating. These credits are considered technically feasible and should be actively pursued during the remainder of the design and construction process.
“Possible”	Not yet clear to the BREEAM Assessor whether achieving the credit criteria will be technically feasible or achievable without a significant risk to the development’s economic viability.
“Unlikely”	The credit criteria are unlikely to be met under the current proposals and are considered by the BREEAM Assessor to be not possible to achieve for this project (e.g. due to site constraints or project timescales).

Following these discussions, a strategy was identified for achieving a BREEAM ‘Very Good’ rating.

2.2 BREEAM Strategy

The following sections summarise the features which will enable a BREEAM ‘Very Good’ rating to be achieved (as identified during the BREEAM Strategy discussions).

2.2.1 Health and Wellbeing

In relation to the health and wellbeing of occupants, the development will include:

- A glare control strategy to design out the potential for disabling glare.
- High frequency control gear to all fluorescent lights to minimise flicker.
- Best practice lighting levels, both internally and externally.
- Occupant control (where appropriate) of internal lighting.

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- Production of an Indoor Air Quality Plan to minimise indoor air pollution during occupation of the building.
- Ventilation rates in accordance with relevant guidance (including CO₂ sensors to ensure ventilation rates are maintained).
- Measures to minimise external air pollution entering the building (i.e. careful location of intakes and extracts, and provision of filtration on heating, ventilation, and air conditioning (HVAC) systems).
- Use of products with low Volatile Organic Compound (VOC) content.
- Measurement of formaldehyde and VOC levels prior to occupation to ensure levels are of an acceptable standard.
- Thermal comfort modelling undertaken to ensure thermal comfort and provision of appropriate heating zoning and controls.
- Internal indoor ambient noise levels, sound insulation levels and reverberation times in accordance with the required standards.
- Measures to maximise the security of the development.

2.2.2 Energy

In relation to energy consumption, the building will be designed to achieve a performance improvement progressively better than the Target Emissions Rate (TER) required for Building Regulations. The development will also include:

- Best practice levels of sub-metering by energy use and high energy load/ tenancy areas.
- High efficacy external lighting.
- Incorporation of a Low or Zero Carbon (LZC) technology in line with the recommendations of a LZC feasibility study.
- Energy efficient equipment including lift(s) and office equipment / domestic white goods / kitchen equipment where applicable.

The Contractor will be required to monitor and record data on energy consumption throughout the construction period.

2.2.3 Transport

In relation to transport, the development will include:

- Best practice cycle storage facilities (secure, covered and lit).
- Showers and changing facilities.

A Travel Plan has been developed which will be implemented post construction and supported by the building's management in operation.

The development will also be in close proximity to amenities for building users.

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2.2.4 Water

In relation to sustainable water consumption, the development will include:

- Water efficient sanitary fittings.
- Pulsed output water meter (on the mains water supply and for any water-consuming plant or building areas consuming 10% or more of the building's total water demand).
- Major leak detection system.
- Flow control devices to minimise water leaks and wastage from sanitary fittings.

The Contractor will be required to monitor and record data on water consumption throughout the construction period.

2.2.5 Materials and Waste

In relation to materials and waste, the development will include:

- Use of 'A' and 'A+' rated materials (as defined by the 'Green Guide to Specification').
- Legal and sustainable timber (specified and purchased in accordance with the UK Government's Timber Procurement Policy).
- Use of a Sustainable Procurement Plan to source materials for the project.
- Use of responsibly sourced materials.
- Durability and protection measures to prevent damage to vulnerable parts of the development.
- Use of recycled / secondary aggregates to reduce the demand for virgin material and to optimise material efficiency in construction.
- Good practice secure external recyclable waste storage area.

The Contractor will be required to achieve high levels of waste minimisation and recycling in construction.

2.2.6 Land Use and Ecology

In relation to land use and ecology, a suitably qualified ecologist has already been appointed to advise on protecting and enhancing the ecology of the site and to ensure that all relevant legislation is complied with. In addition, a landscape and habitat management plan will be produced.

The Contractor will be required to implement any recommendations made by the ecologist.

2.2.7 Pollution

In relation to minimising pollution, the development will include:

- Heating and hot water plant with low NOx emissions.
- External lighting in accordance with best practice for reducing night-time light pollution.
- Noise levels which will not affect nearby noise-sensitive areas or buildings.

The Contractor will be required to implement best practice pollution prevention policies and procedures on site.

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2.2.8 Drainage

In relation to drainage, the development will include:

- Drainage measures to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site.

2.2.9 Commissioning and aftercare

- All building services will be tested and commissioned to best practice levels (including seasonal commissioning during the first twelve months of occupation).
- A non-technical Building User Guide will be produced to help building users access, understand and operate the building efficiently.
- A training schedule will be prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans.
- Aftercare will include on-site weekly attendance for at least four weeks after handover, and longer term aftercare (e.g. helpline or nominated individual) for the first twelve months after occupation.
- A Post Occupancy Evaluation will be carried out by a third party one year after occupation to gain building performance feedback.
- There will be a commitment made to collect occupant satisfaction, energy and water data for the first three years after occupation to check that the building is performing as expected.

2.3 BREEAM Strategy Summary

The results of the BREEAM Strategy discussions show an indicative score of 60.14%, which equates to a BREEAM 'Very Good' rating. Figure 2.1 summarises the results:

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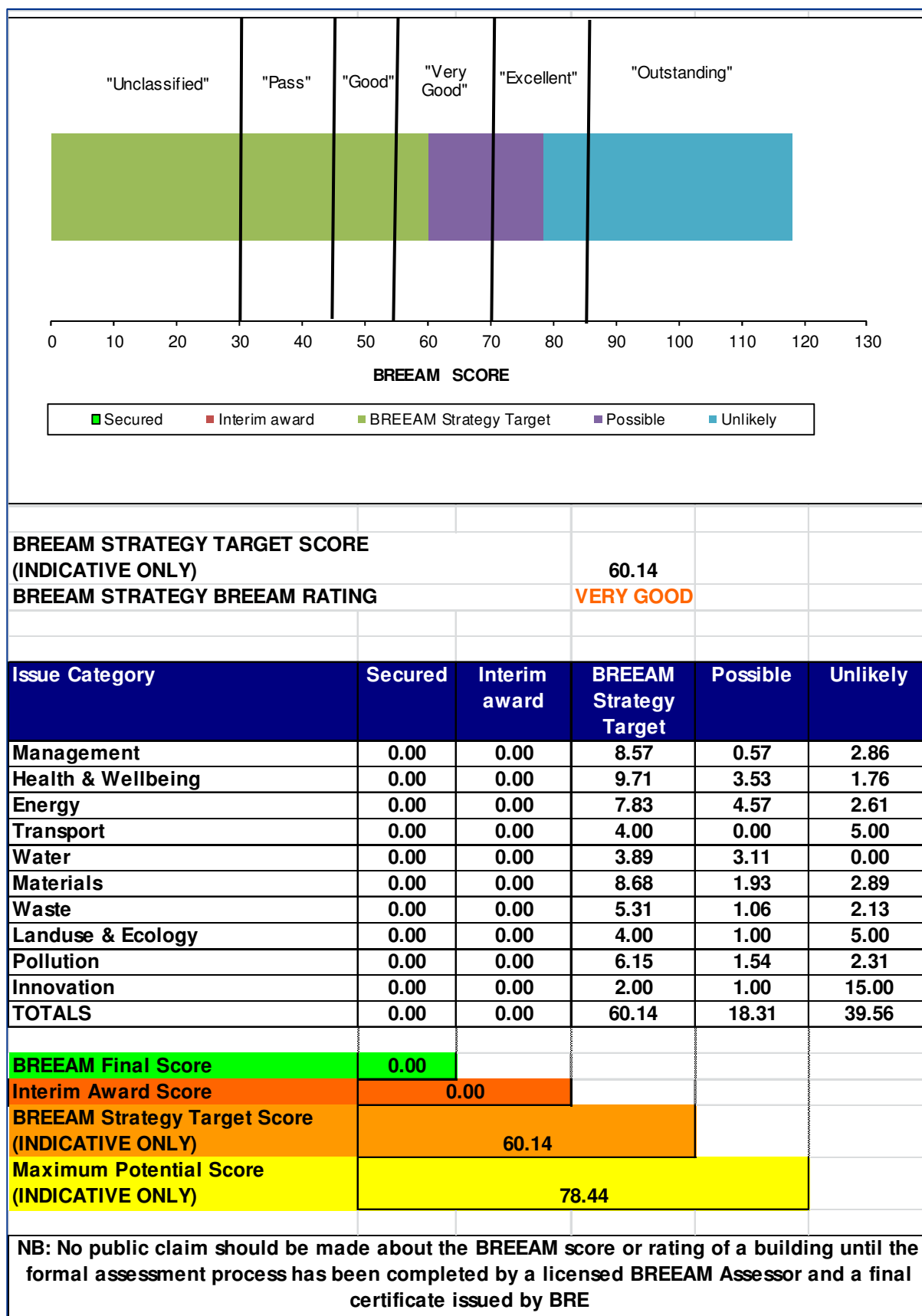


Figure 2.1 Indicative score and rating

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It should be noted that the building is not covered by any of the standard BREEAM New Construction 2014 schemes and therefore it has been necessary to liaise with BRE Global Ltd to develop Bespoke BREEAM Criteria.

The final list of credits and criteria for the development (and therefore targeted score) can be confirmed when BRE Global Ltd issue the final BREEAM Bespoke Criteria.

Appendix A. BREEAM 2014 Strategy Credits

BREEAM UK NC 2014 Credit Title	Anticipated Assessment Criteria - please refer to the BREEAM UK New Construction Technical Manual (SD5076-3.0: 2014) for details (NB. The final list of credits and criteria for the development can only be confirmed when BRE Global Ltd issue the final BREEAM Bespoke Criteria)	Credit value (indicative only - this can only be confirmed when BRE Global Ltd issue the final BREEAM Bespoke Criteria)
Man 02 Life cycle cost and service life planning: Component level LCC plan	1. A component level LCC plan has been developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008 and includes the following component types (where present): a.Envelope, e.g. cladding, windows, and/or roofing b.Services, e.g. heat source cooling source, and/or controls c.Finishes, e.g. walls, floors and/or ceilings d.External spaces, e.g. alternative hard landscaping, boundary protection	
Man 02 Life cycle cost and service life planning: Component level LCC plan	4.Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.	
Man 02 Life cycle cost and service life planning: Component level LCC plan		0.57
Man 02 Life cycle cost and service life planning: Capital cost reporting	5.Report the capital cost for the building in pounds per square metre (£k/m ²), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section. At the design stage of assessment, where the final information is not available, the credit can be awarded where the client provides the predicted capital cost, including contingencies, and commits to providing this information for the final stage of assessment. At the final stage, if the final capital cost is not known, the client's/cost consultant's best estimate should be provided.	
Man 02 Life cycle cost and service life planning: Capital cost reporting		0.57
Man 03 Responsible construction practices: Pre-requisite	1.All timber and timber based products used on the project is 'Legally harvested and traded timber' (see Relevant definitions).	
Man 03 Responsible construction practices: Pre-requisite		0.00
Man 03 Responsible construction practices: Environmental Management	1. The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either: a. third party certified, to ISO 14001/EMAS or equivalent standard; or b. have a structure that is in compliance with BS 8555:2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and has completed phase audits one to four, as defined in BS 8555.For Healthcare NHS buildings, see the pre-requisite for this issue in compliance note CN7/	
Man 03 Responsible construction practices: Environmental Management	2. The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6/	
Man 03 Responsible construction practices: Environmental Management		0.57
Man 03 Responsible construction practices: Sustainability Champion (Construction)	3. A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, stages 5 and 6).To do this the Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance. The Sustainability Champion will monitor site activities with sufficient frequency (see compliance note CN6) to ensure that risks of non-compliance are minimised. They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate.	
Man 03 Responsible construction practices: Sustainability Champion (Construction)	4. The defined BREEAM performance target forms a requirement of the principal contractor's contract (see compliance note Man 01 Project brief and design – CN5 and in Man 01 Project brief and design – Relevant definitions).	
Man 03 Responsible construction practices: Sustainability Champion (Construction)	5. To achieve this credit at the final post construction stage of assessment, the BREEAM-related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM Assessor's final post construction stage assessment report.	
Man 03 Responsible construction practices: Sustainability Champion (Construction)		0.57
Man 03 Responsible construction practices: Considerate Construction (1st credit)	6. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification.The BREEAM credits can be awarded as follows: To achieve BREEAM credits using the Considerate Constructors Scheme (CCS) and its Code of Considerate Practice, the principal contractor must achieve scheme certification and a CCS score as follows: 1. CCS score between 25 and 34 with a score of at least 5 in each of the five sections. A site can be visited by a CCS Monitor more than once and the CCS Certificate will be awarded based on the results of the CCS Monitor's final visit. At the final stage of the BREEAM assessment, the number of BREEAM credits awarded should therefore be based on the final visit and the subsequent Monitor's report and certified CCS score.	
Man 03 Responsible construction practices: Considerate Construction (1st credit)		0.57
Man 03 Responsible construction practices: Considerate Construction (2nd credit)	6. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification.The BREEAM credits can be awarded as follows: To achieve BREEAM credits using the Considerate Constructors Scheme (CCS) and its Code of Considerate Practice, the principal contractor must achieve scheme certification and a CCS score as follows: 2.CCS score between 35 and 39 with a score of at least 7 in each of the five sections. A site can be visited by a CCS Monitor more than once and the CCS Certificate will be awarded based on the results of the CCS Monitor's final visit. At the final stage of the BREEAM assessment, the number of BREEAM credits awarded should therefore be based on the final visit and the subsequent Monitor's report and certified CCS score.	
Man 03 Responsible construction practices: Considerate Construction (2nd credit)		0.57

Man 03 Responsible construction practices: Considerate Construction (Exemplary level)	6. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification. The BREEAM credits can be awarded as follows: To achieve BREEAM credits using the Considerate Constructors Scheme (CCS) and its Code of Considerate Practice, the principal contractor must achieve scheme certification and a CCS score as follows: 3.CCS score of 40 or more with a score of at least 7 in each of the five sections. A site can be visited by a CCS Monitor more than once and the CCS Certificate will be awarded based on the results of the CCS Monitor's final visit. At the final stage of the BREEAM assessment, the number of BREEAM credits awarded should therefore be based on the final visit and the subsequent Monitor's report and certified CCS score.	
Man 03 Responsible construction practices: Considerate Construction (Exemplary level)		1.00
Man 03 Responsible construction practices: Monitoring of construction site impacts (Utility consumption)	7. Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme. To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appointed, the Sustainability Champion could perform this role.	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Utility consumption)	9. Monitor and record data on principal constructor's and subcontractors' energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation.	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Utility consumption)	10. Report the total carbon dioxide emissions (total kgCO₂/project value) from the construction process via the BREEAM Assessment Scoring and Reporting tool.	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Utility consumption)	12. Monitor and record data on principal constructor's and subcontractors' potable water consumption (m³) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Utility consumption - Energy)	13. Using the collated data report the total net water consumption (m³), i.e. consumption minus any recycled water use, from the construction process via the BREEAM Assessment Scoring and Reporting tool.	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Utility consumption)		0.57
Man 03 Responsible construction practices: Monitoring of construction site impacts (Transport of construction materials and waste)	Criterion 7 is achieved	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Transport of construction materials and waste)	Monitor and record data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. See Relevant definitions. b. Scope of this monitoring must cover the following as a minimum: i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Life cycle impacts), including insulation materials. ii. Ground works and landscaping materials. c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan.	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Transport of construction materials and waste)	16. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions (kgCO₂ eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool.	
Man 03 Responsible construction practices: Monitoring of construction site impacts (Transport of construction materials and waste)		0.57
Man 04 Commissioning and handover: Commissioning and testing schedule and responsibilities	1. A schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric.	
Man 04 Commissioning and handover: Commissioning and testing schedule and responsibilities	2. All commissioning activities are carried out in accordance with current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a building management system (BMS) is specified, refer to compliance note CN5 on BMS commissioning procedures.	
Man 04 Commissioning and handover: Commissioning and testing schedule and responsibilities	3. An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client.	
Man 04 Commissioning and handover: Commissioning and testing schedule and responsibilities	4. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.	
Man 04 Commissioning and handover: Commissioning and testing schedule and responsibilities		0.57
Man 04 Commissioning and handover: Commissioning building services	5. For buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage (by either the client or the principal contractor) with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover/post-handover stages. Where there are simple building services, this role can be carried out by an appropriate project team member (see criterion 3), provided they are not involved in the general installation works for the building services system(s).	
Man 04 Commissioning and handover: Commissioning building services		0.57
Man 04 Commissioning and handover: Testing and inspecting building fabric	6. The commissioning and testing schedule and responsibilities credit is achieved.	
Man 04 Commissioning and handover: Testing and inspecting building fabric	7. The integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of post construction testing and inspection. Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an airtightness test and inspection (see compliance notes CN6 and CN7. The survey and testing is undertaken by a Suitably Qualified Professional (see Relevant definitions) in accordance with the appropriate standard.	

Man 04 Commissioning and handover: Testing and inspecting building fabric	8. Any defects identified in the thermographic survey or the airtightness testing reports are rectified prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building/element.	
Man 04 Commissioning and handover: Testing and inspecting building fabric		0.57
Man 04 Commissioning and handover: Handover	9. A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers <i>Dedicated building/site specific guidance for the non-technical building user. The purpose of the guide is to help building users access, understand and operate the building efficiently and in a manner in keeping with the original design intent. A Building User Guide should be written in plain English and will provide easily accessible and understandable information relevant to the following stakeholders:</i> - The building's staff (or where relevant residents) - The non-technical facilities management team/building manager - Other building users, e.g. visitors/community users. <i>The content of the guide will be specific to the building type and end users, but broadly should include information on the following:</i> - Overview of the building and its environmental strategy, e.g. energy/water/waste efficiency policy/strategy and how users should engage with/deliver the policy/strategy. - Building services overview and access to controls, e.g. where to find them, what they control, how to operate effectively and efficiently etc. - Pre-arrival information for visitors, e.g. access and security procedures/provisions - Provision of, and access to, shared facilities - Safety and emergency information/instructions - Building related operational procedures specific to building type/operation, e.g. laboratories - Building related incident reporting/feedback arrangements - Building related training information/links - Provision of, and access to, transport facilities, e.g. public transport, cyclist facilities, pedestrian routes etc. - Provision of, and access to, local amenities - Re-fit, refurbishment and maintenance arrangements/considerations - Links, references and relevant contact details	
Man 04 Commissioning and handover: Handover	A document is produced summarising the building's design intent.	
Man 04 Commissioning and handover: Handover	10. A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: a. The building's design intent b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc. e. Maintenance requirements, including any maintenance contracts and regimes in place	
Man 04 Commissioning and handover: Handover		0.57
Man 05 Aftercare: Aftercare support	1. There is (or will be) operational infrastructure and resources in place to provide aftercare support to the building occupier(s), which includes the following as a minimum: a. A meeting programmed to occur between the aftercare team/individual and the building occupier/management (prior to initial occupation, or as soon as possible thereafter) to: i. Introduce the aftercare team or individual to the aftercare support available, including the Building User Guide (where existing) and training schedule/content. ii. Present key information about the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible. b. On-site facilities management training, to include a walkabout of the building and introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands. c. Initial aftercare support provision for at least the first month of building occupation, e.g. on-site attendance on a weekly basis to support building users and management (this could be more or less frequent depending on the complexity of the building and building operations). d. Longer term aftercare support provision for occupants for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users/management.	
Man 05 Aftercare: Aftercare support	2. There is (or will be) operational infrastructure and resources in place to co-ordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is occupied. This is done to facilitate analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and/or user behaviours accordingly.	
Man 05 Aftercare: Aftercare support		0.57
Man 05 Aftercare: Seasonal commissioning	3. The following seasonal commissioning activities will be completed over a minimum 12-month period, once the building becomes substantially occupied: a. Complex systems - Specialist Commissioning Manager: i. Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn). ii. Where applicable, testing should also be carried out during periods of extreme (high or low) occupancy. iii. Interviews with building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. iv. Re-commissioning of systems (following any work needed to serve revised loads), and incorporating any revisions in operating procedures into the operations and maintenance (O&M) manuals. b. Simple systems (naturally ventilated) - external consultant/aftercare team/facilities manager: i. Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. ii. Take all reasonable steps to re-commission systems following the review to take account of deficiencies identified and incorporate any relevant revisions in operating procedures into the O&M manuals.	
Man 05 Aftercare: Seasonal commissioning		0.57

Man 05 Aftercare: Post occupancy evaluation	4. The client or building occupier makes a commitment to carry out a post-occupancy evaluation (POE) exercise one year after initial building occupation. This is done to gain in-use performance feedback from building users to inform operational processes, including re-commissioning activities, and maintain or improve productivity, health, safety and comfort. The POE is carried out by an independent party (see Man 01 Project brief and design – Relevant definitions) and needs to cover: a. A review of the design intent and construction process (review of design, procurement, construction and handover processes). i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Other relevant issues vi. Sustainability performance (energy/water consumption, performance of any sustainable features or technologies e.g. materials, renewable energy, rainwater harvesting etc.). b. A review of the design intent and construction process (review of design, procurement, construction and handover processes). c. Feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering: i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Other relevant issues. d. Sustainability performance (energy/water consumption, performance of any sustainable features or technologies e.g. materials, renewable energy, rain-water harvesting etc.).	
Man 05 Aftercare: Post occupancy evaluation	5. The client or building occupier makes a commitment to carry out the appropriate dissemination of information on the building's post-occupancy performance. This is done to share good practice and lessons learned and inform changes in-user behaviour, building operational processes and procedures, and system controls. Refer to compliance notes CN4, CN5 and CN5 for a definition of appropriate dissemination. This also provides advice on appropriate dissemination where the building or building information is commercially or security sensitive.	
Man 05 Aftercare: Post occupancy evaluation		0.57
Man 05 Aftercare: Exemplary level	6. There is (or will be) operational infrastructure and resources in place to co-ordinate the following activities at quarterly intervals for the first three years of building occupation: a. Collection of occupant satisfaction, energy consumption and water consumption data. b. Analysis of the data to check the building is performing as expected and make any necessary adjustments to systems controls or to inform building user behaviours. c. Setting targets for reducing water and energy consumption and monitor progress towards these. d. Feedback any 'lessons learned' to the design team and developer for use in future projects. e. Provision of the actual annual building energy, water consumption and occupant satisfaction data to BRE.	
Man 05 Aftercare: Exemplary level		1.00
Hea 01 Visual comfort: Glare control	1. The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures (see compliance note CN3).	
Hea 01 Visual comfort: Glare control	2. The glare control strategy avoids increasing lighting energy consumption, by ensuring that: a. The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the facade. AND b. The use or location of shading does not conflict with the operation of lighting control systems.	
Hea 01 Visual comfort: Glare control		0.88
Hea 01 Visual comfort: Internal and external lighting levels, zoning and control	7. All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts.	
Hea 01 Visual comfort: Internal and external lighting levels, zoning and control	8. Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard.	
Hea 01 Visual comfort: Internal and external lighting levels, zoning and control	9. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. This gives recommendations highlighting: a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.) b. For uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance.	
Hea 01 Visual comfort: Internal and external lighting levels, zoning and control	10. All external lighting located within the construction zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.	
Hea 01 Visual comfort: Internal and external lighting levels, zoning and control	11. Internal lighting is zoned to allow for occupant control (see Relevant definitions) in accordance with the criteria below for relevant areas present within the building: a. In office areas, zones of no more than four workplaces b. Workstations adjacent to windows/atria and other building areas separately zoned and controlled c. Seminar and lecture rooms: zoned for presentation and audience areas d. Library spaces: separate zoning of stacks, reading and counter areas e. Teaching space or demonstration area g. Auditoria: zoning of seating areas, circulation space and lectern area h. Dining, restaurant, café areas: separate zoning of servery and seating/dining areas i. Retail: separate zoning of display and counter areas j. Bar areas: separate zoning of bar and seating areas k. Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff.	
Hea 01 Visual comfort: Internal and external lighting levels, zoning and control		0.88

Hea 02 Indoor air quality: Indoor air quality (IAQ) plan	1. An indoor air quality plan has been produced, with the objective of facilitating 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: a. Removal of contaminant sources b. Dilution and control of contaminant sources c. Procedures for pre-occupancy flush out d. Third party testing and analysis e. Maintaining indoor air quality in-use	
Hea 02 Indoor air quality: Indoor Air Quality Plan		0.88
Hea 02 Indoor air quality: Ventilation	2. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.	
Hea 02 Indoor air quality: Ventilation	3. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows: a. In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution. OR ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:2007 Annex A2. b. In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution.	
Hea 02 Indoor air quality: Ventilation	4. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3.	
Hea 02 Indoor air quality: Ventilation	5. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO₂) or air quality sensors specified and a. In mechanically ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space. b. In naturally ventilated buildings/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/roof vents.	
Hea 02 Indoor air quality: Ventilation		0.88
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (products)	6. All decorative paints and varnishes specified meet the criteria in Table - 18	
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (products)	7. At least five of the seven remaining product categories listed in Table - 18 meet the testing requirements and emission levels criteria for volatile organic compound (VOC) emissions (listed in the table).	
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (products)		0.88
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (Post construction)	8. The formaldehyde concentration level is measured post construction (but pre-occupancy) and is found to be less than or equal to 100µg/averaged over 30 minutes (WHO guidelines for indoor air quality: Selected pollutants, 2010).	
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (Post construction)	9. The total volatile organic compound (TVOC) concentration level is measured post construction (but pre-occupancy) and found to be less than 300µg/over 8 hours, in line with the building regulation requirements.	
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (Post construction)	10. Where VOC and formaldehyde levels are found to exceed the limits defined in criteria 10 and 11, the project team confirms the measures that have, or will be taken, in accordance with the IAQ plan, to reduce the levels to within these limits.	
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (Post construction)	11. The testing and measurement of the above pollutants are in accordance with the following standards where relevant: a. BS ISO 16000-4: 2011 Diffusive sampling of formaldehyde in air b. BS ISO 16000-6: 2011 VOCs in air by active sampling c. BS EN ISO 16017-2: 2003 VOCs - Indoor, ambient and workplace air by passive sampling d. BS ISO 16000-3: 20116 formaldehyde and other carbonyls in air by pumped sampling.	
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (Post construction)	12. The measured concentration levels of formaldehyde (µg/m ³) and TVOC (µg/m ³) are reported, via the BREEAM Assessment Scoring and Reporting Tool.	
Hea 02 Indoor air quality: Volatile organic compound (VOC) emission levels (Post construction)		0.88
Hea 04 Thermal comfort: Thermal modelling	1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling.	
Hea 04 Thermal comfort: Thermal modelling	2. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11).	
Hea 04 Thermal comfort: Thermal modelling	3. The modelling demonstrates that: a. For air conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). b. For naturally ventilated/free running buildings: i. Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). ii. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings.	
Hea 04 Thermal comfort: Thermal modelling	4. For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.	
Hea 04 Thermal comfort: Thermal modelling		0.88
Hea 04 Thermal comfort: Thermal zoning and controls	9. Criteria 1 to 4 are achieved.	
Hea 04 Thermal comfort: Thermal zoning and controls	10. The thermal modelling analysis (undertaken for compliance with criteria 1 to 4) has informed the temperature control strategy for the building and its users.	

Hea 04 Thermal comfort: Thermal zoning and controls	11. The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. For example consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows. b. The degree of occupant control required for these zones, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) considers: i. User knowledge of building services ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required) iii. How the user is likely to operate or interact with the system(s), e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc. iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike drafts). c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants. d. The need or otherwise for an accessible building user actuated manual override for any automatic systems.	
Hea 04 Thermal comfort: Thermal zoning and controls		0.88
Hea 05 Acoustic performance: 1st credit	Where the building meets the following acoustic performance standards and testing requirements for all relevant functional areas: All room functions Criteria: Internal indoor ambient noise levels: Indoor ambient noise levels comply with the design ranges given in BS 8233: 2014 unless otherwise stated below. Where the room types below are present, the appropriate criteria for ambient noise levels, sound insulation and acoustic privacy must also be achieved. Testing requirement: Internal indoor ambient noise levels: A programme of pre-completion acoustic testing is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures outlined in the Additional information section of this BREEAM issue. Acoustically sensitive rooms Criteria: Sound insulation: The sound insulation between acoustically sensitive rooms and other occupied areas complies with the example matrix relating to internal sound insulation within Section 7.5 of BS 8233:2014 which takes into consideration the likely level of activity noise, the degree of privacy required and the sensitivity of the adjacent space. It may be considered appropriate to adapt the levels of sound insulation presented within the table according to a specific building's use and any modification to the criteria should be justified by an SQA. Examples of rooms with a 'confidential' privacy requirement may include human resources meeting rooms, or rooms where private conversations may be taking place, however their 'activity noise' is likely to be only 'typical' and then the level of sound insulation would be determined based on the sensitivity of the receiving space. Factory spaces are likely to be considered less sensitive as a receiving space than an adjacent office area, however the activity noise level may be anticipated to be higher. Testing requirement: Sound insulation: A programme of pre-completion acoustic testing is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures in the Methodology section.	
Hea 05 Acoustic performance: 1st credit	OR Where a suitably qualified acoustician (see relevant definitions) is appointed to define a bespoke set of performance requirements for all function areas in the building using the following three acoustic principles, setting out the performance requirements for each and the testing regime required. a. Sound insulation b. Indoor ambient noise level c. Reverberation times.	
Hea 05 Acoustic performance: 1st credit		0.88
Hea 05 Acoustic performance: 2nd credit	Where the building meets the following acoustic performance standards and testing requirements for all relevant functional areas: Rooms/areas used for speech or performance, including public speaking Criteria: Achieve reverberation times compliant with Section 2 of APS. In addition, or alternatively, if relevant to the assessed building; classrooms, seminar rooms and lecture theatres achieve reverberation times compliant with section 2 of APS. Testing requirement: Reverberation times within teaching and study spaces: A programme of acoustic measurements is carried out by a compliant test body to achieve the required performance standards set out in table 5 in section 2 of APS. Measurements should be carried out in accordance with the ANC Good Practice Guide, Acoustic testing of Schools. Open Plan teaching spaces: STI Measurements of the STI should be taken in at least one in ten typical student listening positions in the open plan spaces in accordance with the ANC Good Practice Guide, Acoustic testing of Schools. Corridors and stairwells: installation of a specification compliant with the APS criteria demonstrates compliance. Reference is also made to the Notes below. Notes: Where the reverberation time required by the relevant standard is not appropriate for the type of space/building assessed, the acoustician must confirm why this is the case. In addition the acoustician must set alternative appropriate reverberation times and provide these to demonstrate	
Hea 05 Acoustic performance: 2nd credit	OR Where a suitably qualified acoustician (see relevant definitions) is appointed to define a bespoke set of performance requirements for all function areas in the building using the following three acoustic principles, setting out the performance requirements for each and the testing regime required. a. Sound insulation b. Indoor ambient noise level c. Reverberation times.	
Hea 05 Acoustic performance: 2nd credit		0.88

Hea 06 Safety and security: Security of site and building	11. A Suitably Qualified Security Specialist (SQSS) conducts an evidence based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). Security Needs Assessment (SNA): The project and site specific assessment of security needs, including: 1. A visual audit of the site and surroundings, identifying environmental cues and features pertinent to the security of the proposed development. 2. Formal consultation with relevant stakeholders, including the local ALO, CPDA & CTSA (as applicable), in order to obtain a summary of crime and disorder issues in the immediate vicinity of the proposed development. 3. Identify risks specific to the proposed, likely or potential use of the building(s). 4. Identify risks specific to the proposed, likely or potential user groups of the building(s). 5. Identify any detrimental effects the development may have on the existing community.	
Hea 06 Safety and security: Security of site and building	12. The SQSS develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA.	
Hea 06 Safety and security: Security of site and building	13. The recommendations or solutions proposed by the SQSS are implemented (see CN3.6. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.	
Hea 06 Safety and security: Security of site and building		0.88
Ene 01 Reduction of energy use and carbon emissions: Energy performance (1st credit)	1. Calculate an Energy Performance Ratio for New Constructions (EPR NC). 1st BREEAM Credit awarded for EPR NC 0.075.	
Ene 01 Reduction of energy use and carbon emissions: Energy performance (1st credit)		0.65
Ene 01 Reduction of energy use and carbon emissions: Energy performance (2nd credit)	2. Calculate an Energy Performance Ratio for New Constructions (EPR NC). 2nd BREEAM Credit awarded for EPR NC 0.15.	
Ene 01 Reduction of energy use and carbon emissions: Energy performance (2nd credit)		0.65
Ene 01 Reduction of energy use and carbon emissions: Energy performance (3rd credit)	3. Calculate an Energy Performance Ratio for New Constructions (EPR NC). 3rd BREEAM Credit awarded for EPR NC 0.225.	
Ene 01 Reduction of energy use and carbon emissions: Energy performance (3rd credit)		0.65
Ene 02 Energy monitoring: Sub-metering of major energy consuming systems	1. Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. Detailed guidance on how to develop an appropriate metering strategy for the energy criteria of a new building is available in CIBSE TM39 Building energy metering. Estimating the annual energy consumption of each end use: Where the total consumption of any single end use category (or a combination of end use categories added together) is estimated to account for less than 10% of the annual energy consumption for a given fuel type, it is not necessary for this end use to be sub-metered. In this instance, the design team should demonstrate that the respective end use(s) is expected to account for less than 10% of the annual energy consumption for the fuel type. Where a given end use(s) will clearly account for less than 10% of the total annual energy consumption for the fuel type in question, a simple hand calculation or use of benchmark data to demonstrate this is acceptable. Estimating the total annual energy consumption: Where it is unclear whether an end use(s) would account for 10% of the annual energy consumption for a given fuel type or not, more detailed calculations should be provided. The total annual energy consumption should be estimated using a method that estimates actual energy consumption. The energy consumption for each end use may be estimated by using methods described in CIBSE TM54: Evaluating operational energy performance of buildings at the design stage2, using actual operational inputs (rather than those used for Building Regulations calculations). The weather data used should be the average current weather data for the local area. The data on water consumption from the Wat 01 Water consumption issue may be used as inputs for evaluating the energy use of domestic hot water.	
Ene 02 Energy monitoring: Sub-metering of major energy consuming systems	2. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2 are metered using an appropriate energy monitoring and management system.	
Ene 02 Energy monitoring: Sub-metering of major energy consuming systems	3. The systems in smaller buildings are metered either with an energy monitoring and management system or with separate accessible energy sub-meters with pulsed or other open protocol communication outputs, to enable future connection to an energy monitoring and management system (see Relevant definitions).	
Ene 02 Energy monitoring: Sub-metering of major energy consuming systems	4. The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.	
Ene 02 Energy monitoring: Sub-metering of major energy consuming systems		0.65
Ene 02 Energy monitoring: Sub-metering of high energy load and tenancy areas	5. An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.	
Ene 02 Energy monitoring: Sub-metering of high energy load and tenancy areas		0.65
Ene 03 External lighting	1. The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances).	
Ene 03 External lighting	OR alternatively, where the building does have external lighting, one credit can be awarded as follows:	
Ene 03 External lighting	2. The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt.	
Ene 03 External lighting	3. All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	
Ene 03 External lighting		0.65

Ene 04 Low carbon design: Low zero carbon feasibility study	7. A feasibility study has been carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent) by an energy specialist (see Relevant definitions) to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development. The LZC study should cover as a minimum: 1. Energy generated from LZC energy source per year 2. Carbon dioxide savings from LZC energy source per year 3. Life cycle cost of the potential specification, accounting for payback 4. Local planning criteria, including land use and noise 5. Feasibility of exporting heat/electricity from the system 6. Any available grants 7. All technologies appropriate to the site and energy demand of the development. 8. Reasons for excluding other technologies 9. Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme. 8. A local LZC technology/technologies has/have been specified for the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO2) emissions. The amount of energy or CO2 emissions reduction is not specified in the criteria in this issue. However, it should not be a trivial amount. As a guide, the installation should contribute at least 5% of overall building energy demand and/or CO2 emissions.	
Ene 04 Low carbon design: Low zero carbon feasibility study		
Ene 04 Low carbon design: Low zero carbon feasibility study		0.65
Ene 06 Energy efficient transportation systems: Energy consumption	1. Where lifts, escalators and/or moving walks (transportation types) are specified: a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. b. The energy consumption has been calculated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3: Energy calculation and classification for escalators and moving walks, for one of the following: i. At least two types of system (for each transportation type required); OR ii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR iii. A system strategy which is 'fit for purpose'. c. The use of regenerative drives should be considered, subject to the requirements in CN3.3. d. The transportation system with the lowest energy consumption is specified.	
Ene 06 Energy efficient transportation systems: Energy efficient features (1st Credit)	2. Criterion 1 is achieved. Lifts 3. For each lift, the following three energy efficient features are specified: a. The lift operates in a standby condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. 4. Where the use of regenerative drives is demonstrated to save energy, they are specified. 5. Where the use of regenerative drives is demonstrated to save energy, they are specified. Escalators and/or moving walks Each escalator and/or moving walk complies with at least one of the following: 6. It is fitted with a load-sensing device that synchronises motor output to passenger demand through a variable speed drive; OR 7. It is fitted with a passenger-sensing device for automated operation (auto walk), so the escalator operates in standby mode when there is no passenger demand.	0.65
Ene 06 Energy efficient transportation systems: Energy efficient features (1st Credit)		0.65
Ene 06 Energy efficient transportation systems: Energy efficient features (2nd Credit)	As for 1st credit	
Ene 06 Energy efficient transportation systems: Energy efficient features (2nd Credit)		0.65
Ene 08 Energy Efficient Equipment (1st Credit)	1. Identify the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical/standard specification.	
Ene 08 Energy Efficient Equipment (1st Credit)	2. Identify the systems and/or processes that use a significant proportion of the total annual unregulated energy consumption of the development and its operation.	

Ene 08 Energy Efficient Equipment (1st Credit)	3. Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building. See Table - 28 in the BREEAM Manual (below is only an extract) A Small power, plug-in equipment The following equipment has been awarded an Energy Star rating OR has been procured in accordance with the Government Buying Standards: 1. Office equipment 2. Other small powered equipment 3. Supplementary electric heating. For domestic scale white goods, the criteria in Ref F(Residential areas) apply. E IT-intensive operating areas 1. Uses a natural ventilation and cooling strategy as standard, with forced ventilation only to be used when the internal temperature exceeds 20°C and active cooling only when the internal temperature exceeds 22°C. 2. There is a mechanism to achieve automatic power-down of equipment when not in-use, including overnight. F Residential areas with domestic scale appliances (individual and communal facilities) Domestic scale appliances have the following ratings (or better) under the EU Energy Efficiency Labelling Scheme, where provided: 1. Fridges, fridge-freezers: A+ rating 2. Washing machines: A++ rating 3. Dishwashers: A+ rating 4. Washer-dryers and tumble dryers: A rating. OR 5. If any of the appliances will be purchased during occupation by the tenant/owner, information on the EU Energy Efficiency Labelling Scheme of efficient white goods must be provided to the residential areas of the building. Note: 1. Any white goods available to purchase from the developer must be compliant with criteria E1 to	
Ene 08 Energy Efficient Equipment (1st Credit)		0.65
Ene 08 Energy Efficient Equipment (1st Credit)	As for 1st Credit	
Ene 08 Energy Efficient Equipment (2nd Credit)		0.65
Tra 02 Proximity to amenities	<u>Other buildings:</u> 1. Where the building is located within 500m of at least 2 of the following 1. Appropriate food outlet 2. Access to cash 3. Access to an outdoor open space (public or private, provided suitably sized and accessible to building users) 4. Access to a recreation/leisure facility for fitness/sports 5. Publicly available postal facility 6. Community facility 7. Over the counter services associated with a pharmacy 8. Public sector GP surgery or general medical centre 9. Child care facility or school	
Tra 02 Proximity to amenities		1.00
Tra 03 Cyclist facilities: Cyclist Storage	1. Compliant cycle storage spaces are installed in or close to the assessed building (and are clearly associated with the assessed building) which meet the following criteria: <u>Cycle storage quality requirements:</u> 1. Cycles can be secured within spaces in rack(s). They are covered overhead and the cycle racks are set in or fixed to a permanent structure (building or hardstanding). Alternatively the cycle storage may be located in a locked structure fixed to, or part of, a permanent structure with appropriate surveillance. 2. The distance between each cycle rack, and cycle racks and other obstructions, e.g. a wall, allows for appropriate access to the cycle storage space to enable bikes to be easily stored and accessed. 3. The storage facility or entrance to the facility is in a prominent site location that is viewable/overlooked from either an occupied building or a main access to a building. 4. The cycle storage facility has adequate lighting; this could be demonstrated with the lighting criteria defined in BREEAM issue Hea 01 Visual comfort. The lighting must be controlled to avoid out-of-hours use and operation during daylight hours, where there is sufficient daylight in or around the facility.	
Tra 03 Cyclist facilities: Cyclist Storage	<u>Cycle storage quantity requirements (Other buildings):</u> The number of compliant cycle storage spaces is in accordance with the following (subject to a minimum of 4 spaces): 1 space for every 10 building users up to 200 building users PLUS 1 space for every 15 building users up to >200 building users but < 300 building users PLUS 1 space for every 20 building users up to >300 building users but < 400 building users PLUS 1 space for every 25 building users up to >400 building users 'Building users' = maximum total number of staff Note: Where the calculated number of required cycle storage spaces is less than four, total provision should be based on the lower of the following: 1. A minimum of four compliant storage spaces must be provided OR 2. One space per user (staff and where appropriate other user groups). Note: For sites where at least 50% of the available BREEAM credits for Public transport accessibility (Tra 01) have been awarded (rounded to the nearest whole credit), the number of compliant cycle spaces required in Table - 1 can be reduced by 50%.	
Tra 03 Cyclist facilities: Cyclist Storage		1.00
Tra 03 Cyclist facilities: Cyclist facilities	2. Criterion 1 has been achieved.	

Tra 03 Cyclist facilities: Cyclist facilities	3. At least two of the following types of <i>compliant cyclist facilities</i> have been provided for all building users: <u>Compliant showers</u> 1. Provision of one shower for every 10 cycle storage spaces, subject to a minimum provision of one shower (note: Any building providing eight showers or more will comply regardless of the number of cycle storage spaces provided) 2. Both male and female users must be catered for, i.e. either separate showers within shared gender-specific facilities (required provision split 50-50) or single shower cubicles and changing space for mixed use. Note: The showers do not need to be dedicated to cyclists and can be those shared with other users/uses. <u>Compliant changing facilities</u> 1. Appropriately sized for the likely/required number of users. 2. Changing areas must include adequate space and facilities to hang or store clothing and equipment while changing or showering, e.g. bench seat and/or hooks. 3. Toilet/shower cubicles cannot be counted as changing facilities. <u>Compliant lockers</u> 1. The number of lockers is at least equal to the number of cycle spaces required. 2. Lockers are either in, or adjacent to, compliant changing rooms, where provided. 3. The lockers are sized appropriately for the storage of a cyclist's equipment. <u>Compliant drying space</u> A compliant drying space is defined as a space that is specifically designed and designated with adequate heating/ventilation for the drying of wet clothes. A plant room, for example, is not a	
Tra 03 Cyclist facilities: Cyclist facilities		1.00
Tra 05 Travel plan	1. A travel plan has been developed as part of the feasibility and design stages.	
Tra 05 Travel plan	2. A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum): a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified. b. Travel patterns and transport impact of future building users. c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children). d. Disabled access (accounting for varying levels of disability and visual impairment). e. Public transport links serving the site. f. Current facilities for cyclists.	
Tra 05 Travel plan	3. The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the building's operation and use.	
Tra 05 Travel plan	4. If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post construction and be supported by the building's management in operation.	
Tra 05 Travel plan		1.00
Wat 01 Water consumption 1st credit	1. An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator.	
Wat 01 Water consumption 1st credit	2. The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35 and achieves a 12.5% reduction over the baseline.	
Wat 01 Water consumption 1st credit	3. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified): a. WCs b. Urinals c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit) d. Showers e. Baths f. Dishwashers (domestic and commercial sized) g. Washing machines (domestic and commercial or industrial sized). The BREEAM Wat 01 calculator defines the building types and activity areas for which the above components must be assessed	
Wat 01 Water consumption 1st credit	4. Where a greywater and/or rainwater system is specified, its yield (L/person/day) is used to off-set non-potable water demand from components that would otherwise be supplied using potable water.	
Wat 01 Water consumption 1st credit	5. Any greywater systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.	
Wat 01 Water consumption 1st credit		0.78
Wat 01 Water consumption 2nd credit	As for 1st credit AND the water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35 and achieves a 25% reduction over the baseline.	
Wat 01 Water consumption 2nd credit		0.78
Wat 02 Water monitoring	1. The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source.	
Wat 02 Water monitoring	2. Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area (see Compliance notes).	
Wat 02 Water monitoring	3. Each meter (main and sub) has a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption (see Relevant definitions).	
Wat 02 Water monitoring	4. If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed/digital water meter(s) for the new building must be connected to the existing BMS.	
Wat 02 Water monitoring		0.78

Wat 03 Water leak detection: Leak detection system	1. A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.	
Wat 03 Water leak detection: Leak detection system		0.78
Wat 03 Water leak detection: Flow control devices	Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).	
Wat 03 Water leak detection: Flow control devices		0.78
Mat 01 Life cycle impacts 1st credit	The total number of Mat 01 points achieved, as calculated using the BREEAM Mat 01 calculator for the following elements: External walls Windows Roof Upper floor slab Internal walls Floor finishes/ coverings is ≥ 2	
Mat 01 Life cycle impacts 1st credit		0.96
Mat 01 Life cycle impacts 2nd credit	The total number of Mat 01 points achieved, as calculated using the BREEAM Mat 01 calculator for the following elements: External walls Windows Roof Upper floor slab Internal walls Floor finishes/ coverings is ≥ 5	
Mat 01 Life cycle impacts 2nd credit		0.96
Mat 01 Life cycle impacts 3rd credit	The total number of Mat 01 points achieved, as calculated using the BREEAM Mat 01 calculator for the following elements: External walls Windows Roof Upper floor slab Internal walls Floor finishes/ coverings is ≥ 8	
Mat 01 Life cycle impacts 3rd credit		0.96
Mat 02 Hard landscaping and boundary protection	1. Where at least 80% of all external hard landscaping and 80% of all boundary protection (by area) in the construction zone achieves an A or A+ rating, as defined in the Green Guide to Specification. Green Guide ratings for the specification(s) of each element can be found at www.thegreenguide.org.uk	
Mat 02 Hard landscaping and boundary protection		0.96
Mat 03 Responsible sourcing of materials: Pre-requisite	1. All timber and timber-based products used on the project is Legally harvested and traded timber (see Relevant definitions). Note: a. It is a minimum requirement for achieving a BREEAM rating (for any rating level) that compliance with criterion 1 is confirmed. b. For other materials there are no pre-requisite requirements at this stage.	
Mat 03 Responsible sourcing of materials: Pre-requisite		0.00
Mat 03 Responsible sourcing of materials: Sustainable procurement plan	2. The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan (see the Relevant definitions in the Additional information section).	
Mat 03 Responsible sourcing of materials: Sustainable procurement plan		0.96
Mat 03 Responsible sourcing of materials: Responsible sourcing of materials (1st Credit)	3. One RSM credit (refer to Table - 43) can be awarded where at least 18% of the applicable building materials (refer to Mat 03 Responsible sourcing of materials) are responsibly sourced in accordance with the BREEAM methodology.	
Mat 03 Responsible sourcing of materials: Responsible sourcing of materials (1st Credit)		0.96
Mat 03 Responsible sourcing of materials: Responsible sourcing of materials (2nd Credit)	3. Two RSM credits (refer to Table - 43) can be awarded where at least 36% of the applicable building materials (refer to Mat 03 Responsible sourcing of materials) are responsibly sourced in accordance with the BREEAM methodology.	
Mat 03 Responsible sourcing of materials: Responsible sourcing of materials (2nd Credit)		0.96
Mat 04 Insulation: Embodied impact	1. Any new insulation specified for use within the following building elements must be assessed: a. External walls b. Ground floor c. Roof d. Building services.	

Mat 04 Insulation: Embodied impact	2. The Insulation Index for the building fabric and services insulation is the same as or greater than 2.5. See the Methodology section for a description of calculating the Insulation Index.	
Mat 04 Insulation: Embodied impact		0.96
Mat 05 Designing for durability and resilience	1. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas. 2. The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors. (See Methodology for the process to assess this criterion). See Table - 50 in the Checklists and tables section for a list of applicable elements, environmental factors and material degradation effects to consider. Method: 1. Identify from the list of 'applicable building elements' under Table - 50 the elements that are appropriate to the building being assessed. 2. Establish from the 'environmental factors' list those factors that are likely to cause material degradation effects in the identified applicable building elements. 3. Confirm the design and specification measures in place to limit these degradation effects. 4. The assessor should use their professional judgement in determining whether the design team have adequately demonstrated that they have designed and specified materials and/or measures which will be effective in preventing unnecessary deterioration, so reducing frequent replacements, repairs and maintenance through the life cycle of the building. 5. At post construction stage, where the design and specification measures installed differ from those proposed at design stage, the assessor must ensure that these measures still meet the aims of the criterion as detailed in point 4 above. Applicable building elements: Foundation/substructure/lowest floor/retaining walls; External walls; Roof/balconies; Glazing: windows, skylight; External doors; Railings/balusters (where exposed to external environment); Cladding (where exposed to external environment); Staircase/ramps (where exposed to external environment); Hard landscaping Enviro factors: Environmental agents (including: a. Solar radiation b. Temperature variation c. Water/moisture d. Wind e. Precipitation, e.g. rain and snow f. Extreme weather conditions: high wind speeds, flooding, driving rain, snow); Biological agents (including: Vegetation; Pests, insects); Pollutants, including (Air contaminants; Ground contaminants) Degradation effects: Corrosion; Dimensional change, e.g. swelling or shrinkage; Fading/discolouration; Rotting; Leaching; Blistering; Melting; Salt crystallisation; Abrasion	
Mat 05 Designing for durability and resilience		0.96
Wst 01 Construction waste management: Construction resource efficiency (3 Credits Available)	1. Where a Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building's design and construction (see CN3).	
Wst 01 Construction waste management: Construction resource efficiency.	2. Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than EITHER: 13.3 m³ per 100 m² of GIFA OR 11.1 tonnes per 100 m2 of GIFA <i>Note: Volume (m³) is actual volume of waste (not bulk volume)</i>	
Wst 01 Construction waste management: Construction resource efficiency 1st credit	3. Where existing buildings on the site will be demolished a pre-demolition audit of any existing buildings, structures or hard surfaces is completed to determine if, in the case of demolition, refurbishment/reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high grade/value applications. The audit must be referenced in the RMP and cover: a. Identification of the key refurbishment/demolition materials. b. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials in accordance with the waste hierarchy.	
Wst 01 Construction waste management: Construction resource efficiency 1st credit		1.06
Wst 01 Construction waste management: Construction resource efficiency 2nd credit	As for 1st credit AND where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than EITHER: 7.5 m³ per 100 m² of GIFA OR 6.5 tonnes per 100 m2 of GIFA <i>Note: Volume (m³) is actual volume of waste (not bulk volume)</i>	
Wst 01 Construction waste management: Construction resource efficiency 2nd credit		1.06
Wst 01 Construction waste management: Diversion of resources from landfill	4. The following percentages of non-hazardous construction (on-site and off-site manufacture/fabrication in a dedicated facility) and demolition waste (where applicable) generated by the project have been diverted from landfill: Non-Demolition Waste: 70% (volume) OR 80% (tonnage) Demolition Waste: 80% (volume) OR 90% (tonnage) Excavation Waste: Not Applicable	
Wst 01 Construction waste management: Diversion of resources from landfill	5. Waste materials will be sorted into separate key waste groups as per Table - 53 (according to the waste streams generated by the scope of the works) either on-site or through a licensed contractor for recovery.	
Wst 01 Construction waste management: Diversion of resources from landfill		1.06
Wst 02 Recycled aggregates	1. The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled or secondary aggregate, as specified in Table 54.	

Wst 02 Recycled aggregates	2. The total amount of recycled or secondary aggregate specified, and meeting criterion 1, is greater than 25% (by weight or volume) of the total high grade aggregate specified for the project. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.	
Wst 02 Recycled aggregates	3. The recycled or secondary aggregates are EITHER: a. Construction, demolition and excavation waste obtained on-site or off-site; OR b. Secondary aggregates obtained from a non-construction post-consumer industrial by product source	
Wst 02 Recycled aggregates		1.06
Wst 03 Operational waste	1. Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors 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/weekly operational activities and occupancy rates.	
Wst 03 Operational waste	2. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility. c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.	
Wst 03 Operational waste		1.06
LE 03 Minimising impact on existing site ecology (1st Credit)	1. The change in ecological value of the site is equal to or greater than zero plant species, i.e. no negative change, using the methods outlined in either (a) or (b) below: a. Determine the following information and input this data in to the BREEAM LE 03/LE 04 calculator: i. The broad habitat type(s) that define the landscape of the assessed site in its existing pre-developed state and proposed state (see Table - 56). ii. Area (m2) of the existing and proposed broad habitat types.	
LE 03 Minimising impact on existing site ecology (1st Credit)	OR b. Where a Suitably Qualified Ecologist (SQE) has been appointed and, based on their site survey, they confirm the following and either the assessor or ecologist inputs this data in to the BREEAM LE 03/LE 04 calculator: i. The broad habitat types that define the landscape of the assessed site in its existing pre-developed state and proposed state. ii. Area (m2) of the existing and proposed broad habitat plot types. iii. Average total taxon (plant species) richness within each habitat type.	
LE 03 Minimising impact on existing site ecology (1st Credit)		1.00
LE 04 Enhancing site ecology: Ecologist's report and recommendations	1. A suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent) to advise on enhancing the ecology of the site at an early stage.	
LE 04 Enhancing site ecology: Ecologist's report and recommendations	2. The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report is based on a site visit/survey by the SQE.	
LE 04 Enhancing site ecology: Ecologist's report and recommendations	3. The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the final design and build	
LE 04 Enhancing site ecology: Ecologist's report and recommendations		1.00
LE 05 Long term impact on biodiversity (1st Credit)	1. Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process.	
LE 05 Long term impact on biodiversity (1st Credit)	2. Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff.	
LE 05 Long term impact on biodiversity (1st Credit)	3. Where TWO additional measures to improve the assessed site's long term biodiversity are adopted:	
LE 05 Long term impact on biodiversity (1st Credit)	Measure 1: The principal contractor nominates a Biodiversity Champion with the authority to influence site activities and ensure that detrimental impacts on site biodiversity are minimised in line with the recommendations of a Suitably Qualified Ecologist.	
LE 05 Long term impact on biodiversity (1st Credit)	Measure 2: The principal contractor trains the site workforce on how to protect site ecology during the project. Specific training must be carried out for the entire site workforce to ensure they are aware of how to avoid damaging site ecology during operations on-site. Training should be based on the findings and recommendations for protection of ecological features highlighted within a report prepared by a Suitably Qualified Ecologist.	
LE 05 Long term impact on biodiversity (1st Credit)	Measure 3: The principal contractor records actions taken to protect biodiversity and monitor their effectiveness throughout key stages of the construction process. The requirement commits the principal contractor to make such records available where publicly requested.	
LE 05 Long term impact on biodiversity (1st Credit)	Measure 4: Where a new ecologically valuable habitat appropriate to the local area is created. This includes a habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important itself; including any UK Biodiversity Action Plan (UK BAP) priority habitats, Local Biodiversity Action Plan (LBAP) habitats, those protected within statutory sites (e.g. SSSIs), or those within non-statutory sites identified in local plans. Local biodiversity expertise should be sought during the Preparation and Brief (RIBA Stage 1 or equivalent) to help identify species of local biodiversity importance on-site and ensure that the proposals support local priorities.	
LE 05 Long term impact on biodiversity (1st Credit)	Measure 5: Where flora and/or fauna habitats exist on-site, the contractor programmes site works to minimise disturbance to wildlife. For example, site preparation, ground works, and soft landscape works have been, or will be, scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on, for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This additional requirement will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity in line with the recommendations of a Suitably Qualified Ecologist.	

LE 05 Long term impact on biodiversity (1st Credit)		1.00
LE 05 Long term impact on biodiversity (2nd Credit)	3. Where FOUR additional measures to improve the assessed site's long term biodiversity are adopted.	
LE 05 Long term impact on biodiversity (2nd Credit)		1.00
Pol 02 NOx emissions (1st Credit)	Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NO _x emission level (measured on a dry basis at 0% excessO ₂) as follows: ≤100 mg/kWh	
Pol 02 NOx emissions (1st Credit)	2. Report via the BREEAM scoring and reporting tool the direct and indirect Nox emissions in mg/kWh and energy consumption in kWh/m ² /yr arising from systems installed to meet the building's space heating, cooling and hot water demands	
Pol 02 NOx emissions (1st Credit)		0.77
Pol 02 NOx emissions (2nd Credit)	Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NO _x emission level (measured on a dry basis at 0% excessO ₂) as follows: ≤70 mg/kWh	
Pol 02 NOx emissions (2nd Credit)	2. Report via the BREEAM scoring and reporting tool the direct and indirect Nox emissions in mg/kWh and energy consumption in kWh/m ² /yr arising from systems installed to meet the building's space heating, cooling and hot water demands	
Pol 02 NOx emissions (2nd Credit)		0.77
Pol 02 NOx emissions (3rd Credit)	1. Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NO _x emission level (measured on a dry basis at 0% excessO ₂) as follows: ≤40 mg/kWh	
Pol 02 NOx emissions (3rd Credit)	2. Report via the BREEAM scoring and reporting tool the direct and indirect Nox emissions in mg/kWh and energy consumption in kWh/m ² /yr arising from systems installed to meet the building's space heating, cooling and hot water demands	
Pol 02 NOx emissions (3rd Credit)		0.77
Pol 03 Surface water run-off: Flood resilience (1st Credit)	1. Where a site-specific flood risk assessment (FRA) confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration	
Pol 03 Surface water run-off: Flood resilience (1st Credit)	OR, if criterion 1 cannot be achieved: 2. Where a site-specific FRA confirms the development is situated in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration	
Pol 03 Surface water run-off: Flood resilience (1st Credit)	3. To increase the resilience and resistance of the development to flooding, one of the following must be achieved: a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the flood zone in which the assessed development is located OR b. The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2011	
Pol 03 Surface water run-off: Flood resilience (1st Credit)		0.77
Pol 03 Surface water run-off: Flood resilience (2nd Credit)	1. See criterion 1 for 1st credit	
Pol 03 Surface water run-off: Flood resilience (2nd Credit)		0.77
Pol 03 Surface water run-off: Surface water run-off (Pre-requisite)	4. An Appropriate Consultant is appointed to carry out, demonstrate and/or confirm the development's compliance with the following criteria:	
Pol 03 Surface water run-off: Surface water run-off (Pre-requisite)		0.00
Pol 03 Surface water run-off: Surface water run-off (1st Credit)	5. Where drainage measures are specified to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) 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.	
Pol 03 Surface water run-off: Surface water run-off (1st Credit)	6. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.	
Pol 03 Surface water run-off: Surface water run-off (1st Credit)	7. Calculations include an allowance for climate change; this should be made in accordance with current best practice planning guidance	
Pol 03 Surface water run-off: Surface water run-off (1st Credit)		0.77
Pol 04 Reduction of night time light pollution	1. Where external lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users.	
Pol 04 Reduction of night time light pollution	OR alternatively, where the building does have external lighting, one credit can be awarded as follows: 2. The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. . Buildings located in Scotland must comply with the light pollution criteria in the guidance note 'Controlling Light Pollution and Reducing Lighting Energy Consumption'. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note <u>by a relevant member of the design team</u>	
Pol 04 Reduction of night time light pollution	4. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.	
Pol 04 Reduction of night time light pollution	5. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.	
Pol 04 Reduction of night time light pollution	6. Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements.	
Pol 04 Reduction of night time light pollution		0.77

Pol 05 Reduction of noise pollution	1. Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed site. OR	
Pol 05 Reduction of noise pollution	2. Alternatively, where the building does have noise-sensitive areas or buildings within 800m radius of the site, one credit can be awarded as follows: a. Where a noise impact assessment in compliance with BS 7445 has been carried out and the following noise levels measured/determined: i. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar. ii. The rating noise level resulting from the new noise source (NB. plant such as standby generators that are only used temporarily are excluded from the noise impact assessment)	
Pol 05 Reduction of noise pollution	3. The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body	
Pol 05 Reduction of noise pollution	4. The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level.	
Pol 05 Reduction of noise pollution	5. Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.	
Pol 05 Reduction of noise pollution		0.77