

**United Kingdom Holocaust Memorial
and Learning Centre**

BREEAM Pre-Assessment
December 2018

The Secretary of State for Housing Communities and Local Government



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1 EXECUTIVE SUMMARY

1.1 CONTEXT

WSP has been commissioned by the Ministry of Housing, Communities & Local Government (CLG) in its capacity as Licensed BREEAM Assessors and AP to provide consultancy advice and undertake a BREEAM assessment of the United Kingdom Holocaust Memorial and Learning Centre project. The proposed development comprises mainly of a Memorial with a Learning Centre. This report summarises a strategic route for targeting the performance of a BREEAM Excellent rating against the BREEAM UK New Construction 2014 criteria, assessing the development in a fully fitted state of construction.

The project under assessment comprises:

Project Name	United Kingdom National Holocaust Memorial and Learning Centre
Location	Victoria Tower Gardens, London
Main Use Function	Memorial and Learning Centre as a museum
BREEAM Assessment Scheme	BREEAM New Construction 2014, Other: Non-residential institutions (Fully Fitted)
Assessment type	Fully Fitted
Approximate NIA (m ²)	~3000 m ²
Current Stage	RIBA Stage 2/3
Target Rating/ Reason	Excellent
Stage of Assessment	Design Stage

The purpose of this report is to demonstrate:

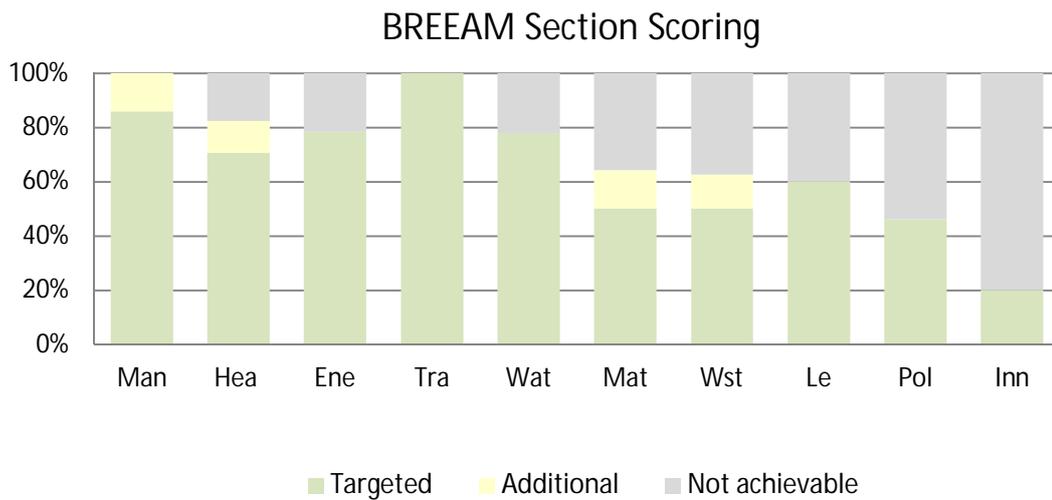
- § The agreed route to BREEAM certification for the project.
- § The credits/ performance requirements which the team agreed to target and implement.
- § The actions required by the project team to satisfy BREEAM evidential requirements.

1.2 SCORING

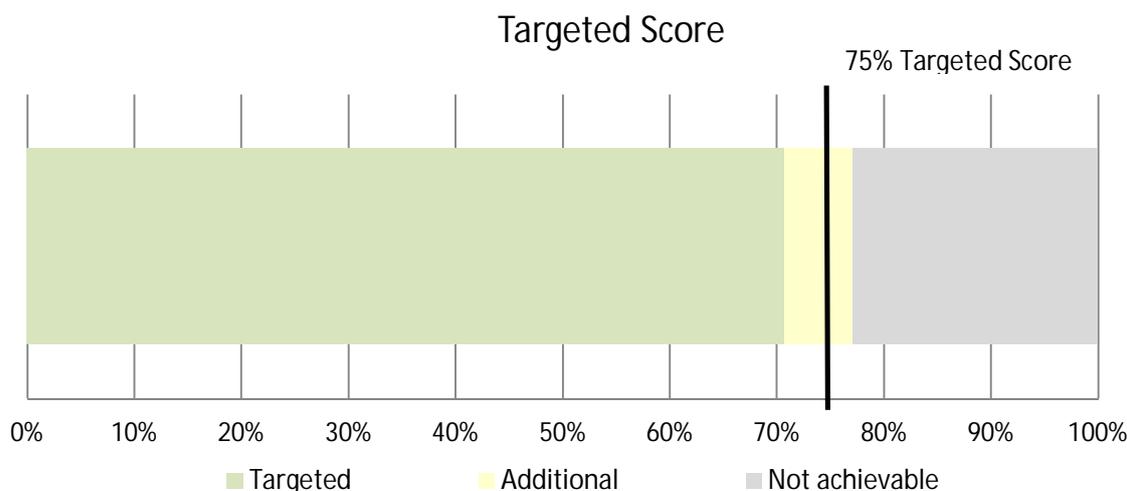
Based on discussions and agreements with the Design Team and client, the following scoring scenarios are predicted:

Scoring Scenario		BREEAM Score (Cumulative)*	Indicative BREEAM Rating
BREEAM NON-DOMESTIC NEW CONSTRUCTION 2014	Targeted	70.67%	Excellent
	Potential	77.14%	Excellent

*Score as produced by BRE's BREEAM scoring tool



Graphical representation of the credits associated with each environmental section.



Graphical representation of progress to a targeted score of 75% (e.g. BREEAM Excellent of 70% plus 5% buffer)

Targeted Scoring Scenario

This is based on the items agreed as being targeted by the design team. Upon the presentation of suitable documentary evidence to the Assessor, the corresponding achievement will be confirmed.

We recommend that at least 5% is targeted above the required rating, i.e. 75% for 'Excellent'. This is to safeguard for missed credits during completion of the design and construction of the asset.

Additional Scoring Scenario

Further to those items noted as targeted, the following additional credits were identified, which upon further investigation from the design team or updates to the design could result in an additional (higher) score and rating.

Potential Credits

Item	Additional % score	Production Team Owner
Man 02 – Elemental Life Cycle Cost	1.14%	Cost Consultant/Client
Man 04 – Testing and Inspecting Building Fabric	0.57%	Client
Hea02 – Ventilation	0.88%	M&E Engineer

Hea05 – Acoustic Performance	0.88%	Acoustician / Architect
Mat 01 – Life Cycle Impacts	0.96%	Architect
Mat 03 – Responsible Sourcing	0.96%	Architect / M&E Engineer
Wst 05 – Adaption to Climate Change	1.06%	Client
Le 01 – Contaminated Land	1.00%	Land Contamination Specialist.

For full details please refer to the main assessment tracker table in Appendix A.

2 PROJECT BACKGROUND

The United Kingdom National Holocaust Memorial and Learning Centre is located at the Victoria Tower Gardens in the City of Westminster, London SW1P 3JA. The proposed development looks to establish a significant landmark creating a memorial and a learning centre for visitors. Located on the bank of the river Thames, the development comprises of a basement and basement mezzanine for the learning centre, and erection of a single storey entrance pavilion. The proposed design will look to take advantage of both passive and active systems to help exceed energy performance criteria. This includes design features to save energy and water usage includes the use of heat recovery, thermal mass, a thermal labyrinth, ground coupling and rainwater recycling. The proposed new memorial and a learning centre will be assessed using the BREEAM UK New Construction 2014 assessment scheme.

It is understood that the development is required by planning to achieve BREEAM 'Excellent' certification and therefore a score of $\geq 70\%$ (with all mandatory requirements met) should be targeted as a minimum. However, it is recommended that at least a 5% of the minimum (70%) required for an 'Excellent' rating is maintained as a contingency buffer be targeted to offset potential losses in credits during the design development and construction phases.

3 INTRODUCTION

3.1 REPORT PURPOSE

The report builds upon the initial strategy developed during a Pre-Assessment workshop held on 16th March 2018, which was reviewed during a RIBA stage 3 kick off meeting held on 16th August 2018.

The purpose of this report is to refresh the early stage discussions with the design team during the concept design and agree a target going forward into RIBA stage 3. The targets set out at this stage form the basis of the formal assessment process which will commence in RIBA stage 3. This BREEAM report outlines those criteria and credits the design team have considered and intend to follow through the design evolution for the achievement of a formal BREEAM 'Excellent' certification, as agreed with the Design Team.

The purpose of this report is to:

- § demonstrate the strategy (targeted BREEAM credits and overall score) agreed with the project team to achieve a BREEAM 'Excellent' rating.
- § provide a record of the early design considerations of the team.
- § outline the current assessment status.
- § provide detailed actions to be addressed by the project team to satisfy the assessment evidential requirements.

To summarise these outcomes, this report includes the following:

- § an appraisal of the development proposals against the BREEAM criteria;
- § identification of the mandatory credits which are essential to be included within the development to achieve the desired rating;
- § consideration of additional credits which could be targeted, subject to additional consideration, investigation and possibly additional costs.
- § actions to be addressed by the project team, and the responsible party for each.

This report has been prepared by qualified BREEAM Assessors at WSP who are licensed by the BRE to undertake assessments using the BREEAM Non-Domestic New Construction 2014 Scheme.

In order to demonstrate compliance with the targeted credits as part of the formal design stage and construction stage BREEAM assessments documentary evidence demonstrating performance is required to be presented by the project team. It is therefore important for all project team members to ensure that commitments made at this early stage are carried through the design process and are implemented through to construction. Cost implications of the assumptions made in this report have not been evaluated as part of this study.

The assessment requirements for achieving a BREEAM certificate can be challenging if overlooked during the design evolution process. The team can access the full scheme document (technical manual), which is freely available, at:

<http://www.breeam.com/BREEAMUK2014SchemeDocument/>

4 ASSESSMENT STRATEGY

The stages of a BREEAM assessment require as a minimum a Construction Stage assessment in order to receive a final BREEAM certificate. It is strongly recommended that a three stage assessment process is undertaken to maximise the efficiency of achieving the required rating.

- § Pre-Assessment
- § Design Stage Assessment
- § Construction Stage Assessment

The BREEAM: Project Lifecycle diagram shows the full process for a BREEAM assessment.

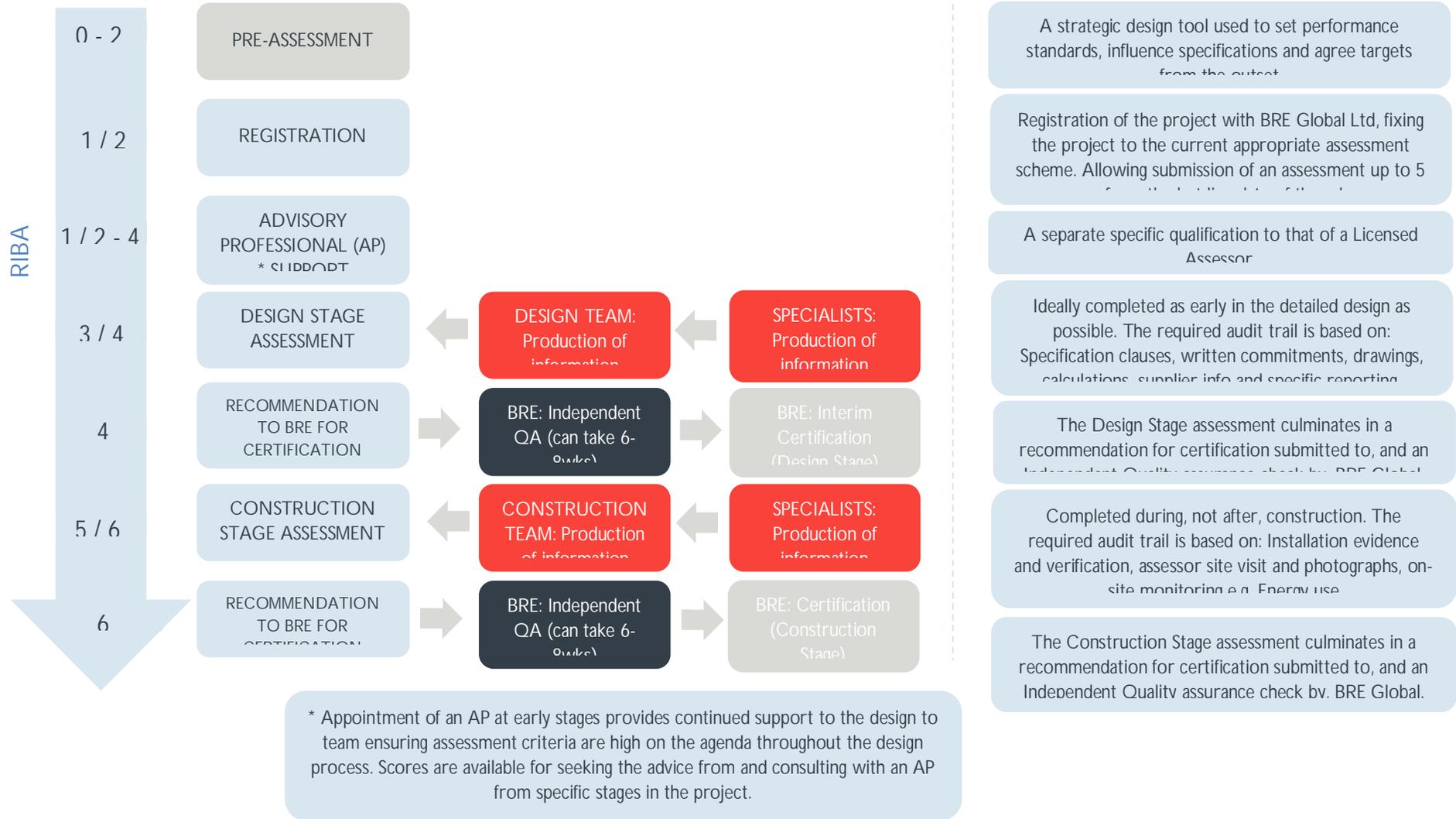
This report represents the initial stages of the BREEAM Assessment whereby the team have identified and agreed a set of BREEAM performance measures to ensure the overall achievement of the required BREEAM rating is met.

4.1 AGREED BREEAM PROGRAMME:

The BREEAM Programme agreed to date is shown below:

Item	Ideal RIBA Stage	Timing	Ownership
Pre-Assessment/ Strategy Reporting	RIBA Stage 2	16th March 2018 (completed)	Assessor
Design Team Meetings with an AP present	Appointment must be demonstrated by completion RIBA Stage 1 1 x meeting at each key stage	Each RIBA Stage. Stage 1/2- 16 th March 2018 Stage 2/3- 16 th August 2018 Stage 4- TBC	Assessor/ AP
Design Stage Assessment Kick-off Meeting	RIBA Stage 3/4	16th August 2018 (completed)	Assessor/ Design Team
Design Stage Action and Guidance report	RIBA Stage 3/4	26th October 2018 (completed)	Assessor
Design Team – Production of Information	RIBA Stage 3/4	TBC	Design Team
Design Stage Assessment – Recommendation for Certification	RIBA Stage 4	TBC	Assessor
Design Stage (Interim Certification) 6-8weeks for QA response	Following RIBA Stage 4	TBC	BRE

4.2 BREEAM: PROJECT LIFECYCLE



5 ROLES AND RESPONSIBILITIES

The BREEAM Assessor and BREEAM Accredited Professional (AP) must act in accordance with their “BREEAM License Agreement” with BRE Global Ltd; the owner, managing body and certification authority for all BREEAM schemes.

The design/ construction team will be required to demonstrate “achievement” of the various BREEAM performance requirements through the presentation of documentary evidence as listed by BRE and conveyed by the Licensed Assessor. This audit material often requires specific responses/ reporting to demonstrate compliance.

During the early stages of assessment, ownership for the various actions and dates for submission will be agreed, which if not met may require a variation to our agreed scope of works.

In accordance with the BREEAM License the Assessor/BREEAM AP must maintain a position of non-conflict of interest. This means that whilst they can provide guidance to the various design/ construction team members, they cannot be responsible for the delivery of any part of the required audit trail.

Note: It is acceptable that the Assessor/ AP is part of the same organisation as a member or members of the design team who are responsible for information production).

6 BACKGROUND TO BREEAM

BREEAM is a market-focused tool aimed at encouraging significant improvements in the performance of buildings through quantification of a building's full life environmental impacts.

The BREEAM score provides a means of recognising a projects sustainability benefits and so benchmarking it against other buildings. Key benefits of using the methodology include:

- § Maximising opportunities to enhance the building's performance during the planning, design and construction phases of new build, refurbishment and fit out projects.
- § Specifying environmental requirements during procurement and management of all types of developments.
- § Use of an independently verifiable measurement tool for forming part of Environmental Management Systems.
- § Providing an independently verifiable sustainability label for marketing and promotional purposes.

6.1 BREEAM SCORING AND RATING

BREEAM ratings are divided into six levels as shown in Table 1. The associated percentage score is achieved based on meeting the requirements of a number of credits that correspond to meet or exceed the rating benchmarks.

Table 1 – BREEAM rating benchmarks

BREEAM Rating	Percentage Required
UNCLASSIFIED	>30%
PASS	30%
GOOD	45%
VERY GOOD	55%
EXCELLENT	70%
OUTSTANDING	85%

6.2 BREEAM CATEGORY WEIGHTINGS

The categories within BREEAM are weighted according to relative importance within the country of assessment through a weighting system derived by BRE Global as shown in Table 2. Within each category there are a different number of credits, therefore, individual credits carry specific percentage weightings, as a percentage of the overall total.

The number of credits available is based on the scoping of appropriate assessment criteria for the project type, location and functions. WSP's assessment tracker (found in appendix A) shows the percentage contribution of each targeted credit to highlight that a credit in one section may not carry the same contribution to the score as a credit in another, due to the category weightings.

BREEAM incorporates a mechanism whereby schemes achieving exemplar performance in a particular area or demonstrating innovation can achieve an additional 1% for each credit up to a maximum of 10. The innovation section is shown at the end of the main assessment table.

Table 2 - Section Weightings

Category	Section Weighting
Management	12.0%
Health & Wellbeing	15.0%
Energy	15.0%
Transport	9.0%
Water	7.0%
Materials	13.5%
Waste	8.5%
Land Use & Ecology	10.0%
Pollution	10.0%
Innovation	N/A

6.3 MANDATORY REQUIREMENTS

To achieve a BREEAM rating, the minimum percentage score (associated with credits achieved) must be met plus mandatory standards for specific requirements applicable to that rating level must be complied with. These are shown in Table 3.

Table 3 - Mandatory Credits

Credit Ref	Credit	BREEAM Rating/ Minimum Number of Credits				
		Pass	Good	Very Good	Excellent	Outstanding
Man 03	Responsible Construction Practices	-	-	-	One Credit (CCS)	Two Credits (CCS)
Man 04	Commissioning and handover	-	-	-	Criterion 10 (Building user guide)	Criterion 10 (Building user guide)
Man 05	Aftercare (N/A for Shell and Core)				One credit (Seasonal commissioning)	One credit (Seasonal commissioning)
Ene 01	Reduction of Energy use and carbon emissions	-	-	-	Five credits	Eight credits
Ene 02	Energy Monitoring (first credit)	-	-	One Credit (First credit)	One Credit (First credit)	One Credit (First credit)
Wat 01	Water Consumption	-	One Credit	One Credit	One Credit	Two Credits
Wat 02	Water Monitoring	-	Criterion 1 only (mains water meter)			
Mat 03	Responsible Sourcing of materials	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)
Wst 01	Construction Waste Management	-	-	-	-	One Credit

Wst 03	Operational Waste	-	-	-	One Credit	One Credit
Le 03	Minimising Impact on existing site ecology	-	-	One credit	One credit	One credit

6.4 REQUIREMENTS WITH SPECIFIC ACTION TIMINGS

When targeting some credits, the requirements can include delivery of work ahead of completion of a specific project stage (RIBA Stage) to ensure opportunities for positive sustainability outcomes are not missed by the project team. These are shown in Table 4.

Table 4 – Timing of assessment (key credits)

Credit Ref	Credit	Plan of work				
		Preparation and brief (1)	Concept design (2)	Developed design (3)	Technical design (4)	Construction and handover (5/6)
Man 01	Stakeholder consultation		Consultation		Feedback provided	
Man 01	Sustainability champion (design)	Appointment (BREEAM AP)	Sustainability target agreed			
Man 02	Life cycle cost and service life planning		Elemental life cycle cost (LCC)		Component level LCC appraisal	
Man 03	Sustainability champion (construction)					Appointment and monitoring
Hea 03	Laboratory safe containment			Objective risk assessment		
Ene 04	Passive design analysis		Passive design analysis and thermal model			
Ene 04	Low or zero carbon technologies		LZC appraisal			
Ene 05	Energy Efficient Cold Storage		Cold Storage Strategy			
Tra 05	Travel Plan	Travel Plan				
Mat 03	Sustainable Procurement Plan		Procurement Policy			
Mat 06	Materials efficiency	Whole team engagement	Whole team engagement	Whole team engagement	Whole team engagement	Whole team engagement
Wst 05	Structural and fabric resilience		Climate change adaptation strategy			
Wst 06	Functional adaptability		Adaptability study		Adaptation measures adopted	
LE 02	Ecological protection					Construct ecological protection ahead of site preparation

Le 04	Ecologist's report and recommendations	Appointment (SQE)	Ecology report with enhancements			
LE 05	Long term impact on biodiversity	Local expertise (valuable habitat)			Appointment (SQE)	

7 REPORT FORMAT

The table in appendix A shows the BREEAM Non-Domestic New Construction 2014 criteria against which the building is being assessed. The credits available for each issue are shown along with a calculated overall percentage score and rating. The scoring has also been undertaken on the BREEAM Non-Domestic New Construction 2014 assessment scheme tool.

This allows for simple analysis of the effect of achieving more or removing any given credit. A summary of the actions has been shown, however the full requirements for the BREEAM assessment can be viewed within the assessment manual or can be provided upon request.

The table provides high level discussion of performance requirements and agreements. During the next stage of formal assessment, explicit ownership, actions and timing for production will be shown based on agreement with the team.

8 DISCLAIMER

WSP has undertaken the following BREEAM Non-Domestic New Construction 2014 report, with input and agreement from the Design Team. All information provided has been accepted in good faith as being accurate and representative of the proposed scheme at the time of review.

The credits and credit requirements are based on the BREEAM Non-Domestic New Construction 2014 methodology.

The assessor (for him/herself and as an agent for his/her staff) shall not be held liable whether in Contract or in Tort or otherwise for any loss or damage sustained as a result of using or relying on the information contained in this report or the final certificate from BRE that it is based on.



9 COPYRIGHT

The BREEAM name and logo are registered trademarks of the Building Research Establishment Ltd. Copyright exists on BREEAM and it may not be used or reproduced in any form or for any purpose without prior written consent of BRE.

Appendix A



BREEAM DESIGN STAGE CREDIT TRACKER

National Holocaust Memorial and Learning Centre RIBA Stage 3 BREEAM Strategy

70040431 BREEAM NC 2014 V 5.0

Disclaimer:

The BREEAM Criteria listed here is a summary of the BREEAM New Construction 2014 requirements. It is the responsibility of the project team to refer to the manual for details of all requirements, compliance notes and relevant definitions. A copy can be accessed here: <http://www.breem.com/BREEAMUK2014SchemeDocument/>

Ref	Title	Sub-Title	Criterion	BREEAM Criteria	Max Available	% Worth (in total for each question)	Mandatory Requirements	Cumulative scores		Indicative timeframe for Consideration	Responsibility at Design Stage	
								Excellent	Excellent			
								70.67%	77.14%			
								Design Stage Scoring				
								Excellent	Targeted	Additional		
Management												
Man 01	Project Brief and Design	One credit – Stakeholder consultation (project delivery)	1-3	<ul style="list-style-type: none"> - Prior to completion of RIBA Stage 2, the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. - In defining the roles and responsibilities for each key phase of the project, the following must be considered: <ol style="list-style-type: none"> End user requirements Aims of the design and design strategy Particular installation and construction requirements/limitations Occupiers budget and technical expertise in maintaining any proposed systems Maintainability and adaptability of the proposals Requirements for the production of project and end user documentation Requirements for commissioning, training and aftercare support. - The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, including if appropriate, the Project Execution Plan, Communication Strategy, and the Concept Design. 	1	0.57%		1		RIBA Stage 2	Design Team Client	
		Stakeholder consultation (third party)	4-6	<ul style="list-style-type: none"> - Prior to completion of RIBA Stage 2, all relevant third party stakeholders have been consulted by the design team and this covers the minimum consultation content. - The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. - Prior to completion of the RIBA Stage 4, consultation feedback has been given to, and received by, all relevant parties. 	1	0.57%		1		RIBA Stage 2	Client Architect Consultation specialist	
		Sustainability Champion (design)	8-10	<ul style="list-style-type: none"> - A Sustainability Champion has been appointed to facilitate the setting and achievement of BREEAM performance target for the project. The design stage Sustainability Champion is appointed to perform this role during RIBA Stage 1. - The defined BREEAM performance target has been formally agreed between the client and design/project team no later than RIBA Stage 2. - To achieve this credit at the interim design stage assessment, the agreed BREEAM performance target must be demonstrably achieved by the project design, demonstrated via the BREEAM design stage assessment report. 	1	0.57%		1		RIBA Stage 1	BREEAM AP	
		Sustainability Champion (monitoring progress)	11-12	<ul style="list-style-type: none"> - The third credit is achieved. - A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance target throughout the design process and formally report progress to the client and design team. The Sustainability Champion must attend key project/design team meetings during the Concept Design, Developed Design and Technical Design stages. 	1	0.57%		1		RIBA Stage 4	BREEAM AP	



Ref	Title	Sub-Title	Criterion	BREEAM Criteria	Max Available	% Worth (in total for each question)	Mandatory Requirements	Design Stage Scoring		Indicative timeframe for Consideration	Responsibility at Design Stage
							Excellent	Targeted	Additional		
Man 02	Life cycle cost and service life planning	Elemental life cycle cost (LCC)	1-3	<ul style="list-style-type: none"> - An elemental life cycle cost (LCC) analysis has been carried out, at RIBA Stage 2 together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008. - The LCC analysis shows: an outline LCC plan for the project based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenarios e.g. 20, 30, 50+ years; - The fabric and servicing strategy for the project outlining services component and fit-out options (if applicable) over a 15-year period, in the form of an 'elemental LCC Plan'. 	2	1.14%			2	RIBA Stage 2	Cost Consultant Project Manager
		Component level LCC Plan	4-5	<p>A component level LCC plan has been developed by the end of RIBA Stage 4 in line with PD 156865:2008 and includes the following component types (where present):</p> <ul style="list-style-type: none"> 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. 	1	0.57%		1		RIBA Stage 4	
		Capital cost reporting	6	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.	1	0.57%		1			

Ref	Title	Sub-Title	Criterion	BREEAM Criteria	Max Available	% Worth (in total for each question)	Mandatory Requirements	Design Stage Scoring		Indicative timeframe for Consideration	Responsibility at Design Stage
							Excellent	Targeted	Additional		
Man 03	Responsible construction practices	Site timber	1	Pre-requisite All temporary site timber and timber based products used on the project is 'Legally harvested and traded timber', e.g. is FSC or PEFC certified	-			yes		RIBA Stage 4	Project Manager BREEAM AP
		Environmental management	2-3	- The principal contractor operates an environmental management system (EMS) covering their main operations such as ISO 14001. - 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	1	0.57%		1		RIBA Stage 4	
		Sustainability Champion (construction)	4-6	- A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target, during the Construction, Handover and Close Out stages. The Sustainability Champion will monitor site activities with sufficient frequency to ensure that risks of non-compliance are minimised. They will report on progress at relevant project team meetings. - The defined BREEAM performance target forms a requirement of the principal contractor's contract.	1	0.57%		1		RIBA Stage 4	
		Considerate construction	7	Using the Considerate Constructors Scheme (CCS) the principal contractor must achieve scheme certification and a CCS score as follows: 1. One credit: a CCS score between 25 and 34 2. Two credits: a CCS score between 35 and 39	2	1.14%	One Credit (CCS)	2		RIBA Stage 4	
		Monitoring of construction-site impacts	8	Energy consumption - 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. - Report the total carbon dioxide emissions (total kgCO2/project value) from the construction process Water consumption - 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. - Report the total water use (m3/project value) from the construction process	1	0.57%		1		RIBA Stage 4	
9-17	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. - 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).		1	0.57%		1		RIBA Stage 4			

Ref	Title	Sub-Title	Criterion	BREEAM Criteria	Max Available	% Worth (in total for each question)	Mandatory Requirements	Design Stage Scoring		Indicative timeframe for Consideration	Responsibility at Design Stage
							Excellent	Targeted	Additional		
Man 04	Commissioning and handover	Commissioning and testing schedule and responsibilities	1-4	<ul style="list-style-type: none"> - 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. - All commissioning activities are carried out in accordance with current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. 	1	0.57%		1		RIBA Stage 4	M&E
		Commissioning building services	5-6	Buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage with responsibility for: <ol style="list-style-type: none"> Undertaking design reviews and giving advice on suitability for ease of commissioning. Providing commissioning management input to construction programming and during installation stages. Management of commissioning, performance testing and handover/post-handover stages. Where there are simple building services, this role can be carried out by an appropriate project team member provided they are not involved in the general installation works for the building services system	1	0.57%		1		RIBA Stage 4	M&E
		Testing and inspecting building fabric	7-9	<ul style="list-style-type: none"> - The commissioning and testing schedule and responsibilities credit is achieved. - 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. - 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. 	1	0.57%			1	RIBA Stage 4	Client
		Handover	10-11	<ul style="list-style-type: none"> - A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers. - A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans. 	1	0.57%	Criterion 10 (Building User Guide)	1		RIBA Stage 4	Project Manager
Man 05	Aftercare	Aftercare support	1-2	<ul style="list-style-type: none"> - There will be operational infrastructure and resources in place to provide aftercare support to the building occupier(s), which includes various criteria (available on request) - There 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. 	1	0.57%		1		RIBA Stage 4	Client
		Seasonal commissioning	3	Seasonal commissioning activities must be completed over a minimum 12-month period, once the building becomes substantially occupied.	1	0.57%	One Credit (Seasonal Commissioning)	1			Client
		Post occupancy evaluation	4-5	<ul style="list-style-type: none"> - The client or building occupier makes a commitment to carry out a post-occupancy evaluation (POE) exercise one year after initial building occupation by an independent third party. - The client or building occupier makes a commitment to carry out the appropriate dissemination of information on the building's post-occupancy performance. 	1	0.57%		1			Client

Ref	Title	Sub-Title	Criterion	BREEAM Criteria	Max Available	% Worth (in total for each question)	Mandatory Requirements	Design Stage Scoring		Indicative timeframe for Consideration	Responsibility at Design Stage
							Excellent	Targeted	Additional		
Health & Wellbeing											
Hea 01	Visual Comfort	Glare control	1-2	<ul style="list-style-type: none"> - 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. - The glare control strategy avoids increasing lighting energy consumption 	1	0.88%		1		RIBA Stage 4	Architect
		Daylighting	3	<p>All occupied areas have an average daylight factor of 2% in 80% of the space Internal association or atrium areas have an average daylight factor of 3% in 80% of the space AND either item a or c below are achieved:</p> <p>a. A uniformity ratio of at least 0.3 or a minimum point daylight factor of at least 0.3 times the relevant average daylight factor value b. At least 80% of the room has a view of sky from desk or table top height c. The room depth criterion $d/w + d/HW < 2/(1-RB)$ is satisfied</p>	1	0.88%		0	0	RIBA Stage 4	Daylighting Consultant
		View out	4-6	<ul style="list-style-type: none"> - 95% of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out. - For bedrooms, all relevant positions must be within 5m of a wall which has a window or permanent opening that provides an adequate view out. - The window/opening must be $\geq 20\%$ of the surrounding wall area. 	1	0.88%		0	0	RIBA Stage 4	Architect
		Internal and external lighting levels, zoning and control	7-13	<p>Internal Lighting: All fluorescent and CF lamps are fitted with HF Ballasts. Internal lighting strategy provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. The lighting design complies with CIBSE Lighting Guide 7 for areas where computer screens are regularly used.</p> <p>External lighting: All external lighting 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.</p> <p>Lighting zones: Internal lighting is zoned to allow for occupant control in accordance with BREEAM criteria (i.e. separate zoning of display and counter areas).</p>	1	0.88%		1		RIBA Stage 4	M&E

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							Excellent	Targeted	Additional		
Hea 02	Indoor Air Quality	Minimising sources of air pollution	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.	1	0.88%		1		RIBA Stage 4	M&E Architect
			2-5	<ul style="list-style-type: none"> - Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. - Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows: <ul style="list-style-type: none"> 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. - Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 - Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide or air quality sensors 	1	0.88%			1	RIBA Stage 4	M&E
			6-7	<p>Volatile organic compound (VOC) emission levels (products)</p> <ul style="list-style-type: none"> - All decorative paints and varnishes specified meet the criteria in the BREEAM manual - At least five of the seven remaining product categories listed in the BREEAM manual meet the testing requirements and emission levels criteria for volatile organic compound (VOC) emissions. 	1	0.88%		1		RIBA Stage 4	Architect
			8-12	<p>Volatile organic compound (VOC) emission levels (post construction)</p> <ul style="list-style-type: none"> - 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. - 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. - The testing and measurement of the pollutants are in accordance with the relevant standards confirmed in the BREEAM manual. 	1	0.88%		1		RIBA Stage 4	Client / Contractor
			Adaptability - Potential for natural ventilation	13-14	<ul style="list-style-type: none"> - Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system: <ul style="list-style-type: none"> i. Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. OR ii. The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types recommended by CIBSE AM10. 	1	0.88%		0	0	RIBA Stage 3

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Hea 04	Thermal Comfort	Thermal modelling	1-4	<ul style="list-style-type: none"> - Thermal modelling has been carried out using software in accordance with CIBSE AM11. - The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. - The modelling demonstrates that 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). - 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. - The PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported. 	1	0.88%		1		RIBA Stage 4	M&E
		Adaptability - for a projected climate change scenario	5-8	<ul style="list-style-type: none"> - The first credit is achieved. - The thermal modelling demonstrates that the relevant requirements set out above are achieved for a projected climate change environment. - Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements. - For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported. 	1	0.88%		1		RIBA Stage 4	M&E
		Thermal zoning and controls	9-11	<ul style="list-style-type: none"> - The first credit is achieved. - The thermal modelling analysis has informed the temperature control strategy for the building and its users. - The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the BREEAM criteria listed in the guidance manual. 	1	0.88%		1		RIBA Stage 4	M&E

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Hea 05	Acoustic Performance		1-3	The building meets the appropriate acoustic performance standards and testing requirements defined in the checklists and tables section which defines criteria for the acoustic principles of the indoor ambient noise criteria: The sound insulation between acoustically sensitive rooms and other occupied areas complies with the performance criteria given in Section 7 of BS 8233:2014	3	2.65%		2	1	RIBA Stage 4	Acoustician
Hea 06	Safety and Security	Safe access	1-10	Where external site areas form part of the assessed development the following apply: <ul style="list-style-type: none"> - Dedicated cycle paths from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path. - Footpaths on-site provide direct access from the site entrance(s) to the building entrance(s) - Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths - Dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes, and traffic calming measures are in place to slow traffic down at these crossing points. - The lighting for access roads, pedestrian routes and cycle lanes is compliant i.e. in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas. Where vehicle delivery access and drop-off areas form part of the development, the following apply: <ul style="list-style-type: none"> - Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes. - There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. - Parking and turning areas are designed for simple manoeuvring according to the type of delivery - There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking 	1	0.88%		1		RIBA Stage 2	Architect M&E
		Security of site & building	11-13	<ul style="list-style-type: none"> - A suitably qualified security specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to RIBA Stage 2. - The SQSS develops a set of recommendations or solutions during or prior to RIBA Stage 2. - The recommendations or solutions proposed by the SQSS are implemented. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist. 	1	0.88%		1			

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Energy											
Ene 01	Reduction of CO ₂ Emissions		1	Up to twelve credits where evidence provided demonstrates an improvement in the energy efficiency of the building's fabric and services and therefore achieves lower building operational related CO ₂ emissions. This is based upon the Energy Performance Ratio for New Constructions.	12	7.83%	Five Credits	8		RIBA Stage 4	Accredited Energy Specialist
Ene 02	Energy Monitoring	Sub-metering of major energy consuming systems	1-4	<ul style="list-style-type: none"> - 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. - 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 (e.g. BMS) - The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs. 	1	0.65%	One Credit (First Credit)	1		RIBA Stage 4	M&E
		Sub-metering of high energy load and tenancy areas	5	<p>An accessible energy monitoring and management system is 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.</p> <p>For Offices, metering must be by floor plate. Catering must also be metered separated if included.</p>	1	0.65%		1		RIBA Stage 4	M&E
Ene 03	External Lighting		1-3	<p>The building has been designed to operate without the need for external lighting (including building, signs and at entrances).</p> <p>OR</p> <p>Where the building does have external lighting:</p> <ul style="list-style-type: none"> - The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt. - All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic. 	1	0.65%		1		RIBA Stage 4	M&E

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Ene 04	Low carbon design	Passive design	1-3	<p>Passive design analysis</p> <ul style="list-style-type: none"> - The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces. - The project team carries out an analysis of the proposed building design/development to influence decisions made during RIBA Stage 2 and identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services. - The building uses passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result. 	1	0.65%		1		RIBA Stage 2	Accredited Energy Specialist
		Free cooling	4-6	<p>Free cooling</p> <ul style="list-style-type: none"> - The passive design analysis credit is achieved. - The passive design analysis carried out under the second criterion above includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. <p>The building uses ANY of the free cooling strategies listed in the BREEAM manual to reduce the cooling energy demand, i.e. it does not use active cooling.</p>	1	0.65%		0	0	RIBA Stage 2	Accredited Energy Specialist
		Low and zero carbon technologies	7-8	<p>Low zero carbon feasibility study</p> <ul style="list-style-type: none"> - A feasibility study has been carried out by the completion of the RIBA Stage 2 by an energy specialist to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source for the building. - 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 e.g. 5% reduction in CO2. 	1	0.65%		1		RIBA Stage 2	Accredited Energy Specialist
Ene 06	Energy Efficient Transportation Systems	Energy consumption	1	<ul style="list-style-type: none"> - 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. - 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 at least two types of lift. - The use of regenerative drives should be considered. - The transportation system with the lowest energy consumption is specified. 	1	0.65%		1		RIBA Stage 3	Vertical transport engineer
		Energy efficient features	2-6	<p>For each lift, three energy efficient features are specified:</p> <ul style="list-style-type: none"> - The lifts operate in a standby condition during off-peak periods. - The lift car lighting and display lighting provides an average lamp efficacy of > 55 lamp lumens/circuit Watt. - The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. <p>Where the use of regenerative drives is demonstrated to save energy, they are specified.</p>	2	1.30%		2		RIBA Stage 3	Vertical transport engineer
Ene 08	Energy efficient equipment		1-3	<p>Where functions/equipment responsible for the significant majority of unregulated energy consumption are energy efficient, based on the criteria below:</p> <p>The following equipment has been awarded an Energy Star rating OR has been procured in accordance with the Government Buying Standards:</p> <ol style="list-style-type: none"> 1. Office equipment 2. Domestic scale white goods and other small powered equipment 3. Supplementary electric heating 3. Communal laundry facilities with commercially sized systems. 4. Kitchen and catering facilities 	2	1.30%		2		RIBA Stage 4	Client

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							Excellent	Targeted	Additional		
Transport											
Tra 01	Provision of public transport	Accessibility Index	1-2	Up to five credits are awarded on a sliding scale based on the assessed buildings' accessibility to the public transport network	5	4.09%		5		RIBA Stage 4	Architect BREEAM Consultant
Tra 02		Proximity to amenities	1-2	One credit where evidence provided demonstrates that the building is located within 500m of two of the following accessible local amenities: - Grocery shop or food outlet - Post box - Cash machine - Outdoor open space - Recreation/leisure facility - Community facility - Pharmacy (over the counter) - Public sector GP or medical centre - Child care facility or school	1	0.82%		1		RIBA Stage 4	Architect BREEAM Consultant
Tra 03	Cyclist Facilities	Cycle Spaces	1-3	One credit where evidence provided demonstrates that covered, secure and well-lit cycle storage facilities and changing facilities are provided for all building users. The number of cyclist storage spaces which needs to be provided is: other building type 2: 1 cycle space per 10 staff and 1 cycle space per 10 visitors. Where the accessibility index for Tra 01 achieves more or equal to 3 credits, this quantity of cycle spaces can be halved. Two credits where, in addition to the above, two of the following facilities are provided in sufficient quantity as per the BREEAM manual: - Showers: 1 for every 10 cycle spaces - Changing Facilities: e.g. bench seat and/or hooks - Lockers: adequately sized with equal number of lockers to cycle spaces - Drying space: adequately sized	2	1.64%		2		RIBA Stage 2	Architect
Tra 04	Maximum car parking capacity		1	One credit is available for incorporating a maximum number of car parking spaces per occupant (or nominal occupant). This ratio is determined by the accessibility index under Tra 01. For an accessibility index of <4 1 credit = 1 car park space per 3 building users. 2 credits = 1 car park space per 4 building users. For an accessibility index of ≥4 - <8 1 credit = 1 car park space per 4 building users. 2 credits = 1 car park space per 5 building users. For an accessibility index of ≥8 1 credit = 1 car park space per 5 building users. 2 credits = 1 car park space per 6 building users.	2	1.64%		2		RIBA Stage 2	Architect
Tra 05		Travel plan	1-4	One credit where evidence is provided to demonstrate that a travel plan, based on a transport survey, has been developed and tailored to the specific needs of the building users. The plan must have been developed as part of the feasibility and design stages.	1	0.82%		1		RIBA Stage 2	Transport Consultant

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Water											
Wat 01	Water Consumption		1-6	<p>Up to five credits where evidence provided demonstrates that the specification includes taps, urinals, WCs and showers that consume less potable water in use than standard specifications for the same type of fittings. Credits are awarded based on the following improvement over the notional baseline:</p> <ul style="list-style-type: none"> - One credit - 12.5% improvement - Two credits - 25% improvement - Three credits - 40% improvement - Four credits - 50% improvement - Five credits - 55% improvement <p>The calculations is based upon the following sanitary fittings:</p> <ul style="list-style-type: none"> a) WCs b) Urinals c) Taps d) Showers e) Baths f) Dishwashers g) Washing machine h) Kitchen pre-rinse nozzles 	5	3.89%	One Credit	3		RIBA Stage 4	Architect Building services engineer
Wat 02	Water monitoring		1-4	<p>One credit where evidence provided demonstrates that a water meter with a pulsed output will be installed on the mains supply to each building/unit.</p> <p>The water consuming plant or areas consuming 10% or more of the building's water use need to be fitted with a pulsed sub meter or have water monitoring equipment integral to the plant or area.</p>	1	0.78%	Criterion 1 only	1		RIBA Stage 4	Building services engineer
Wat 03	Major leak detection & prevention	Leak detection system	1	<p>One credit where evidence provided demonstrates that a leak detection system is specified or installed on the building's water supply. This should meet the following:</p> <ul style="list-style-type: none"> a. Audible when activated; b. Activated when a continuous flow of water passes through the water meter at a flow rate above a pre-set minimum for a pre-set period of time; c. Able to identify different leakage rates, e.g. continuous, high and/or low level leaks, over set time periods; d. Programmable to suit the owner/occupiers' requirements; and e. Where applicable, designed to avoid false alarms caused by normal operation of large water consuming plant such as chillers. 	1	0.78%		1		RIBA Stage 4	Building services engineer
		Flow control device	2	<p>One credit where flow control devices that regulate the supply of water to each WC area/facility according to demand are installed.</p> <p>E.g. time controller, presence detector & time controller</p>	1	0.78%		1		RIBA Stage 4	Building services engineer
Wat 04	Water efficient equipment		1-2	<p>One credit where the design team has identified all unregulated water demands that could be realistically mitigated or reduced.</p> <p>The systems or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building.</p> <p>Where no irrigation systems are specified, and therefore there are no unregulated water demands for the building, this issue can be awarded by default for these shell and core assessment options.</p>	1	0.78%		1		RIBA Stage 4	Landscape architect

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Materials											
Mat 01	Life cycle impacts		1-3	Up to five credits are available, determined by the Green Guide to Specification ratings, third-party Environmental Product Declaration (EPD) and Life cycle Green House Gas emissions for the major building elements. Covering: - External Walls - Windows - Roof - Upper Floor Slabs - Floor finishes/coverings	6	5.79%		2	1	RIBA Stage 4	Architect
Mat 02	Hard landscaping and boundary protection		1	One credit where evidence provided demonstrates that at least 80% of the combined area of external hard landscaping and boundary protection specifications achieve an A or A+ rating, as defined by the Green Guide to Specification.	1	0.96%		1		RIBA Stage 4	Architect
Mat 03	Responsible sourcing of materials		1	Pre requisite All timber and timber based products used on the project is 'Legally harvested and traded timber'	-		Criterion 1 only	yes		RIBA Stage 4	Architect
			2	One credit where the principal contractor sources materials for the project in accordance with a sustainable procurement plan that includes the following: 1. Risks and opportunities are identified against a broad range of social, environmental and economic issues. BS 8902:2009 2. Aims, objectives and targets to guide sustainable procurement activities. 3. The strategic assessment of sustainably sourced materials available locally and nationally. 4. Procedures are in place to check and verify that the sustainable procurement plan is being implemented/adhered to on individual projects.	1	0.96%		1			
			3	Up to 3 credits are available where evidence provided demonstrates that 80% of the assessed materials in the majority of building elements are responsibly sourced. Includes building services insulation. Credits are awarded based on the following % points achieved: - 3 credits - 54% of available points achieved - 2 credits - 36% - 1 credit - 18% Any material type, other than ceiling and internal partitions/internal walls, which clearly accounts for less than 1m³ per 1000 m² of gross internal floor area, can be excluded from assessment.	3	2.89%		1	1		

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Mat 04	Insulation	Embodied Impact	1-2	<p>Any new insulation specified for use within the external walls, ground floor, roof and building services must be assessed.</p> <p>One credit where the thermal insulation products used in the building is the same as or greater than 2.5. All materials would need to be A+ or A rated to achieve an index of 2.5.</p>	1	0.96%		1		RIBA Stage 4	Architect M&E
Mat 05	Designing for durability and resilience		1-2	<p>Protecting vulnerable parts of the building from damage. 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.</p> <p>Protecting exposed parts of the building from material degradation The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors</p>	1	0.96%		1		RIBA Stage 3	Architect
Mat 06	Material efficiency		1-2	<p>Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life.</p> <p>The above is carried out by the design/construction team in consultation with the relevant parties at each of the following RIBA stages: a. Preparation and Brief b. Concept Design c. Developed Design d. Technical Design e. Construction.</p>	1	0.96%		0	0	RIBA Stage 1	Architect

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Waste											
Wst 01	Construction Site Waste Management	Non-Hazardous Construction Waste	1-3	Up to three credits are available where evidence provided demonstrates that the amount of non-hazardous construction (excluding demolition and excavation) waste (m ³ /100m ² or tonnes 100m ²) generated on site by the development is the same as or better than good or best practice levels. This should be shown in a BREEAM compliant Site Waste Management Plan. One credit for <13.3 m ³ per 100m ² (gross internal floor area) Note: where existing structures are to be demolished prior to development, a pre-demolition audit should be produced.	1	1.06%		1		RIBA Stage 4	Project Manager
				Two credits for <7.5m ³ per 100m ²	1	1.06%		1			
				Three credits for < 3.4m ³ per 100m ²	1	1.06%		0	0		
		Waste diverted from Landfill	4-5	One further credit where evidence provided demonstrates that 80% by volume or 90% by tonnage non-hazardous construction and demolition waste generated by the development will be diverted from landfill and reused or recycled.	1	1.06%		1			
Wst 02	Recycled aggregates	Recycled aggregates	1-3	One credit where The total amount of recycled or secondary aggregate specified is greater than 25% (by weight or volume) of the total high grade aggregate specified for the development. The % of recycled/secondary aggregates in each high-grade aggregate application, must meet the following: - Structural frame - 15% - Bitumen or hydraulically bound base, binder and surface courses for paved areas and roads - 30% - Building foundations - 20% - Concrete road surfaces - 15% - Pipe bedding - 100% - Granular fill and capping - 100%	1	1.06%		0	0	RIBA Stage 4	Structural Engineer
Wst 03		Operational Waste	1-2	One credit where a central, dedicated space is provided for the storage of the building's recyclable waste streams. This space must be: - Clearly labelled - Accessible to building occupants or facilities operators - Of a capacity appropriate to the building type, size, and predicted volumes of waste that will arise Where high and consistent volume of operational waste streams are likely, the following facilities should be provided: - static waste compactor or baler - vessels for composting suitable organic waste or storing for collection - where organic waste is to be stored/composted on site, a water outlet should be provided.	1	1.06%	One Credit	1		RIBA Stage 4	Architect
Wst 05	Adaptation to climate change	Structural and fabric resilience	1	Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of RIBA Stage 2, in accordance with the following approach: Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages: i.Hazard identification ii.Hazard assessment iii.Risk estimation iv.Risk evaluation v.Risk management.	1	1.06%			1	RIBA Stage 2	Architect / Structural Engineer

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Wst 06	Functional adaptability	1-2	1-2	<p>- A building-specific functional adaptation strategy study has been undertaken by the client and design team by RIBA Stage 2, which includes recommendations for measures to be incorporated to facilitate future adaptation.</p> <p>- Functional adaptation measures have been implemented (RIBA Stage 4) in accordance with the functional adaptation strategy recommendations, where practical and cost effective.</p>	1	1.06%		0	0	RIBA Stage 2	Architect M&E
Land Use & Ecology											
LE01	Site Selection	Re-use of Land	1	One credit where evidence provided demonstrates that the majority (75%) of the footprint of the proposed development falls within the boundary of previously developed land.	1	1.00%		0	0	RIBA Stage 4	Architect
		Contaminated Land	2-3	One credit where a specialist's site investigation, risk assessment and appraisal demonstrate that the land used for the new development has, prior to development, been defined as significantly contaminated and where adequate remedial steps have been taken to decontaminate the site prior to construction.	1	1.00%		0	0	RIBA Stage 2	Contaminated Land Consultant
LE02	Ecological value of site and protection of ecological features	Ecological value of site	1	One credit is awarded where evidence provided demonstrates that the construction zone is defined as land of low ecological value.	1	1.00%		0	0	RIBA Stage 2	Suitably Qualified Ecologist
		Protection of ecological features	2-3	All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013 prior to any preliminary site construction or preparation works	1	1.00%		1			Contractor (TBC)
LE03	Minimising impact on existing site ecology	1	1	One credit where evidence provided demonstrates that the change in the site's existing ecological value, as a result of development, is minimal.	1	1.00%	One Credit	1		RIBA Stage 2	Suitably Qualified Ecologist
			2	Two credits where evidence provided demonstrates that there is no negative change in the site's existing ecological value as a result of development.	1	1.00%		1		RIBA Stage 2	Contractor (TBC)

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							Excellent	Targeted	Additional		
LE04	Enhancing Site Ecology	Ecologist's report and recommendations	1-3	One credit where the design team (or client) has appointed a suitably qualified ecologist to advise and report on enhancing and protecting the ecological value of the site; and implemented the professional's recommendations for general enhancement and protection of site ecology.	1	1.00%		1		RIBA Stage 1	Suitably Qualified Ecologist
		Increase in Ecological value	4-6	A second credit where, in addition to the above, there is a positive increase in the ecological value of the site of six plant species or greater	1	1.00%		0	0	RIBA Stage 1	Suitably Qualified Ecologist
LE05	Long term impact on biodiversity		1-3	One credit where the client has committed to achieving the mandatory requirements listed and at least two of the additional requirements.	1	1.00%		1		RIBA Stage 4	Suitably Qualified Ecologist
				A second credit where the client has committed to achieving the mandatory requirements and at least four of the additional requirements.	1	1.00%		1		RIBA Stage 4	Contractor (TBC)
Pollution											
Pol 01	Impact of refrigerants	Direct Effect Life Cycle CO2 Equivalent Emissions	1-5	Three credits where the building does not require the use of refrigerants within its plant / systems. Pre-requisite: All systems (with electric compressors) must comply with the requirements of BS EN 378:20081 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.	1	0.77%		0	0	RIBA Stage 4	M&E
				One credit where systems using the refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELCO2e) of 1000kgCO2e/kW cooling capacity.							
		Two credits where systems using refrigerants have DELCO2e of 100kgCO2e/kW cooling capacity. OR where the air-conditioning or refrigeration systems use refrigerants with a GWP of less than 10.	1	0.77%		0	0	RIBA Stage 4			
	Refrigerant Leak Detection and Containment	6-7	One credit where systems using refrigerants are contained in moderately air tight enclosure and an automated permanent refrigerant leak detection system covering high risk parts of the plant or where a refrigerant leakage/charge loss detection system is specified. AND automatic shutdown and pump down of refrigerant occurs on the detection of a leak / charge loss.	1	0.77%		1		RIBA Stage 4	M&E	

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Pol 02		NOx emissions from heating source	1-2	Up to Three Credits where the dry NOx emissions (at 0% excess O2) ≤100 mg/kWh (space heating)	1	0.77%		0	0	RIBA Stage 4	M&E
				≤70 mg/kWh (space heating)	1	0.77%		0	0		
				≤40 mg/kWh (space heating)	1	0.77%		0	0		
Pol 03	Surface water run off	Flood Risk	1-3	Two credits where the development is situated in a low flood risk zone, as confirmed by a site specific Flood Risk Assessment.	2	1.54%		1		RIBA Stage 2	Drainage Consultant
		Surface water run off	4-14	- Pre-requisite - an appropriate consultant is appointed to carry out and demonstrate the criteria. One credit where drainage measures ensure the peak rate of run-off from the site to the watercourses is no greater post development than the pre-development site, in accordance with the 1 year and 100 year return period events. Calculations should include an allowance for climate change. Maintenance agreements for the ownership, operation and maintenance of all SuDS are in place.	1	0.77%		1		RIBA Stage 2	Drainage Consultant
				One credit where flooding of property will not occur in the event of local drainage system failure AND Drainage measures are specified to ensure the post development run-off volume is no greater than the prior to the site's development for the 100-year 6-hour event, including an allowance for climate change Where there is any additional predicted flow this is prevented from leaving the site by infiltration or other SUDS techniques. OR where this is not possible (this must be justified), the post peak rate of run-off must be reduced to a limiting discharge.	1	0.77%		1			
Minimising water course pollution	15-22	There is no discharge from the site for rainfall up to 5mm In areas with a low risk source of watercourse pollution, pollution prevention treatment is provided, using appropriate SuDS techniques. Oil / petrol separators should be specified in high risk areas: vehicle manoeuvring areas, car parks, waste disposal facilities, delivery and storage facilities or plant areas. All water pollution prevention systems are designed and installed in accordance with PPG 3 and/or SuDS manual A comprehensive and up to date drainage plan of the site will be made available for the building/site occupiers.	1	0.77%		0	0				

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Pol 04	Reduction of Night Time Light Pollution	1-6	One credit where evidence provided demonstrates that the external lighting design is in compliance with the guidance in the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except safety and security) should be automatically switched off between 23:00 and 7:00 hours.	Safety and security lighting levels should be lowered between these hours to meet the criteria in table 2 of the ILP notes.	1	0.77%		1		RIBA Stage 4	M&E
			illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements								
Pol 05	Noise Attenuation	1-5	Where there are no noise-sensitive areas or buildings within 800m radius of the assessed site. OR	Where the building does have noise-sensitive areas or buildings within 800m radius of the site: - A noise impact assessment in compliance with BS 7445 is carried out - The noise impact assessment must be carried out by a suitably qualified acoustic consultant - The noise level 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. - Where the noise is greater than the levels described measures have been installed to attenuate the noise at its source to a level where it will comply.	1	0.77%		1		RIBA Stage 4	Acoustician
Innovation											
Man 03	Responsible Construction Practices			A CCS score of 40 or above is achieved, with at least 7 in each section	1	1.00%		1		As above	-
Man 05	Aftercare			There 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.	1	1.00%		1		As above	-
Hea 01	Visual Comfort - Daylighting			- Occupied areas have an average daylight factor of 3% in 80% of the space - A minimum point daylight factor of 1.2% OR 2.1% for spaces with glazed roofs, such as atria	1	1.00%		0	0	As above	-
Hea 02	Indoor Air Quality			One credit - All seven remaining product categories listed in the BREEAM table meet the testing requirements and emission levels criteria for Volatile Organic Compound (VOC) emissions. - For products b) – f) listed in the table, the formaldehyde emission levels have been measured and found to be less than or equal to 0.06mg/m3 air in accordance with the approved testing standards in the table Two credits	2	2.00%		0	0	As above	-
Ene 01	Reduction of energy use and carbon emissions			Up to four credits - Zero regulated carbon - The building achieves an EPRNC ≥ 0.9 and zero net regulated CO2 emissions. - An equivalent percentage of the buildings modelled 'regulated' operational energy consumption is generated by carbon neutral on-site or near-site sources and used to meet energy demand from 'unregulated' building systems or processes. Five credits - Carbon negative The building is 'carbon negative' in terms of its total modelled operational energy consumption, including regulated and unregulated energy.	5	5.00%		0	0	As above	-

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Wat 01	Water Consumption			As per Wat 1, one exemplary credit can be achieved where there is a 65% reduction in water consumption over the notional building.	1	1.00%		0	0	As above	-
Mat 01	Materials Specification			<p>Route 1: Using the Green Guide to Specification (elemental approach) - one credit</p> <p>- The building achieves at least two points in addition to the total points required to achieve maximum credits under the standard BREEAM criteria</p> <p>Route 2: Using compliant life cycle assessment software tools (whole building approach) - two credits</p> <p>- Where the design team has used an IMPACT compliant software tool (or equivalent) to measure the environmental impact of the building.</p> <p>- Where the design team can demonstrate how the use of an IMPACT compliant software (or equivalent) has benefited the building in terms of measuring and reducing its environmental impact.</p> <p>- Where the design team submit the building information model (BIM) from the IMPACT compliant software tool (or equivalent) for the assessed building to BRE Global via the project's appointed BREEAM Assessor.</p>	2	2.00%		0	0	As above	-
Mat 03	Responsible Sourcing of Materials			Where, in addition to the standard BREEAM requirements, 70% of the available responsible sourcing points have been achieved.	1	1.00%		0	0	As above	-
Wst 01	Construction Site Waste Management			<p>Where non-hazardous construction waste generated by the building's development meets or exceeds the resource efficiency benchmark required to achieve three credits (as outlined in the guidance).</p> <p>Construction waste produced meets the following: <1.6 m³ per 100m² (gross internal floor area)</p> <p>Where at least 85% by volume and 90% by weight of non demolition waste and 85% by volume and 95% by weight of demolition waste has been diverted from landfill and either:</p> <ol style="list-style-type: none"> Reused on site (in-situ or for new applications) Reused on other sites Salvaged/reclaimed for reuse Returned to the supplier via a 'take-back' scheme Recovered from site by an approved waste management contractor and recycled. <p>Where all key waste groups are identified for diversion from landfill at pre-construction stage SWMP.</p>	1	1.00%		0	0	As above	-

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Wst 02	Recycled aggregates			Where 35% (by weight or volume) of the total high-grade aggregates specified in the development are recycled and/or secondary. The percentage of high-grade aggregate that is recycled and/or secondary, must meet the following levels: - Structural frame - 30% - Bitumen or hydraulically bound base, binder and surface courses for paved areas and roads - 75% - Concrete road surfaces - 45% - Pipe bedding - 100% - Building foundations - 35% - Granular fill and capping - 100%	1	1.00%		0	0	As above	-
Wst 05	Adaptation to climate change			Achievement of the Structural and fabric resilience criterion in this issue and the following criteria points or credits: Hea 04 Thermal comfort (Link to Wst 05 issue:- to preventing increasing risks of overheating) Criterion 6 in the second credit of the Hea 04 issue has been achieved. Ene 01 Reduction of energy use and carbon emissions (Link to Wst 05 issue: to maximise energy efficiency contributing to low carbon emissions resulting from increasing energy demands) At least eight credits in this issue have been achieved. Ene 04 Low carbon design (Link to Wst 05 issue: to maximise opportunities to avoid unnecessary carbon emissions) The Passive design analysis credit in this issue has been achieved. Wat 01 Water consumption (Link to Wst 05: to minimise water demands in periods of drought) A minimum of three credits in this issue have been achieved. Mat 05 Designing for durability and resilience (Link to Wst 05 issue: to avoid increased risks of deterioration and higher maintenance demands) Criterion 2 relating to material degradation in this issue has been achieved. Pol 03 Surface water run-off (Link to Wst 05: to minimise the risks of increased flood risk and surface water run-off affecting the site or others) Flood risk – a minimum of one credit has been achieved. Surface water run-off – two credits have been achieved.	1	1.00%		0	0	As above	-
Additional Innovation credit - requiring application to BRE.					1					-	-



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