BREEAM Rating

3.6

To achieve a BREEAM rating, a minimum percentage score (refer to Table 3.2) and minimum standards (refer to Table 3.3) must be achieved.

BREEAM rating	% Score
UNCLASSIFIED	< 30
PASS	≥ 30
GOOD	\geq 45
VERY GOOD	≥ 55
EXCELLENT	≥ 70
OUTSTANDING*	≥ 85

Table 3.2 BREEAM Bespoke 2008 rating benchmark

* Note, additional requirements must be complied with in order to achieve an 'Outstanding' rating, including publication of a case study on the Outstanding rated building and BREEAM In Use Certification of Performance within the first three years of operation and use in order to maintain the rating.

BREEAM Rating	PASS	GOOD	VERY GOOD	EXCELLENT	OUTSTANDING
BREEAM Issue	Minimu	ım Numl	per of Cr	edits	
Man 1: Commissioning	1	1	1	1	2
Man 2: Considerate Constructors				1	2
Man 4: Building User Guide				1	1
Hea 4: High Frequency Lighting	1	1	1	1	1
Hea 12: Microbial Contamination	1	1	1	1	1
Ene 1: Reduction of CO ₂ Emissions				6	10
Ene 2: Sub-metering of Substantial Energy Uses			1	1	1
Ene 5: Low or Zero Carbon Technologies				1	1
Wat 1: Water Consumption		1	1	1	2
Wat 2: Water Meter		1	1	1	1
Wst 3: Storage of Recyclable Waste				1	1
LE 4: Mitigating Ecological Impact			1	1	1

Table 3.3 Minimum BREEAM Bespoke 2008 standards

BREEAM Innovation Credits

3.8

3.9

- 3.7 BREEAM issues.

 - A building can achieve an innovation credit in two different ways:

Man 2 - Considerate Construct
Hea 1 - Daylighting
Ene 1 - Reduction of CO ₂ emis
Ene 5 - Low or Zero Carbon Te
Wat 2 - Water Meter
Mat 1 - Materials Specification
Mat 5 - Responsible Sourcing
Wst 1 - Construction Site Wast

- fee is charged by BRE for each innovation credit application received.

Innovation credits provide additional recognition for a building that innovates in the field of sustainable performance, above and beyond the level that is currently recognised and rewarded within standard

An additional 1% score can be added to a building's final BREEAM score for each innovation credit achieved. The maximum number of innovation credits that can be awarded for any building assessed is 10; therefore the maximum available score achieved for 'innovation' is 10%. Innovation credits can be awarded regardless of the final BREEAM rating i.e. they are awardable at any BREEAM rating level.

a. By meeting exemplary performance requirements for an existing BREEAM issue (Table 3.4 outlines the BREEAM issues with exemplary performance requirements);

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sions
echnologies
of Materials
e Management

Table 3.4 BREEAM credits with extra exemplary performance points

b. By applying to BRE for having a particular building feature, system or process recognised as 'innovative'. If the application is successful an innovation credit can be awarded. An additional

4. PRELIMINARY BREEAM BESPOKE ASSESSMENT

- 4.1 This section presents the findings of the BREEAM Bespoke workshops held with the design team throughout 2008, 2009 and 2010 and further analyses following the workshops.
- 4.2 Consideration has also been given to the feedback provided by the GLA and LBC during the preapplication process and as such the Proposed Development intends to target all practicable credits to achieve the highest possible BREEAM rating.
- Note, in a BREEAM Bespoke 2008 Assessment the occupied spaces within a building are divided into 4.3 function/activity areas that may have different environmental issues, and consequently different credits applicable to them. Therefore the BREEAM Bespoke Pre-Assessment Estimator spreadsheet allows for some credits to be area-weighted whilst other credits are awarded on a whole building/site basis. For credits which are awarded on a function/activity area basis, if a credit is only achievable in a function/activity area which constitutes 20% of the occupied floorspace, then 0.2 weighted score will be awarded.
- 4.4 The Proposed Development currently scores 72.01% (i.e. 'Excellent' rating), and achieves 60% of the energy credits, 40% of the materials credits, and 60% of the water credits (as per LBC requirements).
- The following sections provide a description of the development performance under the BREEAM 4.5 Bespoke 2008 assessment on a point-by-point basis, so that the implications of achieving the targeted credits are understood.
- 4.6 It should be noted that the rating obtained in this preliminary assessment is for guidance only. Predicted ratings may differ from those obtained through a formal assessment.

Management Section

0								
Refere	nce	Issue Title A				Available	Achievable	
Man	1	Commissioning				2	2	
is crec	lit applie	s to all buil	ding area	S.				
M	linimum	BREEAM	Standar	ds				
P	G	VG	E	0				
1 molia	1 nco Por	1 nuiromonts	1	2				
predit o	nce Kei	warded wh	». Jere evide	ence nrovi	ded demonstrates that an a	annronr	iate project team	member has been
pointe rrent B	d to mo suilding l	nitor comm Regulations	issioning and best	on behali t practice.	f of the client to ensure co	mmissio	oning will be car	ried out in line with
<u>appr</u> mmiss	<i>opriate</i> ioning a	<i>project tea</i> nd, where r	<u>am mem</u> necessary	<i>ber(s)</i> m , re-comr	ust be appointed to morn nissioning on behalf of the o	nitor an client.	id programme	pre-commissioning,
e mair	n contra	ctor accoun	ts for the	commissi	oning programme.			
specia	list com	missioning	<u>manager</u>	is appoint	ed for complex systems suc	ch as:		
٠	Air conc	litioning,						
٠	Mechan	ical ventilat	tion,					
٠	Displace	ement venti	ilation,					
•	Comple	x passive v	entilation,	1				
٠	Building Bespok	manageme e 2008 mar	ent syster nual),	ns (BMS)	(in accordance with the pro	ocedure	s as described w	vithin the BREEAM
٠	Renewa	ble energy	sources,					
٠	Microbio (2000))	ological safe	ety cabine	ets and fur	ne cupboards (in accordan	ce with	BS EN 14175-2	and BS EN 12469
•	Cold sto Installat Part 1)	orage enclo ion and cor	sures and nmissioni	l refrigera ng of refri	tion plant (in accordance wi geration systems, and Sect	ith the C tion 9.1	Carbon Trust pub of the Cold Store	lication GPG347 e Code of Practice,
e com	missioni	ing manage	er must ha	ave been a	appointed during the design	n stage.		
omplia	nce Re	quirements	6:					
credits mmiss	can be ioning w	e awarded /ill be carrie	where, i d out duri	n additior	n to the above, evidence at year of occupation, post o	provide construc	d demonstrates	that the seasonal
e abov e buildi	/e appoi ng becc	ntments incomes occup	clude the ied:	seasonal	commissioning responsibili	ties ove	r a minimum 12-	month period, once
omplex	System	ns – Special	list comm	issioning	manager			
Testing	g of all b	ouilding serv	vices und	er full load	l conditions			
Where	applica	ble, testing	should a	lso be car	ried out during periods of ex	xtreme	occupancy	
Intervie	ews with	n building o	ccupants	to identify	problems regarding the eff	ectiven	ess of the systen	าร
Re-coi	nmissio	ning of syst	tems and	incorpora	ting any revisions in operat	ing prod	cedures into the	O&M manuals.
me cu e speci	pboards alist cor	s, microbiolo nmissioning	ogical saf g agent's	ety cabine responsib	ets and a cold storage syst ilities.	tem (wh	ere applicable) r	must be included in
mple S	ystems	(naturally v	entilated)	– Externa	al Consultant/Facilities Man	ager		
eview t measi	hermal (urement	comfort, vei or occupar	ntilation, ant feedbac	and lightir ck.	g, at three, six and nine m	onth int	ervals after initia	l occupation, either

Th

Minimum BREEAM Standards						
Р	G	VG	E	0		
1	1	1	1	2		

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Preliminary Assessment status:

It is currently assumed that an independent specialist contractor will be appointed for commissioning. Commissioning will be carried out in line with current best practices and an appropriate project team member will be appointed to monitor pre-commissioning, commissioning and where necessary, re-commissioning on behalf of the client. It is also assumed that seasonal commissioning will be carried out, during at least the first year of occupancy. Two credits could be achieved.

Reference			Issue	Available	Achievable	
Man 2		Cons	iderate (2	2 + 1 Innovation	
This credit appli	es to all buildi	ing areas.				
Minimu	um BREEAM	Standards				
P G	VG	E	0			
	-	1	2			
Compliance Re	quirements:					
1 credit can be practice site man	awarded wh nagement prir	ere evideno nciples, inte	ce provid rpreted a	led demonstrates that there is as:	a commitment t	o comply with best
Complying with	all the manda	tory items p	olus 50%	of the optional ones of Checklis	st A2 "Considerat	e Constructors"
OR						
Where the contr	actor achieve	d a CCS Co	ode of Co	onsiderate Practice score betwe	en 24 and 31.5.	
2 credits can be	awarded whe	ere there is	a commit	tment to go beyond best practic	e, interpreted as:	
Complying with	all the manda	tory items p	olus 80%	of the optional ones of Checklis	st A2 "Considerat	e Constructors" OR
Where the contr	actor achieve	d a CCS Co	ode of Co	onsiderate Practice score betwe	en 32 and 35.5.	
Exemplary Reg	uirements:					
The following ou	Itlines the exe	emplary leve	el require	ments to achieve an innovation	credit:	
Where post con alternative sche Considerate Co Considerate Pra	struction, the me addresse nstructors Sc ictice with a se	site has co s all the ma heme certin core of at le	mplied ir andatory ficate car ast 36.	n full with the alternative, indep and optional items in Checklis n be provided demonstrating t	endently assesse t A2 OR where p hat the site achie	ed scheme, and the post construction, a eved CCS Code of
Preliminary As	sessment sta	atus:				
It is currently as significantly bey requirements). T	sumed that th ond best prac wo credits ar	e appointed tice site mand the innov	d contract inagement ation cre	tor will use the Considerate Cor nt principles (this will be include dit could be achieved.	nstructors Schem ed in the contracto	e and will go pr's contractual
Reference			Issue	Title	Available	Achievable
Man 3		Cons	truction	Site Impact	4	4

This credit applies to all building areas.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that 2 or more of items a-g (listed below) are achieved.

2 credits can be awarded where evidence provided demonstrates that 4 or more of items a-g are achieved.

3 credits where evidence provided demonstrates that 6 or more of items a-g are achieved:

a. Monitor, report and set targets for CO₂ or energy arising from site activities;

b. Monitor, report and set targets for CO₂ or energy arising from transport to and from site;

c. Monitor, report and set targets for water consumption arising from site activities;

- d. Implement best practice policies in respect of air (dust) pollution arising from the site;
- e. Implement best practice policies in respect of water (ground and surface) pollution occurring on the site;

site; and

g. Main contractor operates an Environmental Management System.

sourced and 100% is legally sourced.

Preliminary Assessment status:

It is assumed that at least six of the items a-g listed above will be achieved, scoring three credits. It is also assumed that at least 80% of site timber will be responsibly sourced and 100% will be legally sourced, scoring an additional credit. Therefore four credits could be achieved.

Reference			Issue	Title		Available	Achievable
Man 4		Βι	uilding U	sers Guide		1	1
This credit appli	es to all build	ling areas.					
Minim	ım BREEAM	Standard	S				
P G	VG	E	0				
	-	1	1				
Compliance Re	quirements	:					
l credit can be nformation rele performance of	e awarded v vant to the te the building.	vhere evid nant/occup	ence propants and	vided demonstrat non-technical buil	es the provisi ding manager	on of a simple on the operation	guide that covers and environmental
A non-technical	Building Use	r Guides sl	hould be p	provided containing	g all the require	ed information, s	uch as:
• Buildi	ng services i	nformation		٥	Materials and	d waste policy;	
• Emer	gency inform	ation;		٠	Information for	or refit and refurb	ishment;
• Energ	y and enviro	nmental st	rategy;	۰	Reporting pro	ovision;	
• Wate	use;			٠	Training oppo	ortunities; and	
Trans	port facilities	3		۰	Web links an	d references.	
Preliminary As	sessment st	atus:					

Minimum BREEAM Standards						
Р	G	VG	E	0		
-	-	-	1	1		

It is assumed that a Building User Guide covering information relevant to the tenant/occupants and non-technical building manager will be provided. Its contents will be developed in line with the BREEAM requirements. The credit could be achieved.

Reference	Issue Title	Available	Achievable
Man 6	Consultation	2	2
his credit applie	es to all building areas.		
credit can be a credit can be a nd feedback giv ny relevant nat f the building/si	quirements: awarded where evidence provided demonstrates that consultation ven to the local community and building users. In addition, advice ional and local history, archaeological bodies or military history of te/surroundings.	n has been, or is should also have groups regarding	being, undertaken been sought from the heritage value

f. Main contractor has an environmental materials policy, used for sourcing of construction materials to be utilised on

1 additional credit is awarded where evidence provided demonstrates that at least 80% of site timber is responsibly

During the preparation of the brief (equivalent to RIBA stage B) the following must be undertaken:

a. Members of the local community and appropriate stakeholders identified with whom the design team consulted.

b. Knowledge and experience collated from the existing buildings of the same type (if relevant) to identify existing partnerships and networks. If the building is a new development in an existing community or for a community still under construction, a representative consultation group should be identified from similar buildings of the same type in the same authority/area.

c. A consultation plan was prepared and included a timescale and methods of consultation, clearly identifying at which points consultees can usefully contribute and how they will be kept informed about progress on the project.

The consultation must include issues outlined within the BREEAM Bespoke 2008 Manual.

Feedback must be given to the consultation group regarding suggestions made; this feedback covers:

- What was proposed during the consultation exercise

- How each of these proposals were considered

- The outcome, e.g. implementation of suggestions or description of why options have not been deemed feasible.

Compliance Requirements:

2 credits can be awarded where, in addition to the above, evidence provided demonstrates that changes to the design and/or action has been taken as a result of the above consultation process. This should include the protection of any parts of the building (or site) having historic or heritage value in accordance with independent advice from the relevant body.

Preliminary Assessment status:

Consultation has been undertaken and feedback given to the local community and building users. Advice has been sought from any relevant national and local history, archaeological bodies or military history groups regarding the heritage value of the building/site/surroundings. The design evolution of the Proposed Development reflects the results of the consultation process. It is assumed that the Proposed Development could achieve two credits.

Reference	Issue Title	Available	Achievable
Man 8	Security	1	1

This credit applies to all building areas.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that an Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) from the local police force has been consulted at the design stage (RIBA stage C) and their recommendations incorporated into the design of the building and its parking facilities (if relevant). The final design is built to conform to the principles and guidance of Secured by Design.

Preliminary Assessment status:

A specialist security consultant (i.e. Horus Security Consultancy) has been appointed to manage the security aspect of the Proposed Development. The scheme will exceed the requirements for security accreditation required by BRE. The project team have engaged with the police from the Stage C design phase at the highest level, above the Crime Prevention Officer detailed in the BREEAM guidance.

The credit could therefore be achieved

Reference	Issue Title	Available	Achievable
Man 12	Life Cycle Costing	2	2

This credit applies to all building areas.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that a Life Cycle Cost (LCC) analysis based on the feasibility study proposals has been undertaken on the building design at a strategic and system level.

The Life Cycle Costs analysis based on the feasibility study proposals must cover the following stages:

a. Construction:

b. Operation - includes, as a minimum, utilities;

c. Maintenance - includes, as a minimum, planned maintenance, replacements and repairs, cleaning, management costs: and

d. End of life.

The LCC analysis uses a study period of 25 or 30 (as applicable) AND 60 years, shown in real, discounted and nondiscounted cash flow terms.

The feasibility study demonstrates that at least two of the following issues have been analysed at a strategic and system level (as per figure 6, Different levels of analysis at different stages of the life cycle, ISO 15686-1), comparing alternative options: Structure, Envelope, Services, and Finishes.

The chosen solution is the one that best meets the performance requirements for the built asset.

The option(s) with the lowest discounted LCC over the period is preferred, assuming that their selection results in at least one of the following:

a. The lowest building energy consumption over the operational life span of the building (compared to other options/alternatives analysed);

b. A reduction in maintenance requirement/frequency;

c. Prolonged replacement intervals of services infrastructure/systems or building fabric; and d. Dismantling and recycling or reuse of building components. The model must be updated during RIBA Work stages D/E.

Compliance Requirements:

2 credits can be awarded where, in addition to the above, evidence provided demonstrates that the results of the feasibility study and consideration of LCC have been implemented.

Preliminary Assessment status:

A specialist cost consultant has been appointed to produce a Life Cycle Cost (LCC) analysis on the Proposed Development design at a strategic and system level. The results of the feasibility study and LCC have been implemented in the proposed design.

The Proposed Development could therefore achieve two credits.

Health and Well	peing Section				
Reference	Issue Title	Available	Achievable		
Hea 1	Daylighting	1	0		
This credit appli facilities, semina	es to logistics/receiving areas, entrance/atrium, office space, meet ar rooms, kitchen, restaurant/seating, write up areas, and worksho	ting rooms, trair ps.	ing/teaching		
Compliance Re	quirements:				
1 credit can be a space (occupied building user) ha	awarded where evidence provided demonstrates that at least 80% I spaces are defined as a room or space that is likely to be occupie as an average daylight factor of 2% or more.	of floor area in ed fro 30 minute	each occupied es or more by a		
PLUS either (a)	OR (b AND c) below				
a. A uniformity ratio of at least 0.4 or a minimum point daylight factor of at least 0.8% (spaces with glazed roofs, such as atria, must achieve a uniformity ratio of at least 0.7 or a minimum point daylight factor of at least 1.4%).					
OR					
b. A vie	w of sky from desk height (0.7m) is achieved.				
AND					
c. The	room depth criterion d/w + $d/H_W < 2/(1-R_B)$ is satisfied.				
Where:					
d = roo	m depth				
w = roo	m width				
$H_{W} = W$	indow head height from floor level				
R _B = av	verage reflectance of surfaces in the rear half of the room.				
The provision of and the BRE Sit	daylight must be designed in accordance with the guidance in CII e Layout Guide.	BSE Lighting G	uide 10, BS8206		
Exemplary leve	el Requirements:				
The following ou	tlines the exemplary level requirements to achieve an innovation	credit.			
At least 80% of buildings.	the floor area has an average daylight factor of 3% in multi-store	ey buildings and	1 4% in single-storey		
The requirement demonstrating c	ts outlined above concerning uniformity ratio, view of sky or ro ompliance via uniformity ratio or point daylight factor the following	om depth crite minimum requi	rion are met. Where rements apply:		
a. Multi-storey: glazed roofs, su 2.1%).	a uniformity ratio of at least 0.4 or a minimum point daylight fa ch as atria, must achieve a uniformity ratio of at least 0.7 or a min	actor of at least imum point day	1.2%; (spaces with ight factor of at least		
b. Single storey achieve a unifor	a minimum point daylight factor of at least 1.6%; (spaces with mity ratio of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of at least 0.7 or a minimum point daylight factor of	h glazed roofs, ast 2.8%).	such as atria, must		
Preliminary As	sessment status:				

The proposed design maximises the potential of the site by providing a layout that utilises the available space in the most efficient manner. Due to the inherent characteristics of the site layout (whose use will be optimised by providing deep plan spaces), this BREEAM credit is not considered achievable. Note, however, an internal atrium will be provided as part of the proposed design, which will enable natural light to penetrate into the scheme.

Reference Issue Title Hea 2 View Out

This credit applies to Office space, Write Up Areas, Workshops.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that all relevant building areas (i.e. areas where here are or will be workstations, benches or desks for building users) have an adequate view out. All workstations should be within 7m distance of a wall with a window or permanent opening providing an adequate view out.

The view out should ideally be through an external window providing a view of a landscape or buildings (rather than just the sky) at seated eye level (1.2 - 1.3m) in the relevant building areas. A view in to an internal courtyard or atrium will comply provided the distance from the opening to the back wall of the courtyard/atrium is at least 10m (therefore allowing enough distance for the eyes to refocus).

The view cannot be an internal view across the room, as this is likely to become obstructed by partitions, filing cabinets etc.

Preliminary Assessment status:

As for the previous credit, the proposed design maximises the potential of the site by providing a layout that utilises the available space in the most efficient manner. Due to the inherent characteristics of the site layout (whose use will be optimised by providing deep plan spaces), this BREEAM credit is not considered achievable. Note, however, glazed spaces will be provided as part of the proposed design, which will enable the building users to have a view out.

Reference	Issue Title	Available	Achievable		
Hea 3	Glare Control	1	1		
is credit applies to office space, meeting rooms, training/teaching facilities, seminar rooms, conference suite/lecture eatre, write up areas and workshops. This credit can be awarded by default in areas that do not have any glazing.					
ompliance Requirements:					
credit can be awarded where evidence provided demonstrates that an occupant-controlled shading system (e.g. gernal or external blinds) is fitted in all relevant building areas. The system should be fitted on all windows, glazed pors and rooflights.					
eliminary Assessment status:					
s assumed that office space, meeting rooms, training/teaching facilities, seminar rooms, write-up areas and rkshops will be provided with an occupant-controlled shading system. The credit could be awarded.					
e conference suite/lecture theatre will not have any glazing and will therefore achieve this credit by default.					

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Referen	се			Issue Tit	le	Available	Achievable
Hea 4		High Frequency Lighting		1	1		
his credit	applies t	o all building	g areas.				
	Minimun	n BREEAM	Standards	;			
Р	G	VG	E	0			
1	1	1	1	1			
omplian	ce Requi	rements:			-		
credit c	an be av	varded whe	re high fre	equency ba	allasts are installed on all f	uorescent and	compact fluorescent

Reference	e			Issue Tit	tle	Available	Achievable
Hea 4		High Frequency Lighting			1	1	
his credit	applies to	all building	g areas.				
N	<i>l</i> inimum	BREEAM	Standards	;			
Р	G	VG	E	0			
1	1	1	1	1			
Compliand	e Requir	ements:			-		
credit ca	in be awa	arded whe	re high fre	quency ba	allasts are installed on all fl	uorescent and	compact fluorescent

lamps

Preliminary Assessment status:

It is assumed that all fluorescent and compact fluorescent lamps will be specified with high frequency ballasts. The credit could be awarded.

	Available	Achievable
	1	0
shana		

Reference	Issue Title	Available	Achievable		
Hea 5	Internal and External Lighting Levels	1	1		
This credit applies to all building areas.					

Compliance Requirements:

1 credit can be awarded where all internal and external lighting illuminance (lux) levels are specified in accordance with Part 2 of the CIBSE Code for Lighting 2002 and its 2004 Addendum.

For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 and illuminance levels for lighting in all external areas within the construction zone are specified in accordance with CIBSE Lighting Guide 6, 'The outdoor environment'.

Preliminary Assessment status:

It is assumed that all internal and external lighting will be specified in accordance with the appropriate illuminance levels (in lux) recommended by CIBSE. The credit could be achieved.

NOTE: No CIBSE guidance is provided for BRF spaces. Additionally, BRF areas need to follow Home Office guidance. BRE confirmed the Home Office requirements are acceptable for the assessment of this issue where they are applicable to specific areas of the Proposed Development, i.e. BRF.

Reference	Issue Title	Available	Achievable
Hea 6	Lighting Zones and Controls	1	1

This credit applies to logistic/receiving areas, entrance/atrium, office space, meeting rooms, security/BMS/fire control, training/teaching facilities, seminar rooms, conference suite/lecture theatre, kitchen, restaurant/seating, and workshops.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that, in all relevant building areas lighting is appropriately zoned and occupant controllable.

Zoning of lighting control allows for varying occupancy and/or uses within each space, appropriate to the usage of that space. In particular, lighting is zoned to allow separate user-control as follows:

a. Office and circulation spaces

b. In office areas: zones of no more than four workplaces

- c. Workstations adjacent to windows/atria and other building areas separately zoned and controlled
- d. Seminar and lecture rooms: zoned for presentation and audience areas
- e. Library spaces: separate zoning of stacks, reading and counter areas
- f. Auditoria: zoning of seating areas, circulation space and lectern area
- g. Dining, restaurant, café areas: separate zoning of servery and seating/dining areas
- h. Retail: separate zoning of display and counter areas
- i. Bar areas: separate zoning of bar and seating areas.

Areas used for teaching, seminar or lecture purposes (not listed above) have lighting controls provided in accordance with CIBSE Lighting Guide 5 (full area lighting, separate audience area lighting and demonstration area lighting and separate localised lectern lighting).

Preliminary Assessment status:

It is assumed that lighting will be appropriately zoned and controlled in the following areas: meeting rooms, security/BMS/fire control, training/teaching facilities, seminar rooms, conference suite/lecture theatre, restaurant/seating, and workshops. These areas could therefore achieve the credit.

Logistic/receiving areas, entrance/atrium, an office space will be provided with occupancy sensors, which will allow for a more energy efficient management of the lighting systems compared to users' controls.

Reference	Issue Title	Available	Achievable		
Hea 7	Potential for Natural Ventilation	1	0		
his credit applies to entrance/atrium, office space, meeting rooms, security/BMS/fire control, training/teaching acilities, seminar rooms, conference suite/lecture theatre, and restaurant/seating.					
Compliance Re	quirements:				
credit can be occupied spaces resh air.	awarded where evidence provided demonstrates that fresh air is of the building via a natural ventilation strategy, and there is su	s capable of be fficient user-con	ng delivered to the trol of the supply of		
latural ventilatio	n can be demonstrated via either:				
The openable window area in each occupied space is equivalent to 5% of the gross internal floor area. For pom/floor plates 7-15 m depth the openable window area is on opposite sides and evenly distributed across the area opromote adequate cross ventilation,					
DR					
The design de provides adequa	emonstrates (by calculation recommended by CIBSE AM10) the cross flow of air to maintain required thermal comfort conditions	hat the natural s and ventilation	ventilation strategy rates.		
For a strategy w han 15m, the o naintain the requ	or a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater an 15m, the design must demonstrate that the ventilation strategy can provide adequate cross flow of air to aintain the required thermal comfort conditions and ventilation rates.				
The strategy mu ypically be demo	he strategy must be capable of providing at least two levels of user-control on the supply of fresh air. This would pically be demonstrated by providing a large enough area of manually opening windows.				
Preliminary Ass	sessment status:				
The ventilation a control of the in Proposed Develo BREEAM credit	and servicing strategy for the proposed scheme has to take in iternal environment conditions required by the experimental w opment. Due to the nature of the work that will be undertaken is not considered achievable.	to account secu ork that will be in the Proposed	rity issues and the undertaken in the Development, this		

Reference	Issue Title	Available	Achievable
Hea 8	Indoor Air Quality	1	1

This credit applies to all building areas.

Compliance Requirements:

1 credit can be awarded where air intakes serving occupied areas avoid major sources of external pollution and recirculation of exhaust air.

For Air-conditioned and mixed-mode building:

The location of air intakes/outlets is over 10m apart to minimise recirculation and intakes are over 20m from sources of external pollution, such as car parks and roads. The location of openable windows should be over 10m from sources of external pollution.

For naturally ventilated buildings:

Where openable windows/ventilators are over 10m from sources of external pollution.

Additionally, the building must be designed to provide fresh air rates to dilute pollutants in accordance with good practice:

In general office type areas fresh air is provided in accordance with the top of the range recommended in the British Council for Offices "Guide to Best Practice in the Specification of Offices" i.e. 12 litres per second per person.

Areas of the building subject to large and unpredictable or variable occupancy patterns have CO₂ or air quality sensors specified and:

a. In mechanically ventilated spaces, the sensor(s) are linked to the mechanical ventilation system and provide

b. In naturally ventilated spaces, the sensors either have the ability to alert the building owner/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.

Preliminary Assessment status:

It is currently assumed that the location of air intakes and outlets would comply with this credit requirements, as they would be positioned over 10m apart to minimise recirculation (i.e. the distance from the discharge stacks to the intake louvres on the inboard wall of the plantroom at Level 5 would be >10m). Intakes would be located over 20m from sources of external pollution, such as car parks and roads. The credit could therefore be awarded.

Reference	Issue Title	Available	Achievable		
Hea 9	Volatile Organic Compound (VOC)	1	0		
This credit applies to all building areas.					

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that the emissions of VOCs and other substances from key internal finishes and fittings comply with the best practice levels.

Reference standards, per type of product: BS EN 13986:2002 (wood panels), BS EN 14080:2005 (timber structures), BS EN 14342:2005 (wood flooring), BS EN 14041:2004 (resilient, textile and laminated floor coverings), BS EN 13964:2004 (suspended ceiling tiles), BS EN 13999-1:2007 (flooring adhesives), BS EN 233:1999, BS EN 234:1989, BS EN 259:2001. BS EN 266:1992 (wall-coverings), 3046:1981 (adhesives for hanging flexible wall-coverings), BS EN 13300:2001 (decorative paints and varnishes).

Reference standards for testing of products: BS EN 717-1:2004, BS EN 13999-2:2007 (VOCs), BS EN 13999-3:2007 (Volatile aldehydes), BS EN 13999-4:2007 (Volatile diisocyanates), BS EN 12149:1997 and BS EN ISO 11890-2:2006.

Preliminary Assessment status:

At the current preliminary stage, no detailed information/specifications of key internal finishes and fittings is available (specifications will be defined at the detailed procurement stage), and it is therefore unknown if it will be possible to specify low VOC finishes.

Specifications documentation will be drafted during RIBA Stage D and UKCMRI will seek to specify the appropriate products with low VOC content. The achievement of this credit will also rely on post-construction documentation to confirm that VOC emissions meet the required level.

NOTE: BRF, laboratories, cage wash/autoclaves and glass wash areas have specific Home Office requirements for durability, permeability, safety, etc and therefore the material choice for these areas will be restricted. BRE confirmed that where Home Office requirements exist, these will take precedence over BREEAM requirements.

Reference	Issue Title	Available	Achievable
Hea 10	Thermal Comfort	1	1

This credit applies to all building areas. Note however, as per BRE guidance, ancillary areas, logistics/receiving areas and entrance/atrium, and spaces likely to be occupied for less than 30 minutes, are not included in the assessment of this issue.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that thermal comfort levels in occupied spaces are assessed at the design stage to evaluate appropriate servicing options, ensuring appropriate thermal comfort levels are achieved.

Thermal modelling must be carried out using software selected and applied in accordance with CIBSE AM11 "Building Energy and Environmental Modelling". The modelling demonstrates that the building design and services strategy can deliver thermal comfort levels in occupied spaces in accordance with the requirements set out in CIBSE

Guide A "Environmental Design" (table 1.5).

The software used to carry out the simulation at the detailed design stage must provide full dynamic thermal analysis. For smaller and more basic building designs an alternative less complex means of analysis may be appropriate (such methodologies must still be selected and applied in accordance with CIBSE AM11).

This credit applies to occupied spaces, i.e. defined as a room or space that is likely to be occupied fro 30 minutes or more by a building user. The definition excludes atrias, entrance halls/reception areas, and ancillary spaces (e.g. circulation areas, storerooms and plantrooms).

Preliminary Assessment status:

It is currently assumed that, in order to evaluate appropriate servicing options, thermal comfort levels in occupied spaces will be assessed at the design stage. Thermal modelling will comply with the requirements of CIBSE AM11 "Building Energy and Environmental Modelling" and CIBSE Guide A "Environmental Design". The credit could be awarded.

NOTE: BRE confirmed some areas may be excluded from the 'whole building' assessment of this issue, where the criteria are not applicable to them. Any space that is unoccupied (i.e. cold storage, glass wash, cage wash, autoclave areas) can be exempt from meeting the requirements of this issue.

BRF and laboratory areas are required to meet temperatures set out in Para 5.1 of the Home Offices thermal requirements for different species. These limits in terms of delivering thermal comfort for the animals can be substituted for the requirements set out in CIBSE Guide A, as the Home Office requirements will take precedence.

Reference	Issue Title	Available	Achievable		
Hea 11	Thermal Zoning	1	0		
his credit applies to all building areas. Note however, as per BRE guidance, atria/concourses, entrance alls/reception areas, ancillary space e.g. circulation areas, storerooms and plantrooms are excluded from the seessment of this issue, as well as those areas where building users would not expect, or be expected, to control mperature in the space.					
ompliance Re	quirements:				
credit can be emperature adj	e awarded where evidence provided demonstrates that local ustment in each occupied space to reflect differing user demands.	occupant cor	itrol is available for		
he heating/coo the building.	ling system needs to be designed to allow occupant control of zor	ned areas withir	all occupied spaces		
he zoning allov ach external wa	ws separate occupant control (within the occupied space) of ea all) and the central zone (i.e. over 7m from the external walls).	ch perimeter a	ea (i.e. within 7m of		
or the purpose of this BREEAM issue an occupied space is a room or space within the assessed building that is kely to be occupied for 30 minutes or more by a building user. The definition excludes areas where building users ould not expect, or be expected, to control temperature in the space, including the Atria/association space; Entrance alls/reception areas: Circulation areas: and Storerooms					
reliminary As	sessment status:				
ue to the nature of the work that will be undertaken in the Proposed Development, the provision of local occupant Introl for temperature adjustment in each occupied space to reflect differing user demands is not considered Opropriate.					
<u>)TE</u> : BRE confirmed some areas may be excluded from the 'whole building' assessment of this issue where the teria is not applicable to them. Any space that is unoccupied (i.e. cold storage, glass wash, cage wash, autoclave eas) can be exempt from meeting the requirements of this issue.					
RF and laborat pecifying occul lome Office.	F and laboratory areas are covered by strict thermal controls governed by the Home Office requirements. ecifying occupant controls in these areas would compromise these areas' compliance with the requirements of the				

17

Referen	се	Issue Ti			itle	Available	Achievable	
Hea 12	Hea 12 Microbial Conta				amination	1	1	
This credit applies to all building areas.								
Minimum BREEAM Standards								
Р	G	VG	F	0				

Compliance Requirements:

1 credit can be awarded where the risk of waterborne and airborne legionella contamination has been minimised.

All water systems in the building should be designed in compliance with the measures outlined in the Health and Safety Executive's "Legionnaires' disease - The control of legionella bacteria in water systems". Approved Code of Practice and guidance, 2000,

Water systems include:

- · Cooling towers;
- · Evaporative condenser;
- · Domestic hot and cold water systems;

 Other plant and systems containing water which is likely to exceed 20°C and which may release a spray or aerosol during operation or when being maintained, for example:

- Humidifiers and air washers;
- Spa baths and pools;
- Car/bus washes:
- Wet scrubbers: and
- Indoor fountains and water features.

This credit can be awarded where no humidification is specified or where only steam humidification is provided.

Preliminary Assessment status:

It is assumed that all water and HVAC systems will be designed to meet the requirements of HSE Approved Code of Practice and Guidance, L8, 2000. The credit could be achieved.

Reference	Issue Title	Available	Achievable
Hea 13	Acoustic Performance	2	2

The following credit applies to office space, meeting rooms, security/BMS/fire control, training/teaching facilities, seminar rooms, conference suite/lecture theatre, kitchen, restaurant/seating, write up areas laboratories, workshops and BRF areas.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that the building achieves adequate indoor ambient noise levels and appropriate airborne sound insulation levels (between adjacent acoustically sensitive rooms and occupied spaces, sufficient to ensure adequate privacy).

Indoor ambient noise levels in all unoccupied spaces must comply with the good practice levels of BS8233:1999. In addition to this, any rooms/spaces used for medical purposes i.e. treatment, should be designed to meet airborne and impact sound insulation requirements in accordance with Health Technical Memorandum 08-01. All teaching/lecture areas achieve the Indoor ambient noise level requirements for secondary schools in Section 1 of Building Bulletin 93.

The sound insulation between acoustically sensitive rooms and other occupied spaces complies with section 7.6.3.1 of BS8233, as follows:

Dw + LAeq.T > 75

Dw is the weighted sound level difference betwee
 LAeq,T is the design (or measured) indoor amb sensitive room.
Measurements must be based on finished rooms, account specified. The measurements can be conducted in either fur
Pre-completion acoustic testing must be carried out by a spaces (as built) achieve the performance standards require meet the standards are completed prior to handover and occ
The following credit applies only to training and teaching fac
Compliance Requirements:
1 additional credit can be achieved where evidence prov reverberation times compliant with table 8 of BS8233 1999 reverberation times compliant with Building Bulletin 93. Pr suitably gualified acoustician.

Preliminary Assessment status:

It is currently assumed that office space, meeting rooms, training/teaching facilities, seminar rooms, conference suite/lecture theatre, write-up areas, and workshops will achieve adequate indoor ambient noise levels and appropriate airborne sound insulation levels in accordance with the above BREEAM guidance.

Training and teaching facilities and conference suite/ lecture theatre areas will achieve appropriate reverberation times in compliance with the above BREEAM requirements. A suitably gualified acoustician will undertake precompletion acoustic testing.

Two credits could be awarded.

NOTE: The acoustic performance of BRF and laboratory areas must be designed to meet Home Office requirements. BRE confirmed the Home Office requirements are acceptable for the assessment of this issue where they are applicable to specific areas of the Proposed Development.

Reference	Issue Title	Available	Achievable			
Hea 17	Specification of Laboratory Fume Cupboards	1	1			
This credit appli	his credit applies only to laboratory areas.					
Compliance Re	Compliance Requirements:					
1 credit can be awarded where evidence provided demonstrates that fume cupboards and microbiological safety cabinets have been designed in accordance with the appropriate British Standard (BS EN 14175-2 and BS EN 12469: 2000). The discharged velocity from the extract fan stack must be ≥10m/s as recommended by BS EN 14175-2.						

Preliminary Assessment status:

It is assumed that fume cupboards and microbiological safety cabinets will be designed in accordance with BREEAM requirements. The credit could be achieved.

ient noise level in the space adjacent to the acoustically

nting for any carpets and acoustically absorbent ceilings rnished or unfurnished rooms.

suitably qualified acoustician to ensure that all relevant ed, and any required remedial works in spaces that do not cupation.

ilities and conference suite/ lecture theatre.

vided demonstrates that areas used for speech achieve 9 AND/OR rooms used for teaching or lecturing achieve re-completion acoustic testing must be carried out by a

Energy Section

5						
Reference	Issue Title	Available	Achievable			
Ene 1	Reduction of CO ₂ emissions	15	6			
This credit applies to all building areas.						

Minimum BREEAM Standards

Р	G	VG	Ш	0
-	-	-	6	10

Compliance Requirements:

Credits can be awarded where evidence provided demonstrates an improvement in the energy efficiency of the building's fabric and services and therefore achieves lower building operational related CO₂ emissions. The number of credits achieved is determined by comparing the building's CO₂ index (EPC Rating), taken from the Energy Performance Certificate (EPC), with the table of benchmarks below:

CO ₂ Index (EPC Rating) New Build	Credits
63	1
53	2
47	3
45	4
43	5
40	6
37	7
31	8
28	9
25	10
23	11
20	12
18	13
10	14
0	15
<0 (building services energy demand)	Exemplar credit 1
True zero carbon building (building	Exemplar credit 2

The CO₂ index for the assessed building must be entered in to the relevant box of the Ene 1 Reduction of CO₂ emissions calculator.

The building has been modelled using a method compliant with the National Calculation Method (NCM) and an Energy Rating and certificate produced using Approved software by an Accredited Energy Assessor.

Refer to the BREEAM Bespoke 2008 Assessor Manual for further guidance.

Preliminary Assessment status:

At this preliminary stage, no detailed information of the EPC rating for the Proposed Development is available. The Proposed Development is currently committing to achieve a CO₂ Index (from EPC Rating) below 40. This enables the Proposed Development to comply the mandatory credits of an 'Excellent' rating. The exact number of credits achieved would be refined once the EPC is available. This would be provided post-planning as part of the Formal BREEAM Design and Procurement Assessment scope of work.

F	Reference	Issue Title	Available	Achievable
	Hea 18	Containment Level 2 & 3 Laboratory Areas	3	2

This credit applies only to laboratory areas.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that the ventilation system in laboratory areas designated as Containment Level 2 and 3, is in compliance with the best practice design guidance set out in "The management design and operation of microbiological containment laboratories" ACDP, 2001.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that filters for all laboratory areas designated as Containment Level 2 and 3, are located outside the main laboratory space for ease of cleaning/replacement and are easily accessible for maintenance staff/technicians.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that all laboratory areas designated as Containment Level 2 and 3 have an emergency push button for assistance in the event of lone working.

Preliminary Assessment status:

The design of the laboratory ventilation systems would be in compliance with best practice guidance and all the laboratory filters would be located outside the main laboratory areas and would be easily accessible for maintenance. Specifically all BRF HEPA filters will be accessed via clean change boxes on the BRF interstitials (except stage 2 filters in the SPF which will be in dropdown boxes in the SPF ceiling void). Containment Level 3 laboratory filters will have dedicated HEPA chases adjacent to each laboratory area. Containment Level 2 laboratory air filtration will be done on the main internal air handling unit plant floor. The filters will be integrated with the other building services and there will be appropriate clearances for access and replacement.

UKCMRI is also currently committing to design the laboratory ventilation system in compliance with the best practice design guidance set out in "The management design and operation of microbiological containment laboratories" ACDP. 2001.

The third credit is available for the provision of emergency push buttons to all laboratory areas designated as Containment Level 2 and 3 for assistance in the event of lone working. At the current preliminary stage, no detailed information is available on the management of lone working: lone working is an operational and management issue that will be defined by UKCMRI under their operational and management procedures, with a health and safety risk assessment carried out. Measures currently taken into consideration to address health and safety issues include a wireless alarm call device to be worn by scientists if lone working does occur, which can be linked to security.

Referen	ice		Issue T	itle	Available	Achievable		
Ene 2	2 Su	b-metering	of Subst	antial Energy Uses	1	1		
This credit	applies to all buildi	ng areas.						
N	linimum BREEAM	Standard	5					
Р	G VG	E	0					
-	- 1	1	1					
Compliand	ce Requirements:							
1 credit ca Separate e	an be awarded wl nergy sub - meters	nere direct labelled w	sub-mete ith the end	ring of substantial energy u l energy consuming use shou	uses within the Id be provided fo	building is provided. r:		
• 🤇	Space heating;							
• [Domestic Hot Wate	r;						
•	Humidification;							
• (Cooling;							
• F	ans (major);							
• [_ighting;							
• S	• Small power (lighting and small power can be on the same sub - meter where supplies are taken at each floor/department); and							
• (Other major energy	consuming	items who	ere appropriate.				
Preliminar	y Assessment sta	itus:						
lt is assum awarded.	ned that substantiv	e energy ι	ises in the	e development will have dire	ect sub-metering.	The credit could be		

Reference	Issue Title	Available	Achievable				
Ene 3	Sub-metering of High Energy Load and Tenancy Areas	1	1				
This credit applies	to all building areas.						
Compliance Req	uirements:						
1 credit can be a within the building	1 credit can be awarded where sub-metering of energy consumption by tenancy/building function area is installed within the building. The meters must be labelled with the end energy consuming use.						
For single occupa Relevant function	ancy buildings, sub-meters should be provided in all relevar areas for the UKCMRI development include:	it function areas	within the building.				
Floor pla	tes;						
• Kitchen;	and						
Laborato	ries per floor.						
Preliminary Asse	ssment status:						
It is assumed that laboratories per flo	sub-metering of energy consumption by building function area oor) will be provided. The credit could be awarded.	(i.e. floor plates,	kitchen and				

Reference	Issue Title
Ene 4	External Lighting
This credit applies	to all building areas.
Compliance Req	uirements:
1 credit can be a presence of daylig	warded where energy efficient external pht.
All external lighti lumens/circuit Wa <60.	ng for the building, access ways and tt when the lamp has a colour rendering
All external light fi 70 lamp lumens/c when Ra <60.	ttings to car parking areas, associated ro ircuit Watt when the lamp has a colour i
All external light f when the lamp wa	ittings for signs and uplighting should h ttage is ≥ 25 W, or ≥ 50 lamp lumens/circ
External light fittir daylight hours. Da	ngs should be controlled through a time lylight sensor override on a manually swit
Preliminary Asse	essment status:
It is assumed that presence of daylig	energy-efficient external lighting will be s ht, in compliance with BREEAM requirem

Reference Issue Title					Available	Achievable			
Ene 5 Low or Zero Carbon Te					Carbon Tec	chnolo	gies	3	3 + 1 Innovation
nis cred	it applies	to all build	ding area	S.					
Μ	inimum	BREEAM	Standard	ds					
Р	G	VG	E	0					
-	-	-	1	1					
omplia credit d	mpliance Requirements: credit can be awarded where evidence provided demonstrates that a feasibility study considering local (on-site								
nd/or ne	ar site) lo	ow or zero	carbon (I	_ZC) te	chnologies l	has be	en carried out and	d the results impl	emented.
n energ e buildi	y special ng/develo	ist must c opment. T	arry out a his study	a feasil covers	oility study to as a minimu	o estat um:	blish the most app	propriate local L2	ZC energy source for
•	Energy source	generate per year	ed from	LZC	energy	•	Life cycle cost/ specification in t	lifecycle impact erms of carbon e	of the potential emissions
•	Paybac	K				•	Any available gr	ants	
٠	Land us	e				•	All technologies	s appropriate t	o the site and
•	Local pl	anning ree	quirement	ts			energy demand	of the developm	ent
٠	Noise Reasons for excluding other technologies.					nologies.			
•	 Feasibility of exporting heat/electricity from the system 								
omplia	n ce Req i	uirements							
credits	can be a	warded w	here evid	ence p	rovided dem	nonstra	ites that the first o	credit has been a	achieved and there is

Thi

Minimum BREEAM Standards				
Р	G	VG	E	0
-	-	-	1	1

Со

an

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Со

2 a 10% reduction in the building's CO₂ emissions as a result of the installation of a feasible local LZC technology.

	Available	Achievable		
g	1	1		
al lighting is specified a	and all light fittin	gs controlled for the		
d pathways should have a luminous efficacy ≥ 50 lamp ng index (Ra) ≥ 60, or 60 lamp lumens/circuit Watt when Ra				
roads and floodlighting should have a luminous efficacy of \geq r rendering index (Ra) \geq 60, or 80 lamp lumens/circuit Watt				
have a luminous efficacy of \geq 60 lamp lumens/circuit Watt from the lamp wattage is <25 W.				
ne switch, or daylight sensor, to prevent operation during vitched lighting circuit is acceptable.				

specified and all light fittings will be controlled for the ments. The credit could be achieved.

Exemplary level requirements:

The innovation credit can be awarded where evidence provided demonstrates that the first credit has been achieved and there is a 20% reduction in the building's CO2 emissions as a result of the installation of a feasible local LZC technology

Figures used for calculations of the percentage carbon reduction provided by LZC technology should be based on the output from a recognised energy modelling software.

List of recognized LZC technologies: Biomass; Combined Heat and Power with natural gas, sewage gas or biomass; Heat pumps; Solar; Water; Wind; Hydrogen Fuel Cells; Geothermal: and Community Heating.

OR alternatively:

A maximum of 1 credit can be awarded where evidence provided demonstrates that a contract with an energy supplier is in place to provide sufficient electricity used within the assessed building/development from a 100% renewable energy source. This supply must be delivered by an accredited external renewable source and contract must be valid for a minimum of 3 years. (Note: a standard Green Tariff will not comply).

Preliminary Assessment status:

It is assumed that a BREEAM-compliant feasibility study of LZC technologies will be carried out and its results will be implemented. The proposed energy strategy for the Proposed Development currently includes on-site CHP and renewable energy technologies, which will result in a 20% reduction in the Proposed Development's CO₂ emissions over Part L of the Building regulations, based on the output of an approved energy modelling software. Three credits and the innovation credit could be achieved.

Reference	Issue Title	Available	Achievable
Ene 6	Building Fabric Performance & Avoidance of Air Infiltration	1	1

This credit applies to all building areas.

Compliance Requirements:

1 credit where evidence provided demonstrates that all of the following measures are taken to minimise heat loss and air infiltration through the building fabric.

- Personnel door(s) should be installed between internal and external areas within proximity of any adjacent openings for goods delivery access; and a draught lobby between office areas (where present) and the external building access.
- Delivery loading/unloading areas and operational and/or storage areas must be partitioned.
- Where present all goods/personnel access, vents in the roof and back draught dampers on extract fans must . be draught sealed.
- Loading/unloading bay doors should be insulated to 0.6 W/m²K.
- Plastic strip curtains need to be specified between internal delivery areas and other internal warehouse storage or operational areas (where there is no other draught sealing or doors). The strip curtains should have a partial overlap.

Either of the following should be specified on the external goods doors/vehicle delivery bays:

- Plastic strip curtains. .
- Air curtains covering the opening. •
- Pneumatic dock seals mounted on all vehicle delivery bays.

Rapid rise loading/unloading bay doors should be provided with at least 1 m/s closing speed or less than 5 sec closing time between fully opened and fully closed.

As built performance measures

- fabric (once construction is complete) will be undertaken.
- Leakage.
- the requirements set out above.
- Man 1 to have been awarded).

Preliminary Assessment status:

It is assumed that heat loss and air infiltration through the Proposed Development fabric will be minimised in line with BREEAM guidance. The credit could be awarded.

Reference	Issue Title	Available	Achievable
Ene 7	Cold Storage	3	1

This credit applies only to Cold Storage (non food) areas.

Compliance Requirements:

1 credit can be awarded where evidence provided demonstrates that the cold storage refrigeration plant components are on the ECA Energy Technology Product List.

The following components, where specified as part of the cold storage refrigeration plant/strategy, are on the ECA Energy Technology Product List or an equivalent list: Air cooled condensing units, automatic air purgers, cellar cooling equipment, commercial service cabinets, curtains, blinds, sliding doors and covers for refrigerated display cabinets, evaporative condensers, forced air pre-coolers, liquid pressure amplification, refrigerated display cabinets, refrigeration compressors and refrigeration system controls.

Compliance Requirements:

1 additional credit can be awarded where evidence provided demonstrates that the cold food storage plant is designed to minimise energy consumption in operation.

The cold storage refrigeration plant must comply with the following minimum requirements:

- Variable speed drives are fitted to the compressors, pumps and fans
- Strip curtains are installed on the cold storage opening(s)
- Low powered/heat lighting is fitted e.g. fibre optics, LEDs
- Defrost on demand controls for evaporators are installed .
- Efficient Refrigeration plant
- to have been awarded).

1 additional credit can be awarded where evidence provided demonstrates that opportunities for heat recovery, free cooling or thermal storage are identified and taken advantage of.

25

In addition to the above and Building Regulations, a comprehensive thermographic inspection of the building

The inspection has been, or will be, carried out in accordance with BS EN 13187 Qualitative detection of thermal irregularities in building envelopes. Infrared method and CIBSE TM23:2000 Testing Buildings for Air

Any defects identified via the inspection are rectified and the building re-inspected to confirm it complies with

Where integral cold storage facilities are present, these will be tested and commissioned in accordance with the cold storage requirements of BREEAM issue Man 1 (this does not necessarily require BREEAM issue

The installed refrigeration plant, controls and monitoring system has been specified in accordance with the guidance outlined in the Food & Drink Industry Refrigeration Efficiency Initiative Guide 2 Purchase of

The plant has been commissioned in compliance with the requirements for cold food storage commissioning outlined in BREEAM issue Man 1 Commissioning (this does not necessarily require BREEAM issue Man 1

It is assumed that the specified cold storage refrigeration plant components will be on the ECA Energy Technology Product List. One credit could be awarded.

At the current preliminary stage, no further details have been specified re. cold storage specifications, which will be defined at the detailed procurement stage, keeping in consideration the specific users (scientist)/process requirements.

Reference	Issue Title	Available	Achievable
Ene 8	Lifts	2	2

This credit applies only to laboratory areas.

Compliance Requirements:

Up to 2 credits are available where evidence provided demonstrates the installation of energy-efficient lift(s).

First credit:

• An analysis of transport demand patterns for the building must be carried out by the design team to determine the optimum number and size of lifts and counterbalancing ratio on the basis of anticipated passenger demand.

• The energy consumption for at least two types of lift or lift strategy 'fit for purpose' needs to be estimated and the system with the lowest energy consumption specified.

Second credit: First credit must be achieved and 3 of the following measures specified:

• Lifts operate in a stand-by mode during off peak and idle periods.

• Where lift motors use a drive controller capable of variable-speed, variable voltage, and variable-frequency control of the drive motor.

• The lift has a regenerative energy unit.

• The lift car with energy-efficient lighting and display lighting (>60 Lumens/watt or fittings that consume <5W, e.g. LEDS).

Preliminary Assessment status:

It is assumed that energy efficient lifts, compliant with BREEAM requirements will be installed. Two credits could be awarded.

Reference	Issue Title	Available	Achievable
Ene 11	Energy Efficient Fume Cupboards	1	1

This credit applies only to laboratory areas.

Compliance Requirements:

Where evidence provided demonstrates that a study has been carried out to determine the most energy-efficient strategy for ventilation of the fume cupboards, whilst maintaining adequate containment.

The energy-efficient design of fume extraction systems guidance within Good Practice Guide 320 Energy efficient design and operation of fume cupboards must be followed.

A number of solutions must be identified for the fume cupboard ventilation strategy and the solution specified is that which results in lower operational energy consumption.

The fume cupboards have a face velocity of less than or equal to 0.5 m/s.

Preliminary Assessment status:

It is assumed that energy efficient fume cupboards will be specified in compliance with BREEAM requirements. One credit could be awarded.

Transport Section

Reference	Issue Title			Available	Achievable	
Tra 1	Prov	Provision of Public Transport			3	
Compliance Re	quirements:					
3 credits can be network.	3 credits can be awarded on a sliding scale based on the assessed buildings' accessibility to the public transport network.					
		Accessibility Index	Type 1			
		≥2	1			
≥4 2						
		≥8	3			
		≥12	3			
		≥18	3			
The Accessibility Index is determined by entering the following information in to the BREEAM assessor's Tra1 Provision of Public Transport calculator:						
a. The distance (m) from the main building entrance to each compliant public transport node						
b. The public transport type serving the compliant node e.g. bus or rail						
c. The average number of services stopping per hour at each compliant node during the standard operating hours of the building for a typical day (see additional guidance).						

Issue Title			Available	Achievable
Provision of Public Transport			3	3
slidin	g scale based on the	assessed buildings'	accessibility to	the public transport
	Accessibility Index	Type 1		
	≥2	1		
	≥4	2		
	≥8	3		
	≥12	3		
	≥18	3		
rmine culato	d by entering the fol r:	lowing information in	n to the BREE	AM assessor's Tra1
the m	nain building entrance	to each compliant pu	blic transport no	ode
/pe se	rving the compliant no	de e.g. bus or rail		
of ser a typic	vices stopping per ho cal day (see additional	ur at each compliant guidance).	node during th	e standard operating

Buildings in Greater London should refer to the guidance in the additional information section of the BREEAM Bespoke 2008 manual for details of demonstrating compliance via other complementary means.

Preliminary Assessment status:

The Proposed Development is located in a highly accessible area, in proximity to the King's Cross Underground and Rail Stations, St Pancras International and numerous buses. It is assumed that three credits could be awarded.

Reference	Issue Title	Available	Achievable	
Tra 2	Proximity to Amenities	1	1	
compliance Re	quirements:			
credit is award ollowing access	led where evidence provided demonstrates that the building is loc ible local amenities:	ated within 500	om of at least 2 of the	
. Grocery shop	and/or food outlet			
. Post box				
. Cash machine	5			
he distance must be measured via safe pedestrian routes e.g. pavements and safe crossing points or, where rovided, dedicated pedestrian crossing points.				
reliminary Assessment status:				
ne Proposed Development is located in close proximity to amenities such as grocery shops, post boxes and cash pints. It is assumed that the credit could be awarded.				