

WIC House, Transport Way, Oxford

BREEAM New Construction 2018 Pre-Assessment

On behalf of Oxford Biomedica



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For and on behalf of Stantec UK Limited								

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Contents

1	Introdu	iction	1
2	Overvi	ew of BREEAM	2
	2.1	Introduction	2
	2.2	Mandatory Elements	2
	2.3	Tradable Credits	2
	2.4	Assessment and Certification	3
3	Pre-As	sessment	4

Tables

Table 2.1: Weighting factors of credits	. 3
Table 2.2: Relationship between total percentage point scores and BREEAM Level	. 3

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1 Introduction

- 1.1.1 Stantec has been appointed by T Squared on behalf of Oxford Biomedica to provide a BREEAM assessment services for the WIC House, Oxford project.
- 1.1.2 The site is currently occupied by the existing WIC House which will be demolished as part of these proposals. The new development WIC house for Oxford Biomedica is to contain 6 laboratory modules ranging from CL2 to CL3 classification. To support the labs a 3-story office section is to be included in the development.
- 1.1.3 Oxford City Council adopted their new Local Plan in June 2020. This contains Policy RE1 Sustainable Design and Construction which states "*Planning permission will only be granted for non-residential development proposals that meet BREEAM excellent standard*".
- 1.1.4 This document demonstrates a potential strategy of how **BREEAM Excellent (with a potential score of 73.61%)** could be achieved for WIC House, and outlines the evidence which this is based upon and what future commitments are required in order to target this level.
- 1.1.5 WIC house has been able to target at least 60% of credits within each category, and scores very highly within the Water, Waste and Ecology sections.
- 1.1.6 This pre-assessment has been carried out using the BREEAM New Construction 2018 Technical Guidance.
- 1.1.7 A series of BREEAM workshops were held on 16th November, 27th November and 18th December 2020 regarding the above BREEAM position. The information regarding the credits that would be targeted was discussed and agreed in these workshop.
- 1.1.8 These BREEAM workshops had a primary focus of addressing credits which were in the control of the design team such as the site and building design as well as building services in order to demonstrate that sustainability had been embedded within the scheme where possible.
- 1.1.9 A BREEAM assessment does allow some scoping of credits to reflect the individuality of each project being assessed through the selection of certain parameters such as laboratories, the inclusion of cold storage, lifts, landscaping, etc.
- 1.1.10 **Chapter 3** of this report contains the detailed BREEAM Pre-Assessment based on information available at the time writing, which provides a credit by credit analysis of the applicability of each credit to this scheme.

2 Overview of BREEAM

2.1 Introduction

- 2.1.1 BREEAM is an environmental assessment method for rating and certifying the performance of non-domestic buildings. BREEAM first came into use in 1990 and was solely for offices. Since then the scheme has been developed to encompass more building types and a wider range of environmental sustainability topics.
- 2.1.2 BREEAM assesses the performance of an individual non-domestic buildings against criteria grouped into the following nine categories (each category is made up of a number of subcategories):
 - Management;
 - Health and Wellbeing;
 - Energy;
 - Transport;
 - Water;
 - Materials;
 - Waste;
 - Land Use and Ecology; and
 - Pollution.
- 2.1.3 The formal BREEAM assessment comprises two stages: a Design Stage assessment and a Post Construction Stage assessment. An interim certificate is issued on completion of the Design Stage assessment and the final certificate is issued on completion of the Post Construction Stage assessment. This report forms part of the pre-assessment stage which will inform the design of the development post planning and the Design Stage assessment.

2.2 Mandatory Elements

- 2.2.1 Five out of the nine categories within the BREEAM have mandatory minimum performance standards for certain subcategories. These are: Management, Energy, Water, Materials and Waste.
- 2.2.2 The development <u>must</u> meet all of the mandatory elements relevant to the BREEAM level targeted otherwise no rating will be achieved.

2.3 Tradable Credits

- 2.3.1 Credits are awarded to individual subcategories within each of the nine categories listed in paragraph 2.1.2. Credits in each category are given a different weighting which is applied to convert the credits into percentage points.
- 2.3.2 These weightings depend on the building which is being assessed e.g. fully fitted out, simple building, Shell & Core or Shell Only. The weightings of each category are shown in Table 2.1, and in this instance the building is fully fitted out.

Table 2.1: Weighting factors of credits

Category	Fully Fitted Out	Simple Building	Shell & Core	Shell Only
Management	11	7.5	11	12
Health and Wellbeing	14	16.5	8	7
Energy	16	11.5	14	9.5
Transport	10	11.5	11.5	14.5
Water	7	7.5	7	2
Materials	15	17.5	17.5	22
Waste	6	7	7	8
Land Use and Ecology	13	15	15	19
Pollution	8	6	9	6

- 2.3.3 However, the number of credits in each category varies depending on the scope of the BREEAM assessment, therefore the percentage contribution to the overall score from each credit may not be in line with the overall weight value of the category.
- 2.3.4 These percentage points are then totaled to determine the BREEAM Rating (see Table 2.2).

Table 2.2: Relationship between total percentage point scores and BREEAM Level

BREEAM Rating	Minimum % Required
Outstanding	>85
Excellent	>70
Very Good	>55
Good	>45
Pass	>30
Unclassified	<30

2.4 Assessment and Certification

2.4.1 The certified environmental performance of a development is assessed in two parts. The first is the Design Stage assessment, which is carried out at the detailed design stage of the development in the period leading up to the issue of the tender documents. Once this assessment is carried out an interim certificate detailing the BREEAM Rating achieved at design stage is issued. Following completion of the Design Stage assessment, a Post Construction Stage assessment is carried out to confirm the unit has been built to the specification detailed in the Design Stage assessment. Once confirmed, and variances documented, the relevant final certificate can be issued.

3 Pre-Assessment

- 3.1.1 The following pre-assessment has been carried out using information available at this stage of design. The pre-assessment should be reviewed as the development progresses through the detailed design and construction phases to ensure that it is still accurate.
- 3.1.1 The BREEAM New Construction 2018 Technical Guidance should be consulted by the appropriate design team member for each relevant category to ensure that the requirements are fulfilled.
- 3.1.2 The evidence gathered to date has demonstrated that due to the factors discussed above, achieving **BREEAM Excellent** is likely for the WIC House development and the **targeted predicted score is 73.61**.
- 3.1.3 The order of the pre-assessments in the following pages is as per the below:
 - WIC House Targeted Credits;
 - WIC House Current Predicted Score



	BREEAM Scheme: New Construction 2018 Building Name: WIC House Registration No.: TBC - Post Planning Assessor: Rich Knight		Mandatory r Exc	equirement for cellent		Stantec
Ref	Title	Aim	BREEAM credits available	BREEAM credits targeted	RIBA Stage	Notes
[Management			. <u> </u>	(]
Man 1	Project Brief and Design	To optimise final building design through recognising and encouraging an integrated design process and robust stakeholder engagement.	4	2	2	 The design team have been working with OXB developing the early stage conceptuals since late summer 2019. The early stage works involved two separate iterations of visual development based on initial high-level briefing from OXB together with very preliminary and high-level commercial assessment. Since formal appointment for the planning phase design we have developed the scheme on a number of fronts with OXB, this including, and in particular user engagements with their heads of science to consider the lab spaces, their senior team to agree/refine the look of the building, their estates team to consider the on-going management of the building as well as their HS&E team to cover preliminary constructability and general approach to health & safety matters. All these engagements having been formally minuted. Separate but in addition to these we have also held regular weekly catch-up meetings with the OXB projects team (again minuted) to maintain, continue and agree all aspects of development. General roles, responsibilities and contributions are to a degree self-evident by individual titles but all as summary cantured within the Project Directory.
Man 2	Lifecycle cost and service life planning	To promote the business case for sustainable buildings and to deliver whole life value by encouraging the use of life cycle costing to improve design, specification, through-life maintenance and operation.	4	1	2	At the BREEAM workshops run throughout November and December, it was agreed that T Squared would provide the capital cost
Man 3	Responsible Construction Practices	To recognise and encourage construction sites which are managed in an environmentally and socially considerate, responsible and accountable manner.	6	6		The Principal Contractor, when appointed, will need to ensure that these BREEAM requirements relating to construction practices are adhered to. This will be included in the tender briefing pack provided to the contractor.
Man 4	Commissioning and Handover	To encourage a properly planned handover and commissioning process that reflects the needs of the building occupants.	4	4	5	At the BREEAM workshops run throughout November and December, it was agreed that there is nothing to preclude the incorporation of commissioning within the contractors requirements
Man 5	Aftercare	To ensure the building operates in accordance with the design intent and operational demands, through providing aftercare to the building owner and occupants during the first year of occupation.	3	3		At the BREEAM workshops run throughout November and December, it was agreed that there is nothing to preclude the incorporation of seasonal commissioning within the contractors requirements. Furthermore, as this building is purpose built for a specific occupant, there is a vested interest to provide aftercare support and a POE
	H	ealth & Wellbeing				الــــــــــــــــــــــــــــــــــــ
Hea 1	Visual Comfort	To encourage best practice in visual performance and comfort by ensuring daylighting, artificial lighting and occupant controls are considered.	5	2		T Squared (M&E) have confirmed that the internal and external lighting will be in accordance with the latest CIBSE guidance. Fairhurst (Architect) have confirmed that occupant controlled blinds can be fitted within areas of the building exposed to glare control
Hea 2	Indoor air quality	To encourage and support healthy internal environments with good indoor air quality.	4	1	2	T Squared (M&E) have confirmed that an indoor ventilation strategy will be prepared
Hea 4	Thermal comfort	To ensure the building is capable of providing an appropriate level of thermal comfort.	3	3		T Squared (M&E) have confirmed that thermal comfort modelling using various scenarios has been undertaken
Hea 5	Acoustic Performance	To ensure the building is capable of providing an appropriate acoustic environment to provide comfort for building users.	3	3	2	Venta Acoustics have provided technical input with regard to internal acoustic treatments both for acoustics and also for reverberation, these will be taken forwards as the development progresses and a programme of pre-completion sound testing will also be followed.
Hea 6	Security	To encourage the planning and implementation of effective measures that provide an appropriate level of security to the building and site	1	1		Cornerstone (an SQSS) has been appointed to undertake the security needs assessment
Hea 7	Safe & Healthy Surroundings	To encourage the provision of safe access around the site and outdoor space that enhances the wellbeing of building users	2	1		Fairhurst (Architects) have confirmed that there is safe access to and from the building in accordance with the BREEAM requirements



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Ref	Title	Aim	BREEAM credits available	BREEAM credits targeted	RIBA Stage	Notes
		Energy				
Ene 1	Reduction of CO2 Emissions	To minimise operational energy demand, primary energy consumption and CO_2 emissions	13	6		T Squared (M&E) have provided a range of BRUKL simulations for the proposed building. Based on the 250m2 PV option which has been chosen, an EPRnc of 0.645 is achieved which is equal to 6 credits (out of 9)
Ene 2	Energy Monitoring	To encourage the installation of energy sub-metering to facilitate the monitoring of operational energy consumption. To enable managers and consultants post- handover to compare actual performance with targets in order to inform ongoing management and help in reducing the performance gap.	2	2		T Squared (M&E) have confirmed that there will be energy meters fitted on major consuming systems and also on high load areas
Ene 3	External Lighting	To reduce energy consumption through the specification of energy efficient light fittings for external areas of the development.	1	1		T Squared (M&E) have confirmed that the external lighting will be energy efficient
Ene 4	Low zero carbon technologies	To encourage the adoption of design measures, which reduce building energy consumption and associated carbon emissions and minimise reliance on active building services systems.	3	2	2	LightSim have been appointed to provide an analysis of the deployment of LZC within WIC House, of which PV has been chosen. T Squared (M&E) have also provided an Energy Statement which will support the planning application.
Ene 5	Energy efficient cold storage	To encourage the installation of energy efficient refrigeration systems, in order to reduce operational greenhouse gas emissions resulting from the system's energy use.	2	2		T Squared (M&E) have confirmed that there is nothing to preclude the specification of energy efficient refrgieration equipment
Ene 6	Energy efficient transportation systems	To encourage the specification of energy efficient transportation systems within buildings.	2	2	2	A passenger demand analysis has been undertaken by Schindler Lifts, which has determined the number and size of lifts which are required T Squared (M&E) have confirmed that there is nothing to preclude the specification of energy efficient lifts
Ene 7	Energy efficient laboratory systems	To encourage laboratory areas that are designed to minimise their operational energy consumption and associated CO_2 emissions.	5	4		T Squared (M&E) have confirmed that discussions are ongoing with respect to the energy efficient operation of the laboratory systems, this includes fume cupboard flow rate, best practice specification fan powers and air changes.
Ene 8	Energy efficient equipment	To encourage installation of energy efficient equipment to ensure optimum performance and energy savings in operation.	2	2		BioMedica have confirmed that there is nothing to preclude the purchasing of energy efficient small power equipment such dometic scale fridges, kettles, lamps and computers
		Transport				
Tra 1	Public transport Accessibility	To reward awareness of existing local transport and identify improvements to make it more sustainable.	2	2	1	Huw Jones (Transport Consultant) has provided a copy of the Transport Assessment and Travel plan specific for the development. These include measures to reduce the need for single occupany journeys and include initiatives such as cycle spaces, transport co- ordinator and EV charging points.
Tra 2	Sustainable Transport Measures	To maximise the potential for local public, private and active transport through provision of sustainable transport measures appropriate to the site.	10	6	1	Huw Jones (Transport Consultant) has provided a breakdown of the sustainable transport measures which have been included within the scheme, these are: cycle parking and facilities EV charging points Car sharing Public Transport Information

		Local Amenilies



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Ref	Title	Aim	BREEAM credits available	BREEAM credits targeted	RIBA Stage	Notes
[Water	[]		()	
Wat 1	Water Consumption	To reduce the consumption of potable water for sanitary use in new buildings through the use of water efficient components and water recycling systems.	5	3		T Squared (M&E) have confirmed that the internal water fittings will be low flow although the exact specification is not known at this stage. The intended sanitary ware specification that will be provided will include: - dual flush toilets (4 and 2.6 litre) - low flow showers (6 litres per minute) - low flow taps (4 litres in bathrooms and 6 in kitchen areas)
Wat 2	Water monitoring	To reduce the consumption of potable water in new buildings through the effective management and monitoring of water consumption.	1	1		T Squared (M&E) have confirmed that there will be pulsed water meters installed on the incoming mains and throughout the building in areas which use more than 10% of the total water consumption
Wat 3	Major leak detection and prevention	To reduce the consumption of potable water in new buildings through minimising wastage due to water leaks.	2	2		T Squared (M&E) have confirmed that there will be solenoid value installed within the toilet cores. Furthermore, they have confirmed that there will be a leak detection system installed which can detect water leaks both internally and externally.
		Materials				
Mat 1	Environmental Impact from Construction Materials - LCA	To reduce the burden on the environment from construction products by recognising and encouraging measures to optimise construction product consumption efficiency and the selection of products with a low environmental impact (including embodied carbon), over the life cycle of the building.	7	3	2	Scotch Partners have been appointed to undertake the LCA model and provide evidence and guidance on the number of credits which can be obtained.
Mat 2	Environmental Impact from Construction Materials - EPD	To encourage availability of robust and comparable data on the impacts of construction products through the provision of EPD.	1	1		It will be the responsibility of the contractor to select and utilise construction materials which are from companies who have EPD for their products
Mat 3	Responsible sourcing of construction products	To facilitate the selection of products that involve lower levels of negative environmental, economic and social impact across their supply chain including extraction, processing and manufacture.	4	3	1	It will be the responsibility of the contractor to select and utilise construction materials that will have been responsibly sourced.
Mat 5	Designing For Durability and Resilience	To reduce the need to repair and replace materials resulting from damage to exposed elements of the building and landscape.	1	1		Mark Adey (Fairhurst Architects) has provided a technical note which outlines the durability and robustness measures which are incorporated into the design
Mat 6	Material Efficiency	To avoid unnecessary materials use arising from over specification without compromising structural stability, durability or the service life of the building.	1	1	1	Mark Adey (Fairhurst Architects) has provided a technical note which outlines how material efficiency measures have been incorporated into the design This is ongoing and a workshop is to be arranged to take these ideas further
L		Waste	<u> </u>]			۱ <u>ــــــــــــــــــــــــــــــــــــ</u>
Wst 1	Construction Site Waste Management	To reduce construction waste by encouraging reuse, recovery and best practice waste management practices to minimise waste going to landfill.	5	4	2	A demolition method statement that includes a pre-demolition audit will need to be prepared. This should aim to identify key materials present from the demolition and to provide the Client with the information required to reap the most benefit from re-using and recycling materials, both economically and environmentally. The principal contractor will be required to minimise waste generated as part of the construction phase.
Wst 2	Use of recycled and sustainably sourced aggregates	To encourage the use of more sustainably sourced aggregates, encourage reuse where appropriate and avoid waste and pollution arising from disposal of demolition and other forms of waste.	1	0		Some aggregates from the demolition will be used on site. However, the quantities of aggregates which can be generated on site from the demoliton of the existing structures is unlikely to be sufficient to achieve BREEAM credits.
Wst 3	Operational Waste	To encourage the recycling of operational waste through the provision of dedicated storage facilities and space.	1	1		Fairhurst (Architects) have confirmed that there is a space provided which is used for the storage and segregation of waste
Wst 4	Speculative Floor and Ceiling Finishes	To minimise the wastage associated with the installation of floor and ceiling finishes in lettable areas in speculative buildings where tenants have not been involved in their selection.	1	1		WIC House is being designed for a specific occupant and therefore there will be no speculative finishes provided

Wst 5	Adaption to Climate Change	To minimise the future need of carrying out works to adapt the building to take account of more extreme weather changes resulting from climate change and changing weather patterns.	1	1	2	Mark Adey (Fairhurst Architects) has provided a technical note which outlines the climate change adaptation measures which are incorporated into the design This is ongoing and a workshop is to be arranged to take these ideas further
Wst 6	Designing for disassembly and adaptability	To avoid unnecessary materials use, cost and disruption arising from the need for future adaptation works as a result of changing functional demands and to maximise the ability to reclaim and reuse materials at final demolition in line with the principles of a circular economy.	2	2	2	Mark Adey (Fairhurst Architects) has provided a technical note which outlines the climate change adaptation measures which are incorporated into the design This is ongoing and a workshop is to be arranged to take these ideas further



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	La	nd Use & Ecology				
LE1	Site selection	To encourage the use of previously occupied or contaminated land and avoid land which has not been previously disturbed.	2	1		The site is currently occupied by the exisitng WIC House and associated car parking. The footprint of the new building will be entirely on hard standing
LE2	Identifying and understanding the risks and opportunities for the site	To determine the ecological baseline and zone of influence of the site and identify risks and opportunities for achieving optimum outcomes.	2	2		
LE3	Managing negative impacts	To avoid, or limit as far as possible, negative impacts on the ecology of the site and its zone of influence arising as a result of the project.	3	3		Giles Sutton a Suitably Qualified Ecologist, has undertaken surveys and has completed the BREEAM proforma templates which demonstrate that the site is of low ecological value prior to development and that there will be an increase in value due to the
LE4	Enhancement of ecological value	To enhance the ecological value of the site and areas within its zone of influence in support of local, regional and national priorities.	4	4		incorporation of green roofs, brown roofs and additional tree planting within the proposed development.
LE5	Long term impact on biodiversity	To secure ongoing monitoring, management and maintenance of the site and, its habitats ecological features to ensure intended outcomes are realised for the long term.	2	2		
p		Pollution	<u></u>			
Pol 1	Impact of refrigerants	To reduce the level of greenhouse gas emissions arising from the leakage of refrigerants from building systems.	3	1		T Squared (M&E) have confirmed that the refrigerant systems will be provided with leak detection and pump down
Pol 2	Local Air Quality	To contribute to a reduction in local air pollution through the use of low emission combustion appliances in the building.	2	2		T Squared (M&E) have confirmed that the heating and hot water will be provided via a combination of ASHP and PV, therefore there is no point of use generated emissions
Pol 3	Surface water run-off	To avoid, reduce and delay the discharge of rainfall to public sewers and watercourses, thereby minimising the risk and impact of localised flooding on-site and off-site, watercourse pollution and other environmental damage.	5	4		The site is located within Flood Zone 1 and therefore has a low probability of flooding. Stantec have confirmed that the development will not increase the impermeable area between pre and post development, and therefore the credits are met by default as the rate and volume of run-off will not increase
Pol 4	Reduction of Night Time Light Pollution	To ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, thereby reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.	1	1		T Squared (M&E) have confirmed that the external lighting will be controlled by PIR sensors and can be automatically switched off between 2300 and 0700
Pol 5	Reduction of Noise Pollution	To reduce the likelihood of noise arising from fixed installations on the new development affecting nearby noisesensitive buildings.	1	1		Venta Acoustics have undertaken a noise survey and have provided guidance on noise attenuation measures required. The author of this BREEAM report is a Member of The Institute of Acoustics, the professional body for acousticians in England. They have been working in Acoustic Consultancy since 2008 and would meet the required definition of a suitably qualified acoustician.
	Innovation	- Exemplary Level Criteria				
		Innovation/Exemplar	10	1		Giles Sutton has confirmed that the recommendations contained within the Ecology report with regard to increases ecological value will be sufficient for the site to demonstrate a

		significant improvement and therefore gain an exemplar credit

WIC House Targeted Score

