BREEAM

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ENERGY AND ENVIRONMENT

BUILDING RESEARCH ESTABLISHMENT ENVIRONMENTAL ASSESSMENT METHOD

BREEAM INDUSTRIAL 2006 PRE ASSESSMENT SPECULATIVE (WITHOUT OFFICES)

Units 5 – 12
Quantum Park
Monsall Road
Manchester

Ambient Energy & Environment
Landmark House
20 Broomgrove Road
Sheffield
S10 2LR

Web: www.aeeuk.com
Tel: 01142 665704
Fax: 0870 622014





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Speculative (Without Offices) Assessment

Units 5 – 12
Quantum Park
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Date: 15th February 2008
Ambient Ref no: 13307

Ambient Energy & Environment
Landmark House
20 Broomgrove Road
Sheffield
S10 2LR

Tel: 01142 665704
Fax: 0870 6620146

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Report prepared by:....
Tom Stone

Quality Checked by:.....
Paul Read

Date reviewed:.....

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Alterations
The BRE hold the right to update or alter the scheme at any time. Ambient Energy & Environment will implement these changes to any assessment being undertaken.

Assessment Details

Date:	**15th February 2008**
Building:	**Units 5 – 12, Quantum Park, Monsall Road, Manchester**
Developer:	**Quorum Commercial Ltd**
Architect:	**AEW Architects**
Type of Assessment:	**Speculative (Without Offices)**
BREEAM Assessor:	**Paul Read, Ambient Energy & Environment, Landmark House, 20 Broomgrove Road, Sheffield, S10 2LR**

This pre-assessment has been based on drawings received and information sourced by the assessor.

Introduction

Ambient Energy & Environment has been commissioned to carry out a BREEAM (Building Research Establishment Environmental Assessment Method) Industrial 2006 Pre-Assessment.

BREEAM Industrial seeks to minimise the adverse effects of new buildings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants. The environmental implications of a new building are assessed at the design stage and compared with good practice by independent assessors.

The development is assumed to be required to achieve a 'Very Good' Rating under the BREEAM 2006 industrial scheme.

The Pre-Assessment

This report outlines the approach for a pre-assessment under the BREEAM Industrial 2006 Scheme. To achieve this rating in a formal assessment, the design team should liaise with the BREEAM assessor to commence an official assessment.

Summarised guidance is provided within the report to achieve the score calculated by the assessor. In an official assessment the final rating would be based on evidence provided by the design team which would be evaluated by the assessor.

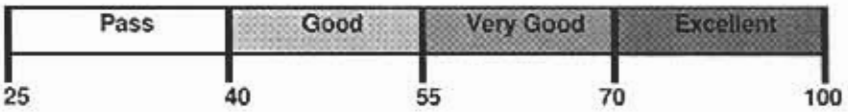
The Rating System for BREEAM Industrial

Buildings are awarded a rating under BREEAM. The rating depends on how many environmental credits are achieved under each section and their relative environmental importance. The ratings that are awarded are Pass, Good, Very Good or Excellent, depending on the overall number of credits achieved.

The overall rating is derived from the percentage of credits achieved under each heading, multiplied by the Environmental Weighting Factor

Category	Number of credits available	Weighting factor
Management	6	15
Health and wellbeing	5	15
Energy Transport	18 7	25
Water consumption	5	5
Materials	13	10
Land use Ecology	10	15
Pollution	9	15

The total of all these scores is the overall rating and a rating is awarded according to the following scale:



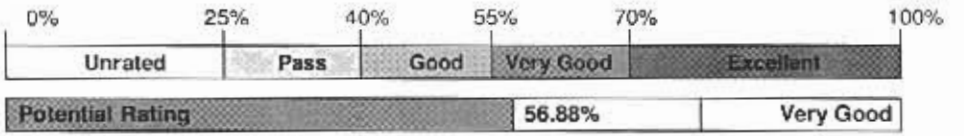
Building Performance

This pre-assessment is an initial indication of the likely performance of the building. Following the pre-assessment a potential rating has been calculated. The final rating achieved in a certified BREEAM assessment will be dependent on the provision of satisfactory evidence for each credit.

The potential rating:
The potential rating represents the rating that the building could achieve, with the provision of satisfactory evidence, if all additional credits that have been assessed as potentially achievable are addressed with suitable changes to the current design and construction intent.

The potential rating is 56.88%, 'Very Good'.

Performance of building
The BREEAM Rating is based on the number of credits achieved under each section multiplied by the Environmental Weighting Factor. The BREEAM Rating is given as Pass, Good, Very Good or Excellent, according to the percentage score achieved.



Credit Summary BREEAM 2008		Credit no.	Credits Available	Potential Score
Management	Commissioning	M1	1	1
Credit Value	Considerate Constructors	M4	2	2
1.88%	Construction Site Impacts	M5	4	4
	Building User Guide	M12	1	1
Section Credit Total			8	8
Weighted Section Total			15.0%	15.0%
Health & Wellbeing	Daylighting	HW1	1	1
	High Frequency Lighting	HW4	1	1
	Internal and External Lighting Levels	HW5	1	1
Credit Value	Ventilation Rates	HW11	1	0
3.00%	Microbial Contamination	HW16	1	1
Section Credit Total			5	4
Weighted Section Total			15.0%	12.0%
Energy	Energy CO_2 Emissions	E1	15	3
Credit Value	Tenancy Sub-Metering	E3	1	1
1.00%	External Lighting Efficiency	E4	1	1
	Building Fabric Performance	E5	1	0
Section Credit Total			18	5
Weighted Section Total			18.0%	5.0%
Transport	Provision of Public Transport	T1	4	4
Credit Value	Cyclist Facilities	T5	2	0
1.00%	Deliveries & Manoeuvring	T12	1	1
Section Credit Total			7	5
Weighted Section Total			7.0%	5.0%
Water	Water Consumption	W1	3	2
Credit Value	Water Meter	W2	1	1
1.00%	Major Leak Detection	W3	1	0
Section Credit Total			5	3
Weighted Section Total			5.0%	3.0%
Materials & Waste	Materials Specification	MW1	2	2
	Hardlandscaping & Boundary Protection	MW3	1	0
Credit Value	Reuse of Structure	MW6	1	0
0.91%	Recycled Aggregates	MW7	1	1
	Responsible Sourcing of Materials	MW8	3	0
	Designing for Robustness	MW10	1	1
	Recylable Waste Storage	MW12	1	1
	Compactor/Baler	MW16	1	0
Section Credit Total			11	5
Weighted Section Total			10.0%	4.5%
Land use & Ecology	Re-Use of Land	LE1	1	1
	Contaminated land	LE2	1	0
Credit Value	Ecological Value & Protection of Features	LE3	1	1
1.50%	Mitigating Ecological Impact	LE4	2	2
	Enhancing Site Ecology	LE5	3	1
	Long Term Impact on Biodiversity	LE6	2	1
Section Credit Total			10	6
Weighted Section Total			15.0%	9.0%
Pollution	Insulant GWP	P4	1	1
Credit Value	Minimising Flood Risk	P7	3	0
1.67%	Watercourse Pollution	P8	1	1
	Renewable & Low Emission Energy	P11	3	0
	Noise Attenuation	P13	1	0
Section Credit Total			9	2
Weighted Section Total			15.0%	3.3%
		TOTALS:	**100%**	**56.88%**

Specific Credits to Achieve Required Rating

After carrying out an initial pre-assessment, a score of 56.88% or 'Very Good' was calculated as a potential score. The following measures were identified by the assessor as being specifically required to achieve the potential rating.
It should be noted by the design team that the omission of any credits may reduce the potential score below the level of 55% or a 'Good'.

1. M4 – Ensure that the development achieves a score of 32 points or more under formal Considerate Constructor Scheme assessment.

2. M5 – Ensure that the following measures will be enacted:

    - Monitor, report and set targets for on site energy consumption, water use and waste production.
    - Sort and recycle construction waste arising on site into at least 5 streams.
    - Adopt best practice policies in respect to air (dust) pollution.
    - Adopt best practice policies in respect to water (ground and surface) pollution.
    - Demonstrate that all timber for formwork, site hoardings and other temporary site timber uses is certified to FSC/PEFC standards.

3. HW1 – Ensure that 80% of the development achieves a daylight level of 2%.

4. HW4 – Ensure all fluorescent lighting is controlled with High Frequency Ballast's.

5. HW5 – Ensure that lighting design for all areas is in line with the CIBSE Code for Lighting, 2002.

6. E1 – Confirm, through energy (iSBEM) calculations, that the development will improve on the targets set in current Building Regulations Part L by 4%.

7. E3 – Ensure that adequate sub-metering exists for all individual tenancy areas.

8. E4 – Ensure that all external lighting achieves minimum efficacy levels as detailed in the following credit assumptions.

9. W1 – Ensure that 6 litre single flush WC's are fitted as a minimum.

10. MW7 – Ensure that recycled or reused aggregates make up at least 25% of the total volume used.

11. MW12 – Ensure that 18m² of dedicated recyclable material storage is provided either internally or externally for the building.

12. LE5 & LE6 – Ensure a qualified ecologist will be included in the design process and their recommendations implemented.

13. P4 – Ensure all insulants have an ODP or Zero and a GWP of 5 or less.

14. P8 – Ensure that by-pass separator is specified as part of the surface water drainage system.

Additional Credits to Achieve Required Rating

If the above credits cannot be achieved, the following additional credits have been identified by the assessor as potentially achievable. The following credits have not been included in the first calculation over leaf to avoid confusion and are quoted with their individual percentage value.

1. E5 – Ensure that a comprehensive thermographic survey is carried out once the building is completed rectify any problems identified (1.00%).
2. W3 – Include a major water leak detection system to cover connections both internally and externally (1.00%).
3. MW16 – Provide an area of hard standing and an external water connection for the location of a future compactor or bailer (0.91%).
4. LE5 – Employ an ecologist and incorporate recommendations which will increase the ecological value of the site by up to 6 species (1.5%).
5. P13 – Ensure that a noise impact survey is carried out in line with BS 4142:1997, with noise attenuation measures incorporated if required (1.67%)

Credit Assumptions

BREEAM Industrial Design and Procurement assessment checklist 2006

Credit		Information Required	Action by	Date Needed	Reference of evidence to be provided (drawings, letters, clauses etc)
MANAGEMENT					
M1	Commissioning	Is a design team member expressly appointed to monitor commissioning on behalf of the client? If so which members have which responsibilities? Is there an appointment of a specialist commissioning agent or manager by either the client or the contractor for the commissioning of complex systems? Will all commissioning be carried out in line with current Building Regulations and BSRIA/CIBSE guidelines where applicable? Will pre-commissioning, commissioning and quality monitoring be passed on to the appropriate contractors and all trades on site in accordance with these guidelines?			Will be achieved
M4	Considerate Constructors	Is there a commitment from the contractor (or a requirement on the contractor) to use the Considerate Constructors Scheme or an alternative, independently assessed scheme monitoring construction site impacts? If yes, what scores are they committed to achieving in each section?			Will achieve both credits, 32 points or more or 'beyond best practice'
M5	Construction site impacts	Will the contractor be required to; Monitor, report and set targets for CO2 or energy arising from site activities; Monitor, report and set targets for CO2 or energy arising from transport to and from site; Monitor, report and set targets for water consumption arising from site activities; Monitor construction waste on site; Sort and recycle construction waste; Adopt best practice policies in respect of air (dust) pollution arising from the site; Adopt best practice policies in respect of water (ground and surface) pollution occurring on the site.			Will be achieved Will not be achieved Will be achieved Will be achieved Will be achieved Will be achieved Will be achieved

M12	Building user guide	Will there be provision of a simple building user guide covering information relevant for the non-technical building manager? If yes, please provide a contents page setting out what will be included.			Will be achieved

HEALTH & WELLBEING					
HW1	Daylighting	Does the building have adequate daylight requirements for 80% of the occupied space? What is the daylight factor? Is the room depth criterion satisfied? Please provide details (use BS recommendations).			Will be achieved, 5% of roof area are roof lights
HW4	High frequency lighting	Are all fluorescent and compact fluorescent lamps, to occupied areas, to be specified/installed with high frequency ballasts?			Will be achieved
HW5	Internal and external lighting levels	Has internal and external lighting been specified in accordance with the appropriate maintained illuminance levels (in lux) recommended by CIBSE?			Will be achieved
HW11	Ventilation rates	For air conditioned or mechanically ventilated buildings, what is the rate of fresh air being provided? For naturally ventilated buildings, are there trickle vents?			Will not be achieved as building is over 15m deep.
HW16	Microbial contamination	Are all water and HVAC (heating ventilation and air-conditioning) systems are designed to meet the requirements of HSE Approved Code of Practice (ACoP) and Guidance, L8, "Legionnaires disease; The control of legionella bacteria in water systems", 2000? Is humidification to be provided for the building? If yes please provide details?			Will be achieved

ENERGY					
E1	Reduction of CO_2 emissions	Has a CO_2 emissions calculation been carried out (e.g. SBEM)? What is the percentage improvement of the development over the Building Regulation requirements?			Assumed a possible 3 out of 15 credits achievable (an improvement of 4% over current Building Regulations Part L)
E2	Sub-metering of substantial energy uses	Does the building have sub-metering? If yes, please indicate on the drawings and provide details of what the meters serve.			Will be achieved
E3	Sub-metering of areas/tenancy	Does the building have metering for individual tenants, where the building is multi-tenanted?			Will be achieved
E4	External lighting	Do the External Luminaires have an efficacy of: At least 50 lumens/circuit watt for all external lighting for the building, access ways and pathways? At least 70 lumens/circuit watt for all external lighting for the car parking areas and associated access roads? At least 70 lumens/circuit watt for all flood lighting and sign lighting, where provided? Will all lighting will be controlled with either a time clock or day light sensor?			Will be achieved
E5	Building fabric performance & avoidance of air infiltration	Has consideration been taken for the location of goods doors in relation to prevailing winds? Is there any extra draft sealing present? Is a thermographic survey going to be carried out?			Potentially could be achieved

TRANSPORT					
T1	Provision of public transport	Please provide details of the local transport nodes, frequency of service and distance from the building taking account of any detours needed to cross roads safely.			Will achieve all 4 credits
T5	Cyclist facilities	Does the building have any of the following: Cycle sheds, showers, drying areas, lockers? If yes please provide details including the quantity provided, size and specification and mark them on the drawings.			Will not be achieved
T12	Travel plan	Please provide site plans showing any manoeuvring areas, delivery vehicle waiting areas and designated areas for skips/pallets. If known, please provide details of the number, types and sizes of vehicles using the facility.			Will be achieved

WATER					
W1	Water consumption	Please provide details of the specification of each water consuming fitting (WCs, Urinals, Showers, Taps etc).Is there any grey water recycling or collection on site? Please provide details of any rainwater collection or greywater recycling system (where specified) including:- net lettable area of the building- % greywater (% of tap and shower collected for WC flushing)- the rainwater collection area- % rainfall collected used for WC and urinal flushing			Assume to have single toilet and wash basin facilities within retail / trade counter area. Assumed 6 litre single flush with standard taps. Calculation achieves 2 out of 3 credits
W2	Water meter	Is there a water meter installed on all mains supply to the building? Does it have pulsed output? Please indicate this on the layout drawing.			Will be achieved
W3	Major leak detection	Is there leak detection equipment on all mains supplies? Does it have an audible detection system? Can it be adjusted to detect different flow rates? Please provide details of the leak detection specification.			Potentially could be achieved

MATERIALS & WASTE					
MW1	Materials specification	What are the specifications for the following elements? Please provide details of the following: - Specification for the external walls - Specification for the roof			Will achieve both credits
MW2	Hard landscaping and boundary protection (Embodied Impact - external hard surfaces and fencing)	What are the specifications for the hard landscaping and boundary protection? Please provide details			Will not be achieved
MW6	Re-use of building structure	Is this a completely new building? If not are you making use of the existing structure? Will a major structure be reused? If so please provide details.			Will not be achieved, new build
MW7	Recycled aggregates	Will recycled aggregates be used in construction? How much and what for? Where is the material sourced from?			Will be achieved
MW8	Responsible sourcing of materials	Please provide specification information for the materials used in the following elements: roof, frame, walls (external), floors (ground, upper), foundation/substructure, windows and doors. Have any of the materials been reused? Are any of the materials from a recognised certified source?			Will not be achieved

MW12	Storage of recyclable waste	Do you have a dedicated space for the storage of recyclable material? Is it in easy reach of all building areas? If yes what size is the area? Please mark the area on the plans.			Will be achieved
MW16	Compactor / Baler	Is a water outlet provided for cleaning? Is a compactor or baler provided for compacting/baling waste generated on site, thus increasing the capacity of the site's waste storage facilities? Please provide details and drawings that show the location of these facilities.			Potentially could be achieved

LAND USE & ECOLOGY					
LE1	Re use of land	Please describe the previous use of the site for the area being developed, this may include the use of maps and site photographs.			Will be achieved
LE2	Contaminated land	Is the site defined as significantly contaminated? If yes, please provide details of the site survey report, contamination and any remediation measures taken, or to be undertaken.			Will not be achieved
LE3	Ecological value of site AND Protection of ecological features	Does the site contain any of the following: ponds, streams, rivers, wetlands, meadows, species-rich grasslands, trees or hedges (with a height > 1m or a trunk diameter > 100mm)? If yes, please provide details of any drawings, surveys, ecology report. Please describe measures that will/have been implemented to protect all existing features of ecological value throughout construction.			Will be achieved, no features of ecological value on site
LE4	Mitigating ecological impact	Please provide details of the ecological context of the site, i.e. surrounding landscape, including details of adjacent properties and open spaces in the neighbourhood. Please provide details of existing habitat types and their areas on the site together with details of proposed landscaping and species. Please provide details of any ecological report that has been conducted.			Will achieve both credits by default, no change in ecological value
LE5	Enhancing site ecology	Please provide details from the ecology report of ecological advice, recommendations, and 'actual' number of species per area of habitat type (pre and post construction). Has this report been conducted or verified by a member of the AWTC, CIWEM, IEEM, IEMA, or LI?			Will achieve the first credit with input from an ecologist Potentially could achieve a second credit

LE6	Long term Impact on biodiversity	Has an ecologist been appointed who is a member of either the AWTC, CIWEM, IEMA, IEEM, or LI? Will any steps be taken to minimise the long term impact on biodiversity? For example, compliance with all EU and UK legislation relating to the protection and enhancement of the site's ecology; training of site work-force on how to protect biodiversity; and timing site-works to minimise disturbance to wildlife.			Will achieve the first credit with input from an ecologist

POLLUTION					
P4	Insulant ODP & GWP	What insulating materials are used in the building fabric and services? Do all the insulation types specified have a GWP of 5 or less and an ODP of Zero in both manufacture and composition? If yes, please provide specification clauses to confirm all the insulant types as well as providing manufacturer's details.			Will be achieved
P7	Flood risk	Is the development under assessment located in a zone defined as having a low annual probability of flooding? OR Is the development under assessment located in a zone defined as having a medium annual probability of flooding and the ground level of the building, car parking and access is above the design flood level for the site's location? Are Sustainable Urban Drainage techniques being specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site through development? Please provide Environment Agency flood maps and/or site specific flood risk assessments (or other information) that highlight the estimated annual flood probability for the site in question, i.e. the flood risk zone. In addition, for sites in a zone with a medium annual probability of flooding, details of the building and site ground levels, and the design flood level (mm) for that flood zone. Please also provide details of any Sustainable Urban Drainage techniques specified to minimise water run off from buildings and hard surfaces to natural watercourses or municipal drainage systems.			Will not achieve any credits, within moderate flood risk area, no attenuation specified
P8	Minimising watercourse pollution	Please provide details of any facilities specified that will reduce the potential for pollution in water running off from buildings and hard surfaces to natural watercourses.			Will be achieved

P11	Renewable and low emission energy	Has a feasibility study been carried out considering renewable and low emission energy technologies and have the results been implemented? If yes, please provide details. Will there be any energy produced on site from renewable or low emission energy sources? If so what % of the building's total energy demand will this provide?Please provide details of any calculations carried out to establish output.			Will not be achieved
P13	Noise attenuation	Are sources of noise from the development likely to give rise to complaints from existing noise sensitive premises and amenity or wildlife areas that are within the locality of the site? Has the project team carried out a noise impact assessment for the new site or building? Is the assessment in compliance with BS 4142:1997 and does it measure the following: · Existing background noise levels at the most exposed noise sensitive part of the site/building; or at a location where background conditions can be argued to be similar. · The specific noise level resulting from the noise source. This can be based upon reference to similar installations or sites, or determined by calculation.			Potentially could be achieved