

Project: **Symes Mews - Camden**
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Status: **For Information**
Reference: **WED14117**
Design Note: **Response to comments from Planning Submission**

Date: **22 March 2019**

Issue: **B**

The following comments were issued by the planners on the planning application for Symes Mews our responses to these comments are below:

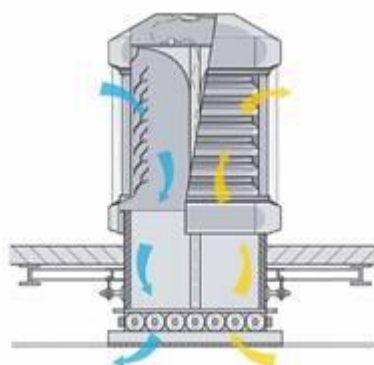
1 ENERGY

Overall 47.6% CO₂ reduction – all through fabric & services efficiency – meets policy. Renewables assessed as unfeasible – zero Be Green CO₂ reduction – does not meet policy.

Issue 1 Air source heat pumps – which would help scheme meet 20% renewables target and Air quality priorities – are discounted on two counts:

- Claimed not “compatible with the proposed cooling system” – not demonstrated or evidenced. Air source heat pumps provide cooling as well as heating. We would expect the proposed cooling system to be designed in the context of sustainability and air quality, not being assumed and overriding other design choices.

The mechanical scheme is centred around a naturally ventilated and cooled building, designed to CIBSE AM10. The proposal is to incorporate automated window/trickle vent actuators around the building to allow air ingress. Exhaust air shall be via ventilation stacks at the rear of the building, which will promote air movement within the space and achieve the requirements of Approved document Part F. The upper floors will incorporate windcatchers (image below) or actuated windows to achieve the ventilation and cooling requirements



Heating and hot water will be achieved by a centralised gas fired boiler serving perimeter radiators and storage calorifiers. During the cooling season the boilers will only provide the hot water requirements for the building.

Altering the mechanical scheme to air source heat pump (ASHP) will result in an increase in annual CO₂, as currently there is no mechanical cooling element to the building. ASHP will also require the introduction of air handling units, as opening windows and mechanical cooling conflict with each other and cause energy use to increase.

- Claimed to lack "sufficient electrical capacity for air-sourced heat pumps" - not demonstrated or evidenced. I note that the scheme is proposing to replace existing radiant electrical heaters and so the current power draw should also be taken into account vs more efficient (but expected more numerous/higher load).

Applicants would be expected to provide further information on feasibility and costs of 1) upgrading electrical capacity to allow for ASHPs and 2) an alternative, ASHP-based cooling strategy.

The existing service head serving the building is rated at 200A, however the fuse rating within the head may be lower than the heads indicated size. An estimate of the load for natural ventilation in Table 1 and Table 2 approximates the load at around 119A within the 200A allowance, and within the range of a fuse upgrade by UKPN should it be required.

Table 1: Electrical Assessment - NATURAL Ventilation for Cooling

Electrical Assessment – Natural Ventilation for Cooling						
Space Description	Net Area	Estimated Load	Total Load Allowance	Power Factor	Diversity to be Applied	Estimated Service Loads
Office	m ²	W/m ²	kW			kVA
Lighting	1045	10	10.45	0.90	1	11.61
Small Power	1045	25	26.13	0.90	1	29.03
Mech plant	1045	10	10.45	0.90	0.9	10.45
Future Spare Capacity	-	-	0.20	0.90	0.9	32.00
	-	-		0.90	0.9	0.00
Estimated Floor Load						83.09

Table 2: Summary of Load Demand – NATURAL Ventilation and Cooling

Summary of Load Demand – Natural Ventilation and Cooling	
kVA (inc. Applied Diversity)	83.09
Amps/Phase (inc. Applied Diversity)	119.93

Should Mechanical services consisting of ventilation and cooling be introduced, the increase in load with an estimate around 271A in Table 3 and Table 4 will be such that UKPN will request a substation to be introduced on to the site.

A typical substation will take a foot print of around 5m x 5m or 25m². Due to the area surrounding the Symes Mews development, access etc the possible positions will be limited and will be required to be installed within the building at ground floor level.

The requirement for the build will require a 4hr fire rated enclosure, this will add around £200K -£250K to the project. Discussion will need to be undertaken with UKPN re available network (around 6 -8 weeks for confirmation). The discussion with UKPN may highlight the need for their network enhancements again this could add a substantial figure to the costs.

Table 3: Electrical Assessment – MECHANICAL Ventilation for Cooling

Electrical Assessment – Including mechanical ventilation and mechanical cooling						
Space Description	Net Area	Estimated Load	Total Load Allowance	Power Factor	Diversity to be Applied	Estimated Service Loads
Office	m ²	W/m ²	kW			kVA
Lighting	1045	10	10.45	0.90	1	11.61
Small Power	1045	25	26.13	0.90	1	29.03
Mech plant	1045	85	88.83	0.90	0.9	88.83
Future Spare Capacity	-	25	26.13	0.90	0.9	26.13
	-	10	0.20	0.90	0.9	32.00
Estimated Floor Load						187.59

Table 4: Summary of Load Demand – MECHANICAL Ventilation and Cooling

Summary of Load Demand – Mechanical Ventilation and Cooling	
kVA (inc. Applied Diversity)	187.59
Amps/Phase (inc. Applied Diversity)	270.76

The introduction of mechanical plant as above will also require additional risers and plant areas to suit.

Additional notes:

- In addition to this technical commentary, we believe that the natural ventilation strategy proposed will fundamentally reduce the environmental impact of the building. If mechanical cooling and ventilation were introduced into the building the resulting CO₂ emissions from the building will increase. Natural ventilation still remains the most carbon friendly form of conditioning.
- The cost for heat pumps will be approximately 25% higher than the cost presently at approximately £150k for gas fired LTHW heating system. This is a further £35-40k cost to the project.
- Estimated loss of 250 ft² for the substation x £850/ft² capital value ~ £212K loss (in addition to estimated ~ £250K for the Substation).

Sustainability

A BREEAM Refurbishment & Fit Out pre-assessment has been carried out.

Proposing overall score 'Pass' or 'Good' if potential credits are achieved – does not meet policy

Proposing individual section scores

Energy 1/17= 5.9% (or potential 2/17= 11.8%) - does not meet policy 60%

Water – not assessed – does not meet policy 60%

Materials 6/13= 46.2% (or potential 7/13= 53.8%) - meets policy 40%

Issue 2 Not meeting policy for BREEAM overall, energy and water scores:

Report claims “due to the limited scope of works (to roof and windows only) it is anticipated that opportunity to improve energy performance is limited” but the Energy Statement proposes to replace the heating and cooling systems.

- Water section has been omitted from the assessment.
- Due to the project nature, an increased overall score of Very Good could be accepted in this case - provided the Energy, Water and Materials minimum policy scores are targeted. This requires a revised pre-assessment, targeting all potential credits and possibly improved heating strategy.

The BREEAM Pre-Assessment has been updated to show a rating of 'very good' to confirm compliance with Camden Council's request – “due to the project nature, an overall score of Very Good could be accepted... provided the Energy, Water and Materials minimum policy scores are targeted.” The following minimum policy scores are projected as attainable:

Policy Area	Minimum % to achieve	% targeted – Symes Mews
Energy	60%	61.9%
Water	40%	77.8%
Materials	40%	53.8%

See appendix A for attached BREEAM pre-assessment.

Appendix A

BREEAM Pre-Assessment



Symes Mews – Change of Use: Office
BREEAM Pre-Assessment Summary Report

22nd March 2019

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1.0 Introduction

This report is intended as a summary of the BREEAM pre-assessment review for the following project:

Project Name	Symes Mews - Offices
BREEAM Version	BREEAM 2014 Non-Dom RFO
Assessment Stage	Pre-Assessment Stage
Lead Assessor	Lucy Rees
Potential Rating	Very Good (55%)

2.0 Scoring

Scenario	Score	BREEAM Rating
Potential Target	62.14%	Very Good

Symes Mews is required to be assessed against the **BREEAM Refurbishment and Fit-Out (RFO) 2014** scheme. BREEAM RFO 2014 divides itself into four 'parts':

- ❖ Part 1 – Fabric and Structure: applicable when renovations are occurring to the façade, roof or windows
- ❖ Part 2 – Core Services: applicable when renovations are occurring to central services such as boilers, chillers and associated distribution network etc
- ❖ Part 3 – Local Services: applicable when renovations are occurring to local services such as lighting systems, localised heating/ cooling systems etc
- ❖ Part 4 – Interior Design: applicable when layout and/ or redecoration activities occur such as wall/ floor/ ceiling finishes, partitions, furniture, sanitary fittings etc

The full proposed refurbishment works at Symes Mews classify as a Parts 1-4 BREEAM RFO 2014 assessment. Based on information received regarding the scope of works, the projected BREEAM score indicates that a 'Very Good' rating with 62.36% is potentially feasible to achieve. **The pre-assessment therefore confirms compliance with Camden Council's request – "due to the project nature, an overall score of Very Good could be accepted... provided the Energy, Water and Materials minimum policy scores are targeted."** The following minimum policy scores are projected as attainable:

Policy Area	Minimum % to achieve	% targeted – Symes Mews
Energy	60%	61.9%
Water	40%	77.8%
Materials	40%	53.8%

To attain a rating of 'Very Good', and the above minimum policy scores, an expansion of current project scope to include the following is required, with additional cost/ work:

- BREEAM Hea 02:
 - A consultant must be appointed to complete an Indoor Air Quality Plan, which must be implemented
 - A consultant must be appointed to confirm CIBSE AM10 can be achieved to ensure the effectiveness of natural ventilation in line with BREEAM requirements.
- BREEAM Hea 05:
 - An Acoustic Consultant must be appointed to undertake projections and pre-completion testing to ensure BREEAM criteria are complied with.
- BREEAM Hea 06:
 - A Security Consultant must be appointed to undertake a Security Needs Assessment in compliance with BREEAM criteria.
- BREEAM Tra 05:
 - A Transport Consultant must be appointed to undertake a BREEAM compliant Travel Plan specific to the site.
- BREEAM Mat 05:
 - A material robustness study must undertaken by the project team, for both the current building and the proposed scope of works.
- BREEAM Hea 04:
 - Thermal comfort analysis to be undertaken by an Energy Consultant
- BREEAM Ene 04:
 - Passive design analysis to be undertaken by an Energy Consultant
- BREEAM LE 02 & LE 05:
 - A Suitably Qualified Ecologist would need to be appointed to make recommendations on protecting and enhancing site ecology.

2.1 Minimum Standards

Targeted performance against the minimum standards (required for 'Very Good') is summarised below;

Issue	Very Good
Man 03 - Responsible construction practices	Yes
Man 04 - Commissioning and handover	Yes
Ene 01 - Reduction of energy use and carbon emissions	Yes
Ene 02 - Energy Monitoring	Yes
Wat 01 - Water Consumption	Yes
Wat 02 - Water Monitoring	Yes
Mat 03 - Responsible Sourcing of Materials	Yes
Wst 01 - Construction Waste Management	Yes
Wst 03 - Operational Waste	Yes

If the required minimum standards are not met then the target rating will not be achieved regardless of overall score.

3.0 - Credits and Comments Table

		Available	Target - Very Good	Comments
Man 01	Project brief and design	4	2	<u>Targeted, Credit 1</u> , a sustainability brief is developed, and all project delivery stakeholders define their roles and responsibilities <u>Targeted, Credit 2</u> , all relevant third-party stakeholders are consulted by the design team and contribute to the project brief and detailed design
Man 02	Life cycle cost and service life planning	4	1	<u>Targeted, Credit 4</u> , reporting of project Capital Cost
Man 03	Responsible construction practices	6	6	<u>Targeted, minimum standard</u> , timber/timber-based products to have appropriate certifications showing they have been legally sourced and traded. <u>Targeted, Credit 1</u> , Contractor to hold an environmental management system certification (ISO 14001/EMAS) and implement Pollution Prevention Guidelines in accordance with PPG6. <u>Targeted, Credits 2-3</u> , registration with CCS and demonstration of significantly exceeding compliance <u>Targeted, Credit 4</u> , site related energy consumption (kWh, litres of fuel, kgCO2/project value) and potable water consumption are to be monitored and reported. <u>Targeted, Credit 5</u> , site transport impacts are to be monitored and reported separately for materials and waste (kgCO2eq, litres of fuel, km). <u>Targeted, Credit 6</u> , BREEAM AP/ Site Sustainability Champion to monitor progress against BREEAM targets (RIBA stages 5-6)
Man 04	Commissioning and handover	4	3	<u>Targeted, Credit 1</u> , commissioning schedule and responsibilities, principal contractor accounts for the commissioning and testing programme in line with BREEAM requirements <u>Targeted, Credit 2</u> , specialist commissioning manager appointed to undertake commissioning of all complex building services, undertake design reviews, input into construction programme etc <u>Targeted, Credit 4</u> , a BREEAM compliant Building User Guide and training programme is produced
Management Totals: (+exemplary)		18 (+1)	12	
Management score totals:		12.254	8.169	
Hea 01	Visual Comfort	7	1	<u>Targeted, Credit 7</u> , internal lighting compliant with CIBSE Lighting Guide 7, SLL Code for Lighting 2012 and occupant control zoned for every 4 workstations (40m2 grids). External lighting to meet BS 5489-1:2013 and BS EN 12464-2:2014
Hea 02	Indoor Air Quality	5	2	<u>Targeted, Credit 1</u> , an Indoor Air Quality Plan compliant with BREEAM content requirements <u>Targeted, Credit 3</u> , modelling undertaken to confirm CIBSE AM10 can be achieved to ensure the effectiveness of the natural ventilation strategy in line with BREEAM requirements
Hea 04	Thermal comfort	3	1	<u>Targeted, Credit 1</u> , thermal comfort analysis
Hea 05	Acoustic Performance	3	3	<u>Targeted, Credits 1-3</u> , an acoustic consultant undertakes projections and pre-completion testing to ensure BREEAM criteria are complied with.

Hea 06	Safety and Security	1	1	<u>Targeted, Credit 1</u> , a Specialist Security Consultant undertakes a Security Needs Assessment in compliance with BREEAM criteria.
Health & Wellbeing Totals: (+exemplary)		19 (+3)	8	
Health & Wellbeing score totals:		15.434	6.498	
Ene 01	Reduction of energy use and carbon emissions	15	9	<u>Targeted, Credits 1-9</u> , energy modelling comparing the before and after building performance, 9 credits projected achievable at this time
Ene 02	Energy Monitoring	2	2	<u>Targeted, Credit 1</u> , energy metering systems enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. The energy consuming systems are metered using an appropriate energy monitoring and management system e.g. automatic meter reading systems (AMR) or building energy management systems (BEMS) 2. <u>Targeted, Credit 2</u> , an accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building (per floorplate)
Ene 03	External Lighting	1	1	<u>Targeted, Credit 1</u> , average initial luminous efficacy of the external light fittings to be no less than 60 luminaire lumens per circuit Watt. All external light fittings automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic
Ene 04	Low carbon design	3	1	<u>Targeted, Credit 1</u> , energy specialist undertakes a passive design analysis confirming a meaningful reduction in the total energy demand
Energy Totals: (+exemplary)		21 (+5)	13	
Energy score totals:		14.405	8.917	61.9% of total energy score targeted
Tra 01	Public Transport Accessibility	3	3	<u>Targeted, Credits 1-3</u> , for having a high level of public accessibility
Tra 02	Proximity to amenities	1	1	<u>Targeted, Credit 1</u> , for having a high number of local amenities
Tra 03	Cyclist facilities	2	2	<u>Targeted, Credit 1</u> , enough compliant cycle spaces will be available <u>Targeted, Credit 2</u> , facilities such as showers, lockers, changing space etc for cyclists provided
Tra 04	Maximum Car Parking Capacity	2	2	<u>Targeted, Credits 1-2</u> , no car parking is to be provided
Tra 05	Travel Plan	1	1	<u>Targeted, Credit 1</u> , a transport consultant undertakes a BREEAM compliant Travel Plan specific to the site.
Transport Totals: (+exemplary)		9	9	
Transport score totals:		7.148	7.148	

Wat 01	Water Consumption	5	3	<u>Targeted, Credits 1-3</u> , low/ restricted flow sanitary ware specification to ensure a 40% water consumption improvement over the BREEAM benchmark
Wat 02	Water Monitoring	1	1	<u>Targeted, Credit 1</u> , water meter to the mains water supply to the building and sub-metering of any water-consuming building areas/ plant consuming 10%+ of total water demand. All to have pulsed/ open protocol output for connection to BMS
Wat 03	Leak Detection	2	2	<u>Targeted, Credit 1</u> , BREEAM compliant leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter <u>Targeted, Credit 2</u> , flow control devices (PIR solenoid valve) to each WC area/ facility
Wat 04	Water Efficient Equipment	1	1	<u>Targeted, Credit 1</u> , reduction of unregulated water demand for irrigation purposes through rainwater recycling or drip-fed soil moisture sensor irrigation equipment
Water Totals: (+exemplary)		9 (+1)	7	
Water score totals:		7.148	5.56	77.8% of total water score targeted
Mat 01	Life Cycle Impacts	6	3	<u>Targeted, Credits 1-3</u> , the scope of works would permit up to 3 credits (out of 6) being achieved for evaluating the environmental impact of building materials within scope.
Mat 03	Responsible Sourcing of Materials	4	2	<u>Targeted, Credit 1</u> , production of a sustainable procurement plan for all materials within scope of works <u>Targeted, Credit 2</u> , up to 1 credit is deemed achievable (out of a remaining 3) for ensuring materials within scope of works are responsibly sourced (e.g. ISO 14001, BES 6001)
Mat 04	Insulation	1	1	<u>Targeted, Credit 1</u> , any new insulation specified must be A+ rated on the Green Guide to specification
Mat 05	Designing for durability and resilience	1	1	<u>Targeted, Credit 1</u> , a material robustness study would need to be undertaken by the project team, for both the current building and the proposed scope of works
Mat 06	Material efficiency	1	0	<u>Not targeted</u>
Materials Totals: (+exemplary)		13 (+2)	7	
Materials score totals:		14.892	8.019	53.8% of total materials score targeted
Wst 01	Construction Waste Management	7	3	<u>Targeted, Credit 1</u> , a pre-refurbishment audit to be undertaken <u>Targeted, Credits 4</u> , a maximum 11.3m3 of construction waste per 100m2 GIFA <u>Targeted, Credit 6</u> , 85% by volume of refurbishment/ fit out and 90% by volume of demolition waste diverted from landfill
Wst 03	Operational Waste	1	1	<u>Targeted, Credit 1</u> , 2m ² per 1000m ² of NIFA (rounded to the nearest 1000m ²) of space dedicated specifically to recycling waste. Plus, an area of any size dedicated to general waste. Provision of space for compactors/ balers where the constant generation of operational waste is likely to exist
Wst 04	Speculative Floor and Ceiling Finishes	1	0	<u>Not targeted</u>

Wst 05	Adaptation to climate change	1	0	Not targeted
Wst 06	Functional adaptability	1	0	Not targeted
Waste Totals: (+exemplary)		11 (+2)	4	
Waste score totals:		8.191	2.978	
LE 02	Protection of Ecological Features	1	1	<u>Targeted, Credit 1</u> , appointment of an Ecologist to evaluate the need for protection of any features of ecological value
LE 04	Enhancing site ecology	1	1	<u>Targeted, Credit 1</u> , appointment of an Ecologist to advise on enhancing the ecology of the site. Advice must be implemented
LE 05	Long Term Impact on Biodiversity	2	0	Not targeted
Land Use & Ecology Totals: (+exemplary)		4	2	
Land Use & Ecology score totals:		9.531	4.765	
Pol 01	Impact of Refrigerants	3	3	<u>Targeted, Credits 1-3</u> , achievable by default where the building does not require the use of refrigerants within its installed plant/systems
Pol 02	NOx emissions	3	3	<u>Targeted, Credits 1-3</u> , plant installed to meet the building's delivered heating and hot water demand has a NOx emission level (dry basis at 0% excess O ₂) of ≤ 40 mg/kWh
Pol 03	Surface Water Run Off	5	4	<u>Targeted, Credits 1-2</u> , for being in a low flood risk zone <u>Targeted, Credits 3-4</u> , for no increase in impermeable area across site
Pol 04	Reduction of Night Time Light Pollution	1	1	<u>Targeted, Credit 1</u> , external lighting designed in compliance with Table 2 (and accompanying notes) of ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes
Pollution Totals: (+exemplary)		12 (+1)	11	
Pollution score totals:		10.997	10.081	
AI	Approved Innovation	1	0	
Innovation Totals: (+exemplary)		1	0	
Innovation score totals:		1	0	
OVERALL SCORE TOTALS:		101	62.14	