GREATER**LONDON**AUTHORITY

Energy Memo: Stage I consultation

Heythorp College

09/10/2018

To / Case officer:	Kate Randell
From:	Ioanna Mytilinaiou
Case name:	Heythorp College
London Borough:	Kensington and Chelsea
Case number:	4491a
Outline/Detailed:	Detailed

Applicant:	Leopard UK Kensington PropCo Ltd
Energy Consultant:	Hoare Lea
Document Title:	Heythrop Energy Strategy
Document Date:	22/08/2018

Proposal

Use	Floorspace/Number of units
Domestic (new)	126
Domestic (refurbishment)	3 townhouses
Extra care and community (new)	
Extra care building (Refurbishment)	

Overview of proposals

1. The applicant has followed the energy hierarchy for both refurbishment and new build areas. Sufficient information has been provided to understand the proposals as a whole. Further revisions and information are required before the proposals can be considered acceptable and the carbon dioxide savings verified.

BE LEAN

Energy efficiency standards

2. A range of passive design features and demand reduction measures are proposed to reduce the carbon emissions of the proposed development for both the new build and refurbishment areas. Both air permeability and heat loss parameters will be improved beyond the minimum backstop values required by building regulations.

3. The demand for cooling will be minimised through orientation, shading, fenestration, albedo and insulation and a number of other passive measures. However, the dynamic modelling undertaken shows that there is significant overheating within the dwellings and the applicant is proposing active cooling to combat this. The applicant is required to implement further passive measures to limit overheating, without active cooling, in all areas.

4. The applicant is required to undertake further overheating modelling using all TM49 weather design years (DSY2 and DSY3).

5. The area weighted average actual and notional cooling demands for each non-domestic building (MJ/m2) has been provided, it shows that the actual building's cooling demand is lower than the notional; this is welcomed.

6. There are listed buildings on site and this poses limitations to the upgrades of the façade elements. However, domestic refurbishment elements are estimated to achieve a reduction of 62% and non-domestic refurbishment 48% against their previous consumption.

7. The new build aspects of the development are estimated to achieve a reduction of 10 tonnes per annum, 1% in regulated CO2 emissions compared to a 2013 Building Regulations compliant development. The savings have been reduced compared to the previous application; clarification is required.

8. Moreover, given that Be Lean should be prioritised and a number of dwellings have DERs above TERs the applicant should further investigate how to improve savings from the part of the energy hierarchy.

9. A very low g-value is proposed throughout the new-built residential units; the applicant should provide further information on the light transmittance in order to ensure the visual comfort of the residents.

10. The applicant has stated that the extra care use self-contained accommodation and the dwelling houses are referred to as the domestic elements. The applicant should confirm the Class Use of the Extra care units, as this is anticipated to be C2. If this is not C3, the extra care units should be modelled using SBEM rather than SAP software. Clarification is required and the revised carbon emissions should be submitted.

BE CLEAN

District heating

11. The applicant has carried out an investigation and there are no existing or planned district heating networks within the vicinity of the proposed development. The applicant has, however, provided a commitment to ensuring that the development is designed to allow future connection to a district heating network should one become available.

12. The applicant has attempted to correspond with the local authority to discern whether any district heat networks are planned in the surrounding area but was unable to talk to the right person. The applicant is required to further investigate the existence of any developing district heat networks within the area and provide up to date evidence of communication, particularly given that the original email dates back to 2017.

13. The applicant is proposing to install a site heat network connecting all heat loads onsite. A drawing showing the route of the heat network linking all buildings on the site has been provided.

14. The centralised energy centre will be located at Basement 2 level and will be 163m2 in area. A layout and location drawing has been provided.

Combined Heat and Power

15. The applicant is proposing to install a 133 kWe / 193 kWth gas fired CHP unit as the lead heat source for the site heat network. The estimated savings from the incorporation of the CHP are in the order of 264 tonnes p.a. (38% over Part L 2013). The savings reported are considered significantly high and the CHP efficiency is particularly challenging to achieve.

16. Given the site's location in an area where air quality limits are exceeded and following the drastic reduction in the number of residential units from the previous application, a CHP-led strategy is not considered the most appropriate heating strategy for the scheme. This is also in line with the GLA guidance suggestions. The applicant should provide a detailed base load breakdown and establish where the base load is coming from.

17. Furthermore, although the number of residential units has been reduced, the size of the CHP has remained the same; clarification is required.

18. The applicant should ensure that the optimum heating solution has been chosen and that there will be no further impact on the local air quality levels from the proposed technology.

BE GREEN

Renewable energy technologies

19. The applicant has investigated the feasibility of a range of renewable energy technologies but is not proposing to install any renewable energy technology for the development. A detailed roof layout has been provided indicating the roof's limitations. Confirmation from the council should be provided to back the overlooking argument.

20. As Policy 5.2 requires that carbon reduction be achieved as far as possible, the applicant is required to identify further opportunities for renewable energy.

DOMESTIC CARBON SAVINGS (New build)

Based on the energy assessment submitted at stage I, the table below shows the residual CO_2 emissions after each stage of the energy hierarchy and the CO_2 emission reductions at each stage of the energy hierarchy for the domestic buildings.

Table: CO_2 emission reductions from application of the energy hierarchy

	Total residual regulated CO_2 emissions	**Regulated CO_2 emissions reductions**	
	(tonnes per annum)	**(tonnes per annum)**	**(per cent)**
Baseline i.e. 2013 Building Regulations	221		
Energy Efficiency	217	3	1%
CHP	138	79	36%
Renewable energy	138	0	0%
Total		**83**	**37%**

An on-site reduction of 83 tonnes of CO2 per year in regulated emissions compared to a 2013 Building Regulations compliant development is expected for the domestic buildings, equivalent to an overall saving of 37%. The carbon dioxide savings exceed the on-site target set within Policy 5.2 of the London Plan. However, the comments above should be addressed before the savings and compliance with the London Plan can be verified.

The domestic buildings are required to meet the zero carbon target as the application was received by the Major on or after the 1st October 2016. The applicant should therefore ensure that the remaining regulated CO2 emissions is met through a contribution to the borough's offset fund.

NON-DOMESTIC CARBON SAVINGS (New build)

Based on the energy assessment submitted at stage I, the table below shows the residual CO_2 emissions after each stage of the energy hierarchy and the CO_2 emission reductions at each stage of the energy hierarchy for the non-domestic buildings.

Table: CO_2 emission reductions from application of the energy hierarchy

	Total residual regulated CO_2 emissions	**Regulated CO_2 emissions reductions**	
	(tonnes per annum)	**(tonnes per annum)**	**(per cent)**
Baseline i.e. 2013 Building Regulations	476		
Energy Efficiency	469	7	1%
CHP	284	185	39%
Renewable energy	284	0	0%
Total		**192**	**40%**

An on-site reduction of 192 tonnes of CO_2 per year in regulated emissions compared to a 2013 Building Regulations compliant development is expected for the non-domestic buildings, equivalent to an overall saving of 40%. The carbon dioxide savings exceed the target set within Policy 5.2 of the London Plan. Once again, all comments above should be addressed before compliance with London Plan energy policy can be verified.