

Energy Memo: Stage I consultation

The Mall
20/07/2017

To / Case officer:	
From:	
Case name:	The Mall
London Borough:	Waltham Forest
Case number:	4306
Outline/Detailed:	Detailed

Applicant:	C&R Limited
Energy Consultant:	Hulley & Kirkwood Consulting Engineers Ltd
Document Title:	Retail Energy Assessment Walthamstow Extension
Document Date:	January 2017

Proposal

Use	Floorspace/Number of units
Retail (shopping centre extension)	8,769 m ²
Residential	502 units

Overview of proposals

1. The proposals are broadly acceptable; however, further information is required before the carbon savings can be verified. A single energy statement treating the site as a whole and covering both residential and non-domestic should be provided instead of two separate strategies.
2. The applicant should provide the carbon emission figure in tonnes per annum for each stage of the energy hierarchy for domestic and non-domestic elements separately. See the latest GLA assessment guidance for the required format: <https://www.london.gov.uk/what-we-do/planning/planning-applications-and-decisions/pre-planning-application-meeting-service-0>

Biomass Has a biomass boiler/CHP system been proposed? **No**

BE LEAN

Energy efficiency standards

3. For non-domestic a range of passive design features and demand reduction measures are proposed to reduce the carbon emissions of the proposed development. Both air permeability and heat loss parameters will be improved beyond the minimum backstop values required by building regulations. Other features include low energy lighting. The applicant's approach for reducing carbon emissions for the domestic elements of the development should also be provided. This should include air permeability and heat loss parameters to be used.
4. The demand for cooling will be minimised through solar shading (e.g. Canopies), improved g-value and mechanical ventilation heat recovery. The area weighted average actual and notional cooling demands for the non-domestic buildings has been provided.
5. Evidence of the site's overheating performance should be provided for both commercial and domestic units; Part L compliance data sheets of the sample dwellings should be provided to demonstrate that there is only a slight risk of high summer temperatures. If the modelling outputs show a medium risk, further passive measures in line with Policy 5.9 should be integrated to reduce the risk of overheating. An Overheating Analysis using thermal dynamic is also strongly encouraged.
6. The non-domestic aspect of the development is estimated to achieve a reduction of 123 tonnes per annum (28%) in regulated CO₂ emissions compared to a 2013 Building Regulations compliant development. Similar figures should be provided for the domestic element.
7. In line with the development description, the scheme further comprises 502 residential units. The residential elements should be modelled alongside the commercial units and evidence of this analysis should be provided (i.e. carbon emissions for each stage of the energy hierarchy, carbon savings and TER / DER worksheets for all stages of the energy hierarchy).
8. The 'be lean' BRUKL should also be provided; this should be modelled in line with the GLA guidance – assuming gas-fired boiler systems – and the applicant should demonstrate compliance with Part L through passive design and energy efficiency measures only.

BE CLEAN

District heating

9. The applicant has identified a proposed district heating network within the vicinity of the development but is not proposing connection due to the distance and timescales. Evidence of communication with the local borough energy officer on the future plans for the proposed network should be submitted.
10. The applicant should also provide a commitment to ensuring that the development is designed to allow future connection to a district heating network should one become available and outline the measures in place for future proofing.
11. The site should be served by a site heat network where all buildings and uses on site should be connected. A drawing showing the route of the heat network linking all uses on the site should be provided.
12. The site heat network should be supplied from a single energy centre. Further information on the floor area and location of the energy centre should be provided.

Combined Heat and Power

13. The applicant has investigated the feasibility of CHP. However, it has been stated that due to the low heat loads, CHP is not proposed for the non-domestic elements. The energy statement suggests a CHP for the residential part of the site. The applicant should consider use of the onsite CHP for provision of heat to both the domestic and non-domestic aspects of the site through a site-wide heat network fed from a single energy centre, in line with the GLA guidance.
14. Following the GLA Guidance, additional information should be provided for the proposed CHP, including:
 - a) Size of the engine proposed (kWe/kWth)
 - b) Provision of any thermal store
 - c) monthly demand profiles for heating, cooling and electrical loads, cost benefit analysis, carbon reduction benefits etc
 - d) System efficiencies (Gross)
 - e) Cross referencing the Air Quality Assessment, the energy assessment should confirm that the NO_x emission standards set out in the SPG on Sustainable Design and Construction will be met
 - f) Details of commercial operation of the CHP

BE GREEN

Renewable energy technologies

15. The applicant has investigated the feasibility of a range of renewable energy technologies and is proposing to install 400sq.m of Photovoltaic (PV) panels; a roof layout has been provided. This investigation should be reviewed to take into consideration the domestic aspects of the application.
16. Air Source Heat Pumps (ASHPs) will also be introduced for space heating and hot water demand purposes for the retail units. The applicant should review their energy strategy in line with the development description and revisit the option of ASHPs on site. The Mayor's Energy Hierarchy should be followed and priority should be given to an on-site CHP prior to the inclusion of any renewable technologies for heating purposes.
17. For non-domestic, a reduction in regulated CO₂ emissions of 50 tonnes per annum (12%) will be achieved through this third element of the energy hierarchy. Similar figures should be provided for the domestic aspects of the application.
18. The manually calculated PV savings from the BRUKL file do not match the PV energy generation and savings as per Table 9; clarification is sought.
19. Similarly, the manually calculated carbon emissions from the BRUKL file for the baseline and 'be green' emissions are not consistent with the figures stated within the report; further clarification is required.

DOMESTIC CARBON SAVINGS

Based on the energy assessment submitted at stage I, the table below shows the residual CO₂ emissions after each stage of the energy hierarchy and the CO₂ emission reductions at each stage of the energy hierarchy for the domestic buildings.

Table: CO₂ emission reductions from application of the energy hierarchy

	Total residual regulated CO₂ emissions	Regulated CO₂ emissions reductions	
	(tonnes per annum)	(tonnes per annum)	(per cent)
Baseline i.e. 2013 Building Regulations	Tbc		
Energy Efficiency	Tbc	Tbc	Tbc
CHP	Tbc	Tbc	Tbc
Renewable energy	Tbc	Tbc	Tbc
Total	Tbc	Tbc	Tbc

The carbon emissions for the domestic units should be provided in order to verify the proposed strategy. The domestic buildings are also required to meet the zero carbon target as the application was received by the Major on or after the 1st October 2016.

NON-DOMESTIC CARBON SAVINGS

Based on the energy assessment submitted at stage I, the table below shows the residual CO₂ emissions after each stage of the energy hierarchy and the CO₂ emission reductions at each stage of the energy hierarchy for the non-domestic buildings.

Table: CO₂ emission reductions from application of the energy hierarchy

	Total residual regulated CO₂ emissions	Regulated CO₂ emissions reductions	
	(tonnes per annum)	(tonnes per annum)	(per cent)
Baseline i.e. 2013 Building Regulations	436		
Energy Efficiency	314	123	28%
CHP	314	0	0%
Renewable energy	263	50	12%
Total		173	40%

An on-site reduction of 123 tonnes of CO₂ 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 28%. The carbon dioxide savings exceed the target set within Policy 5.2 of the London Plan.

However, all comments above should be addressed before compliance with London Plan energy policy can be verified.