Sustainability/Energy Statement

197 Kentish Town Rd
Camden, NW5 2JU

Prepared for:
MADDOX
68 Hanbury Street
London
E1 5JL

Prepared by:
energylab Consulting Ltd
18 Wenlock road, London, N1 7TA
Tel: 020 37629608
www.energy-lab.co.uk

Issue	Date	Details	Prepared by	Reviewed by	Approved by
01	24 October 19	First Issue	ST	MA	MA

energylab

18 Wenlock Road
London
N1 7TA
www.energy-lab.co.uk
info@energy-lab.co.uk
T 020 3752 9608

Content

1. EXECUTIVE SUMMARY

This Energy/Sustainability Statement was prepared by Energylab Consulting ltd in support of the planning application arranged by MADDOX Planning for the proposed 197 Kentish Rd development, to comply with the London Borough of Camden Council's requirements on sustainability section.

The report describes that the energy and carbon reduction strategy under the climate change mitigation measures are met in line with the following planning documents of Camden Council and the London Plan:

- Local Plan Policy CC1 Climate Change Mitigation (Sustainability and Climate Change) [1]
- The London Plan relevant planning policies within section 5, i.e. Energy Hierarchy
- Camden Planning Guidance Sustainability CPG3

The scheme is considered as a non-major development according to the current London Plan Core Strategy [2] which has shown below, hence, The London Plan zero carbon target is not applicable to this development.

- *For dwellings: where 10 or more are to be constructed (or if number not given, area is more than 0.5 hectares).*

- *For all other uses: where the floor space will be 1000 sq metres or more (or the site area is 1 hectare or more). The site area is that directly involved in some aspect of the development. Floor space is defined as the sum of floor area within the building measured externally to the external wall faces at each level. Basement car parks, rooftop plant rooms, caretakers' flats etc. should be included in the floor space figure.*

However, the design team is committed to achieve lower water usage targets (110 litres/person/day), sustainable use of materials and to incorporate all suitable energy saving measures into the proposed architecture and services design to meet the CO_2 emissions reduction requirements within the Approved Building Regulation Document 2013 Part L1A/1B/2B, Camden Local Plan CC2 &3 and the London Plan policy 5.2 & 5.3.

Therefore, the report confirms that the development has channelled through the relevant planning policies listed above and has shown compliant with the relevant Building Regulation Part L 1A (for New Resi), 1B (for Existing Resi) & 2B (for Existing Retail) following The London Plan Energy Hierarchy (BeLean, BeClean & BeGreen).

1.2 Reduction in Carbon Emissions

1.1.1 New-build Flats

The energy strategy for the New-build flat (Flat 3&4) has been developed in line with the London Plan Energy Hierarchy principals to reduce the energy and associated CO_2 emissions using the "Be Lean, Be Clean, Be Green" approach:

[1] Camden Local Plan Section 8 Policy CC1 Climate Change mitigation p249
[2] The London Plan arch 2016, p417

- "Be Lean": Improvements to the building fabric and energy efficient services to minimize energy demand, including efficient building services such as high efficiency gas fired boiler, Mechanical Ventilation with Heat Recovery and 100% low energy LED lightings.
- "Be Clean": The site is not suitable for a local CHP system or connection to a district network. Therefore, no carbon savings are possible using this measure.
- "Be Green": no renewable technologies are proposed for this development as the CO_2 emissions were reduced using more technically, functionally and economically feasible energy savings solutions applicable to the facade and the services. Please see table below, the percentages reduction in CO_2 emissions shown below are for the new flats only and the improvements are shown against the notional building CO_2 emissions as per the Approved Document 2013 Part L1A:

	Regulated Carbon Dioxide Emissions New Domestic	
	(Tonnes CO_2 per annum)	(%)
Savings from energy demand reduction (Be Lean)	0.12	5.0%
Savings from Heat network/CHP (Be Clean)	-	-
Savings from renewable energy (Be Green)	-	-
Total Cumulative Savings	**0.12**	**5.0%**

1.1.2 Refurbished Spaces

To further reduce the energy and associated CO_2 emissions form the development as a whole, an improvement in the façade performance (including windows) is proposed for the retained part of the development within flats 1, 2&5. These improvements shall be in line with those performances listed within the Approved Document Part L 1B. Please see tables below:

New thermal elements –

Table 2 Standards for new thermal elements

Element[1]	Standard W/(m².K)[2]
Wall	0.28
Pitched roof – insulation at ceiling level	0.16
Pitched roof – insulation at rafter level	0.18
Flat roof or roof with integral insulation	0.18
Floors[3]	0.22[4]
Swimming pool basin	0.25

Notes:

1. 'Roof' includes the roof parts of dormer windows, and 'wall' includes the wall parts (cheeks) of dormer windows.
2. Area-weighted average values.
3. A lesser provision may be appropriate where meeting such a standard would result in a reduction of more than 5% in the internal floor area of the room bounded by the wall.
4. A lesser provision may be appropriate where meeting such a standard would create significant problems in relation to adjoining floor levels. The U-value of the floor of an extension can be calculated using the exposed perimeter and floor area of the whole enlarged dwelling.

Upgrading retained thermal elements –

Table 3 Upgrading retained thermal elements		
Element[1]	**(a) Threshold U-value W/(m²·K)**[8]	**(b) Improved U-value W/(m²·K)**[8]
Wall – cavity insulation[2]	0.70	0.55
Wall – external or internal insulation[3]	0.70	0.30
Floor[4,5]	0.70	0.25
Pitched roof – insulation at ceiling level	0.35	0.16
Pitched roof – insulation between rafters[6]	0.35	0.18
Flat roof or roof with integral insulation[7]	0.35	0.18

1 'Roof' includes the roof parts of dormer windows and 'wall' includes the wall parts (cheeks) of dormer windows.
2 This applies only in the case of a wall suitable for the installation of cavity insulation. Where this is not the case, it should be treated as 'wall – external or internal insulation'.
3 A lesser provision may be appropriate where meeting such a standard would result in a reduction of more than 5% in the internal floor area of the room bounded by the wall.
4 The U-value of the floor of an extension can be calculated using the exposed perimeter and floor area of the whole enlarged building.
5 A lesser provision may be appropriate where meeting such a standard would create significant problems in relation to adjoining floor levels.
6 A lesser provision may be appropriate where meeting such a standard would create limitations on head room. In such cases, the depth of the insulation plus any required air gap should be at least to the depth of the rafters, and the thermal performance of the chosen insulant should be such as to achieve the best practicable U-value.
7 A lesser provision may be appropriate if there are particular problems associated with the load-bearing capacity of the frame or the upstand height.
8 Area-weighted average values.

Any new services within the retained/refurbished flats shall be specified in line with the relevant performances listed within the *Domestic Building services Compliance Guide 2013*.

1.1.3 Commercial Unit

Similarly, an improvement in the façade performance (including windows) is proposed for the retained part of the development within existing retail unit. These improvements shall be in line with those performances listed within the Approved Document Part L 2B. Please see tables below

New thermal elements –

Table 4 Standards for new *thermal elements*	
Element[1]	**Standard W/(m².K)**
Wall	0.28[2]
Pitched roof – insulation at ceiling level	0.16
Pitched roof – insulation at rafter level	0.18
Flat roof or roof with integral insulation	0.18
Floors[3]	0.22[4]
Swimming pool basin	0.25[5]

Notes:

1 'Roof' includes the roof parts of dormer windows, and 'wall' includes the wall parts (cheeks) of dormer windows.

2 A lesser provision may be appropriate where meeting such a standard would result in a reduction of more than 5% in the internal floor area of the room bounded by the wall.

3 The U-value of the floor of an extension can be calculated using the exposed perimeter and floor area of the whole enlarged building.

4 A lesser provision may be appropriate where meeting such a standard would create significant problems in relation to adjoining floor levels.

5 See paragraph 4.14.

Upgrading retained thermal elements -

Table 5 Upgrading retained thermal elements		
Element[1]	**U-value W/(m².K)**	
	(a) Threshold	**(b) Improved**
Wall – cavity insulation	0.70	0.55[2]
Wall – external or internal insulation	0.70	0.30[3]
Floors[4,5]	0.70	0.25
Pitched roof – insulation at ceiling level	0.35	0.16
Pitched roof – insulation at rafter level[6]	0.35	0.18
Flat roof or roof with integral insulation[7]	0.35	0.18

Notes:

1 'Roof' includes the roof parts of dormer windows, and 'wall' includes the wall parts (cheeks) of dormer windows.

2 This applies only in the case of a cavity wall capable of accepting insulation. Where this is not the case it should be treated as for 'wall – external or internal insulation'.

3 A lesser provision may be appropriate where meeting such a standard would result in a reduction of more than 5% in the internal floor area of the room bounded by the wall.

4 The U-value of the floor of an extension can be calculated using the exposed perimeter and floor area of the whole enlarged building.

5 A lesser provision may be appropriate where meeting such a standard would create significant problems in relation to adjoining floor levels.

6 A lesser provision may be appropriate where meeting such a standard would create limitations on head room. In such cases, the depth of the insulation plus any required air gap should be at least to the depth of the rafters, and the thermal performance of the chosen insulant should be such as to achieve the best practicable U-value.

7 A lesser provision may be appropriate if there are particular problems associated with the load-bearing capacity of the frame or the upstand height.

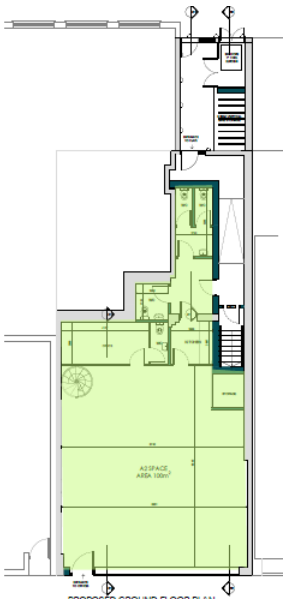
Any new services within the retained/refurbished retail unit shall be specified in line with the relevant performances listed within the *Non Domestic Building services Compliance Guide 2013*.

2. INTRODUCTION

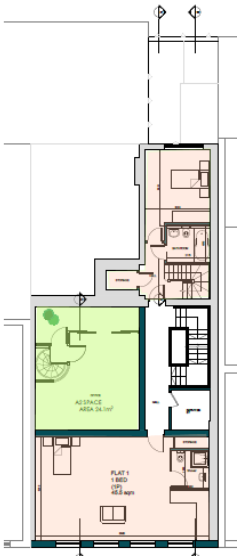
2.1 Project Description

The proposed scheme is to extend and convert the upper floors from ancillary retail to provide 5 self-contained flats. The existing building contains a retail unit on the ground floor with upper floors (First and Second floors) being storage spaces. The front and back walls of the existing building shall be retained, with an uplifted retail unit and an entrance to the flats with storage space and cycle storage on the Ground floor.

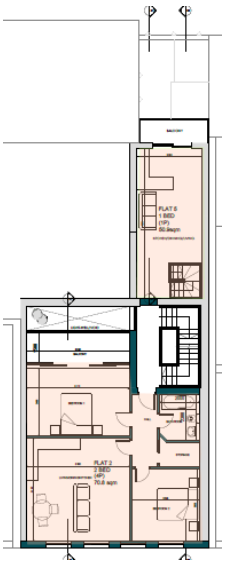
Below image shows the proposed scheme layout throughout the building.



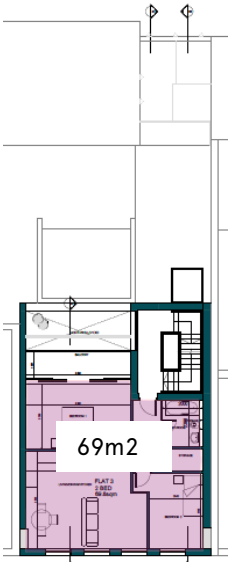
Ground Floor



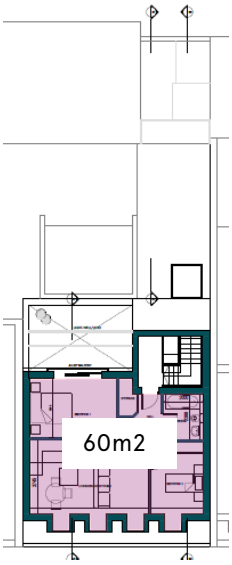
1st Floor



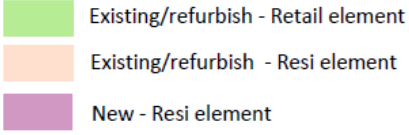
2nd Floor



3rd Floor



4th Floor



2.2 Building Regulations & The London Plan Energy Hierarchy

This report demonstrate that the development has the potential to comply with following Building Regulations and legislations;

- Existing/Refurb Retail element – building fabric standard to meet the requirement of Building Regulation Part L2B 2010 (Conservation of flue and power in existing buildings other than dwellings) & controlled services to meet the Non-domestic building services compliance guide 2013;
- Existing/Refurb Resi element – building fabric standard to meet the requirement of Building Regulation Part L1B 2010 (Conservation of flue and power in existing dwellings) & Domestic building services compliance guide 2013;
- New-build Resi element – Regulated CO_2 emission to meet the requirement of Building Regulation Part L1A 2013 (Conservation of flue and power in new dwellings), i.e. to carry out SAP calculation;

This development does not fall under the London Plan and Lewisham council definition of Major Development as the new development is less than 1000sqm and 10 new residential units, as the new build part of the proposed development is only 130sqm~ in area which equates to 2 new residential units extension.

The energy strategies for the whole development has been developed to suite the London Plan energy hierarchy:

- "Be Lean": Improvements to the building fabric and energy efficient services to minimize energy demand, including efficient building services such as high efficiency gas fired boiler, Mechanical Ventilation with Heat Recovery and 100% low energy LED lightings.
- "Be Clean": The site is not suitable for a local CHP system or connection to a district network. Therefore, no carbon savings are possible using this measure.
- "Be Green": no renewable technologies are proposed for this development as the CO_2 emissions were reduced using more technically, functionally and economically feasible energy savings solutions applicable to the facade and the services.

3. ESTABLISHING CO_2 EMISSIONS

3.1 New-build Flats

For the new-build flats (3&4), the baseline CO_2 emissions are calculated from the 'notional' building using the Part L software tools. i.e. FSAP. The 'notional' building consists of standard set of fabric and services parameters which deliver the Target Emissions Rate (TER), has shown in below table.

Regulated CO_2 emissions – New-build Flats (Tones CO_2 per annum)	
Target Emission Rate (TER)	2.30

Details of the input to these calculations can be found in Appendix 2: Key Modelling Inputs.

3.2 Refurbished Spaces

Not Applicable.

3.3 Commercial Unit

Not Applicable.

4. ENERGY EFFICIENCY MEASURES (BE LEAN)

4.1 New-build Flats

4.1.1 Passive measures

U-values for *new* external elements for newly proposed flats have been improved from the minimum standards set out under Part L 1A, as shown in below table.

Fabric properties & Fabric Energy Efficiency Standard

New Elements	Proposed U Values ($W/m^2/K$)	Part L Benchmark Values (i.e. Notional building)	% Improvements over Notional	Part L Limiting Values	% Improvements over Min. Regs
Walls	0.12	0.18	33%	0.3	60%
Floors	0.13	0.13	0%	0.25	52%
Roof	0.12	0.13	7.7%	0.2	40%
Glazing unit	1.4	1.4	0%	2.0	30%

A key component for Part L1A 2013 is the Fabric Energy Efficiency Standard (FEES) [3], which sets a target figure in kWh/m2 for energy demand in new dwelling.

Fabric Energy Efficiency is assess using DFEE/TFEE figures. For instance, the calculated Dwelling Fabric Energy Efficiency rates (DFEE) overall must be less than Target Fabric Energy Efficiency rates (TEFF) to gauge compliance (DER≤TER). This encourages designers to take a fabric-first approach to reduction carbon emissions prior to installing of LZC teleology.

Table below have shown the overall results of DFEE vs TEFF for all new flats.

Fabric Energy Efficiency $kWh/m^2.annum$		DFEE ≤ TFEE
TFEE (target)	DFEE (dwelling)	YES
45.4	41.8	

Air Tightness

An air permeability of 3 m3/m2/hr has been targeted.

[3] https://energylabsite.wordpress.com/2018/01/12/minimum-energy-efficiency-standards-what-do-they-mean-for-me/

Thermal Bridging

Another key change to Part L 1A 2013 which places increased importance on addressing thermal bridging, that could be minimised by careful detailing, or the use of standard details (such as Accredited Construction Details i.e. ACDs) where appropriate.

Generally speaking, the role of thermal bridges in building heat loss can be significant for well insulated buildings, but without detailed drawings of building junctions, it is difficult to estimate. Therefore, a default value (y-value of 0.15) has been used within the SAP calculation as a worst-case assumption.

We recommend that as the design is progressed, building junctions are considered carefully to minimise thermal bridging. Standard `accredited construction details' are available, for which the impact of thermal bridging is known. In many cases the impact of thermal bridging can be ignored if good thermal continuity is achieved through the junction. For more complex or less intuitive scenarios, thermal bridging calculations can be carried out to calculate the additional heat loss.

4.1.1 Active measures

Space Heating

Space heating energy consumption should be minimised by measures including;

- Efficient Combi boilers
- Weather compensation control to maximise boiler efficiency
- Individually timed control of heating in each room, enabling heating to be turned off in unoccupied rooms (e.g., bedrooms during the day)
- Insulated pipework and fittings within the plant room to reduce heat loss

Hot Water

Hot water energy consumption can be minimised by measures including;

- Selection of low-flow showers and basin taps
- Design of circulation loops to minimise pipework lengths
- Use of microbore pipework for final legs to fittings
- Insulation of circulation pipework and fittings
- Time control of circulation pump to reduce heat losses
- High levels of cylinder insulation if changes in design

Ventilation

Mechanical ventilation with heat recovery is proposed to provide guaranteed fresh air throughout the year, with minimum energy consumption.
A typical arrangement would be fresh air is supplied to living areas and bedrooms, and is extract from bathrooms, WCs and the kitchen. A heat exchanger removes heat from the exhaust air and uses it to pre-heat the incoming air. This reduces the energy required to heat the air by around 80%.

Lighting

Low energy lighting should be provided throughout the scheme. This will generally be LEDs.

4.2 Refurbished Spaces

To be in-line with the performance set out in Part L 1B for building fabric u value target **and** with the Domestic building services compliance guide for any proposed building services mechanical plants and lighting.

4.3 Commercial Unit

To be in-line with the performance set out in Part L 2B for building fabric u value target together with the Non-domestic building services compliance guide for any proposed building services mechanical plants and lighting.

4.4 Carbon Emission Reduction after Be Lean

4.4.1 New-build Flats

Tables below show the resulting carbon emissions for the new flats development before and after applying the "Be Lean" measures outlined above.

As shown, the carbon emissions are predicted to be lower than the base case. This is due to the high performance of building fabric and services.

Regulated CO_2 emissions – New-build Flats (Tones CO_2 per annum)	
TER	2.30
Be Lean (BER)	2.18

	Reduction in Regulated CO_2 emissions	
	Tonnes CO_2 per annum)	% of improvement over Baseline
Be Lean	0.12	5.0 %

Through the "Be Lean" measures, an improvement of 5.0 % can be achieved over the TER.

4.4.2 Refurbished Spaces

FSAP calculation has not been carried out for this part of the development as it is not required by the Building Regulations, instead, compliance for this part of the development shall be met via proposing façade and building services in line with the relevant performances as listed within the Part L1B and the Domestic Building Services Compliance Guide 2013.

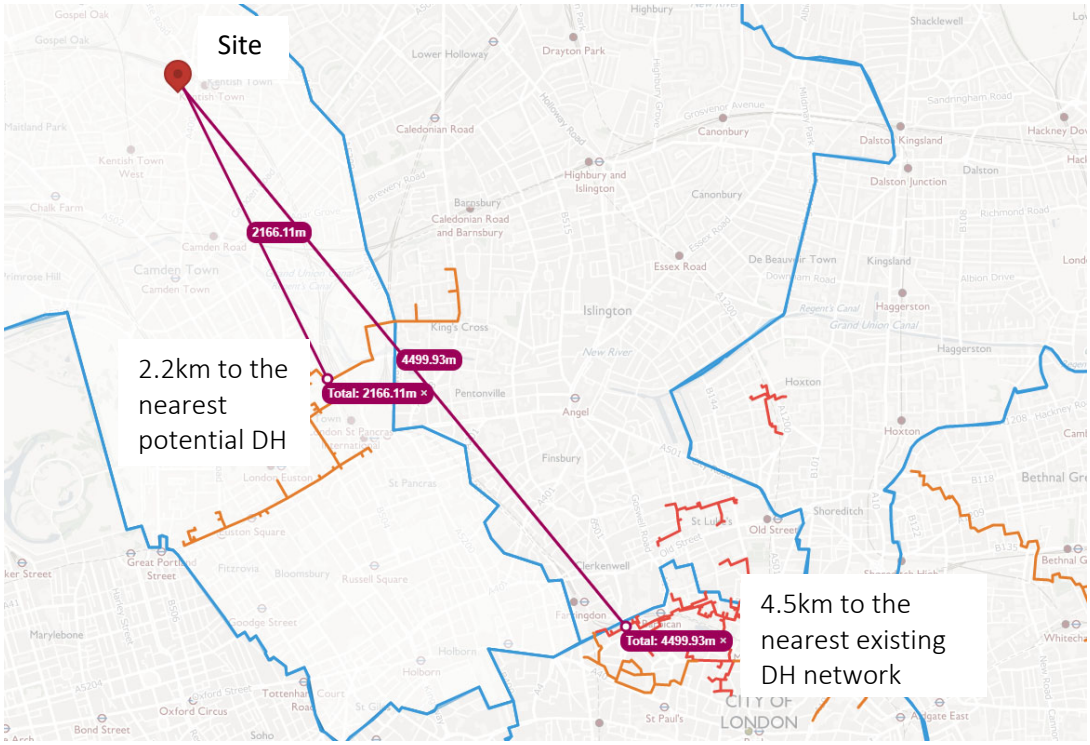
4.4.3 Commercial Unit

FSAP calculation has not been carried out for this part of the development as it is not required by the Building Regulations, instead, compliance for this part of the development shall be met via proposing façade and building services in line with the relevant performances as listed within the Part L2B and the Domestic Building Services Compliance Guide 2013.

5. HEATING INFRASTRUCTURE INCLUDING CHP (BE CLEAN)

5.1 Connection to exiting Heating Distribution Network

Analysis of the London heat map shows that the nearest potential community heating scheme (orange line) is over 2.2 kilometres from the site, and further to the existing schemes (red line) (see below image).



Considering the distribution would almost certainly need to avoid going under buildings, the distances would be even greater. Transferring heat over this distance wouldn't be efficient or financially favourable.

However, as the proposal is for a community heating system, the infrastructure would be in place for future connection at some stage.

For the above reasons connection to a district heating network has been ruled out as an option.

5.2 Local Site CHP

Combined Heat and Power only becomes economically viable for larger schemes, and is not suited for single dwellings, which has insufficient thermal and electrical loads. Therefore, this has been ruled out for the site.

Since there is no viable district heat network in the area, and since CHP is not suited to such a small development, there are no carbon savings achieved by this stage of the energy hierarchy.

5.3 Carbon Emission Reduction after Be Clean

Since a district heating connection, or on-site CHP is unviable, no carbon emissions reductions are available using these measures.

6. RENEWABLE ENERGY (BE GREEN)

6.1 Technology Options

no renewable technologies are proposed for this minor development as the CO_2 emissions were reduced using more technically, functionally and economically feasible energy savings solutions applicable to the facade and the services.

However, for future reference an initial review has been conducted in order to choose the most suited low carbon technologies which from the outset have been identified as unviable. This can be found in Appendix 1: Preliminary Appraisal of Renewable Energy Options.

6.2 Carbon Emission Reduction after Be Clean

6.2.1 New-build Flats

Same as BeLean.

6.2.2 Refurbished Spaces

Same as BeLean.

6.2.3 Commercial Unit

Same as BeLean.

7. SUSTAINABLE MATERIALS

The development shall consider the use of sustainable materials through the choice of appropriate buildings materials.

The design team is committed to minimising the use of resources through the choice of materials to limit the environmental impact of developments.

The design will consider the following measures:

- Managing existing resources;
- Specifying materials using the Building Research Establishment's Green Guide to Specification;
- Ensuring that materials are responsibly sourced;
- Minimising the harmful effects of some materials on human health; and
- Ensuring that specified materials are robust and sensitive to the building type and age

8. WATER CONSUMPTION

The development design shall demonstrate that the development is capable of achieving water efficiency and water recycling.

The design team is committed to achieving a target of maximum internal water use of 110 litres per person/day.

This will be incorporated into the design and the sanitary ware/fittings selection at the detailed design stage to ensure that this target is achieved.

The above target can be achieved though specifying all or some of the following water saving fittings:

- A low and water saving dual flush WC
- Aerated showerhead
- Flow regulating access valve for showers
- Water saving flow regulator for basin
- Water efficient lever operated Monobloc tap
- Water efficient Monobloc kitchen tap and water saving tub.

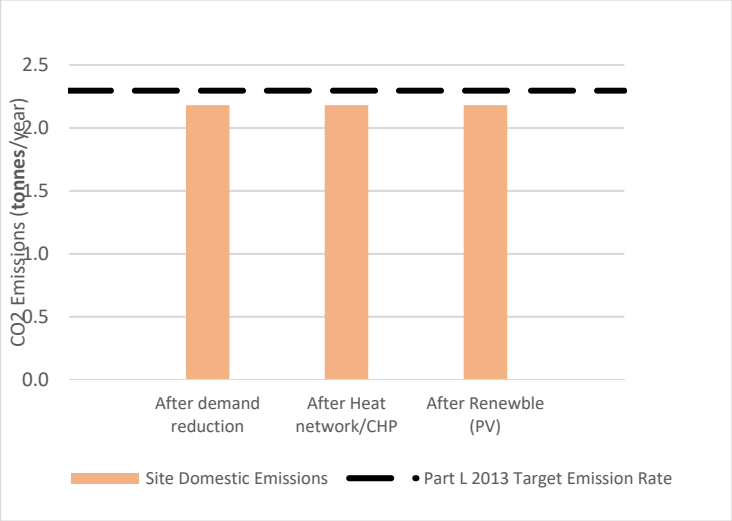
A rainwater harvesting system shall be installed (if technically possible) to reuse the rain water in irrigation.

9. CONCLUSION

9.1 New-build Flats

According to SAP calculation, the new-build flats have the potential to meet the compliance of Building regulation Part L1A with 5.0% improvement over the TER following the London Plan Energy Hierarchy as shown in table and graph below.

	Regulated Carbon Dioxide Emissions New Domestic	
	(Tonnes CO_2 per annum)	(%)
Savings from energy demand reduction (Be Lean)	0.12	5.0%
Savings from Heat network/CHP (Be Clean)	-	-
Savings from renewable energy (Be Green)	-	-
Total Cumulative Savings	**0.12**	**5.0%**



9.2 Refurbished Spaces

To be in-line with the performance set out in Part L 1B for building fabric u value target **and** with the Domestic building services compliance guide for any proposed building services mechanical plants and lighting.

9.3 Commercial Unit

To be in-line with the performance set out in Part L 2B for building fabric u value target together with the Non-domestic building services compliance guide for any proposed building services mechanical plants and lighting.

9.4 Sustainable Drainage & Material

In addition, this report also demonstrated that the proposed scheme design shall comply with the Sustainable Drainage System and construction methods in line with sustainable ethos of the Lewisham council. The design team is committed to achieve a water usage target of 110 litres/person/day, sustainable use of materials and to incorporating all suitable energy saving measures into the proposed design to reduce the CO_2 emissions in line with the Building regulations following the structure of the London Plan Energy Hierarchy.

Appendices

Appendix 1: Preliminary Appraisal of Renewable Energy Options

This appendix summarises the preliminary analysis of renewable energy options, and identifies which should be assessed in further detail, and which should be discounted because of clear technical reasons or other obstacles.

LZC Technology	Basic Technical Information	Technical, Environmental & Economic implications / Considerations	Suited Application	Site Specific Comment	Detailed Analysis?
Solar thermal	Solar collectors (flat plate or tube) transfer energy into transfer liquid to a closed loop twin coil hot water cylinder	+ Government grants available (RHIs) +/- Can meet a significant proportion of the DHW demand - Efficiency effected by site factors – shading, orientation and roof/ground space -Requires considerable hot water demand all year round to be finically beneficial	Domestic and commercial applications with high annual hot water load; leisure centres, canteens, washrooms	On this site, all available roof area is intended to be used by PV.	No
Wind turbine	Turbine/generator converts wind energy to electrical power.	+ Government grants available (FITs) + Allows on site generation of renewable electricity - Can create structural, vibrations and noise implications - Not suited for urban environments - Costs can be high in relation to the actual amount of electricity generated - Potential for additional planning issues	Large sized turbines in non-urban or offshore locations will be more effective	The site is located in a dense urban area and further planning approvals would be required.	No
Solar Photo-voltaic	Converts sunlight to DC electrical power which then using an inverter to convert to AC.	+ Government grants available (FITs) + Allows on site generation of renewable electricity + Generally payback between 7-12 years + Low maintenance requirements - Efficiency effected by site factors – shading, orientation and roof/ground space	Wide range of building types particularly buildings with limited solar shading and south facing roof	There is sufficient roof space with minor over shading from surroundings. Furthermore, the proposed roof for the PV array has longer longitudinal surface area facing true South.	**Yes, however not feasible to be implemented**

LZC Technology	Basic Technical Information	Technical, Environmental & Economic implications / Considerations	Suited Application	Site Specific Comment	Detailed Analysis?
Air source heat pump	Air Source Heat Pumps (ASHP) capture heat from the outside air and transfer the heat directly to the air inside the building or transferring the heat to a liquid medium that can be pumped around the building	+Lower installation cost that ground source heat pump + Can provide heating and cooling + Government grants available (RHIs) -COP is not as good during the heating season when the outside air temperature is often less than the ground temperature -Can restrict distribution strategies -Carbon saving are less clear cut -Noise and visual impact	Wide range of building types particularly building designed to have low temperature heat emitters.	Planning and space limitations.	No
Ground Source Heat Pump	Ground Source Heat Pumps (GSHP) capture heat from the ground and transfer the heat to a liquid medium that can be pumped around the building	+ COP is much better than air source heat pumps + Government grants available (RHIs) -Requires area for ground collector or borehole -High initial capital cost - Can restrict distribution strategies -Carbon saving are less clear cut	Suits building designed to have low temperature heat emitters with sufficient space for necessary ground works	Insufficient external ground space to allow for the installation	No
Biomass	Uses biomass as a fuel source for space heating and hot water	+ Government grants available (RHIs) + Renewable source of heating - Requires large fuel storage capacity - Generally a large capital cost	Building/site with sufficient access and storage facilities and a capable maintenance team	There is insufficient storage space and very limited access for regular deliveries to warrant further investigation.	No

Appendix 2: Key Modelling Inputs

New-build Flats

Parameter	Units	Comments
Accredited Construction Details (ACDs)	-	Not used at this stage
Corridor Heated	-	Yes
Water use target (in FSAP)	l/p/day	< 125
Air Permeability	$m^3/hr.m^2$	3
New Wall U-value	W/m^2K	0.12
New Roof U-value	W/m^2K	0.12
New Exposed Floor U-value	W/m^2K	0.13
New Window U-value (including rooflight)	W/m^2K	1.4
New Glazed Door U-value	W/m^2K	1.4
New Solid Door U-value	W/m^2K	2.2
Weight of building	-	Medium
Boiler	-	Typical Combi Boiler
Ventilation	-	MVHR
Seasonal Boiler Efficiency	%	90.0
Design Flow Temperature	-	-
Hot water storage losses	kWh/l/day	-
Percentage low energy light fittings	%	100

Appendix 3: Supporting SAP Document for New-build Flats

Block Compliance WorkSheet: New Flats

User Details

Assessor Name: **Stroma Number:**
Software Name: Stroma FSAP **Software Version:** Version: 1.0.4.18

Calculation Details

Dwelling	DER	TER	DFEE	TFEE	TFA
New Flat 04 (2B)	17.56	18.16	41.7	44.9	60
New Flat 03 (2B)	16.33	17.48	41.8	45.4	69

Calculation Summary

Total Floor Area	129.00
Average TER	17.80
Average DER	16.90
Average DFEE	41.75
Average TFEE	45.17
Compliance	Pass
% Improvement DER|TER	5.06
% Improvement DFEE|TFEE	7.57

For further information, please contact:

Energylab Consulting Ltd
18 Wenlock Road
N1 7TA

info@energy-lab.co.uk

020 3752 9608