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Energy & Sustainability Statement

Emer Ltd.

Inglewood Mansions

Final

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ABOUT HODKINSON CONSULTANCY

Our team of technical specialists offer advanced levels of expertise and experience to our clients. We have a wide experience of the construction and development industry and tailor teams to suit each individual project.

We are able to advise at all stages of projects from planning applications to handover.

Our emphasis is to provide innovative and cost effective solutions that respond to increasing demands for quality and construction efficiency.

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Executive Summary

The purpose of this Energy and Sustainability Statement is to demonstrate that the proposed development at Inglewood Mansions by Emer Ltd in the London Borough of Camden is considered sustainable, as measured against relevant local, regional and national planning policy and guidance.

The proposed development comprises a single storey mansard roof level extension to provide 13 non-self-contained (bedsit) units (Sui Generis), together with associated cycle parking and the installation of roof lights at third floor level. The proposal is an extension of an existing building in residential and bedsit use (C3 and Sui Generis). Through the incorporation of sustainable design and construction methods, energy and water saving measures and waste reduction techniques, a good quality and sustainable development is proposed.

The development consists of 13 bedsits and as they are non-self-contained units, they do not fall under the classification for an energy assessment using the Part L's Standard Assessment Procedure (SAP) for dwellings. As a result, the energy assessment was carried out using Part L's National Calculation Methodology (NCM) tool for assessing compliance for developments other than dwellings.

As a non-domestic extension that is less than 500 m^2, the proposal is considered a minor development and does not have energy or carbon dioxide emission reduction targets. It is proposed that the project aim for 10% of project budget to be spent on energy efficiency measures.

Given the development is a large scale house in multiple occupancy (HMO), we have ensured that the development takes a balanced approach. The work considers both requirements for domestic and non-domestic extensions and attains a 19% reduction in carbon dioxide (CO_2) emissions. This is required of new dwellings. Renewable technologies have also been considered but ruled out on technical and financial basis.

The key sustainability features outlined in this Sustainability Statement are listed below:

- **Energy efficiency:** The development will target a 19% reduction in Regulated CO_2 emissions through energy efficiency measures.
- **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day;
- **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling;
- **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible;
- **Security:** Consultation with a Security Specialist will take place to ensure the development is safe and secure for its residents;

- **Sound insulation:** The bedsits are to target an improvement on Building Regulations Part E through party walls and floors;
- **Inclusive access:** 90% of the new dwellings have been designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3);
- **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 13 cycle storage spaces; and
- **Sustainable construction:** The site will aim to achieve a 'Beyond Best Practice' score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

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1. INTRODUCTION

1.1 This Energy & Sustainability Statement has been prepared by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development, appointed by Emer Ltd.

1.2 This Statement sets out the sustainable design and construction measures included in the planning application for the proposed development at Inglewood Mansions in the London Borough of Camden.

Structure and methodology

1.3 The formulation of the Energy & Sustainability Strategy for the proposed development has considered several important objectives, including:

> To achieve a viable reduction in CO_2 emissions with an affordable, deliverable and technically appropriate strategy;

> To address all national, regional and local planning policies and requirements;

> To provide a high-quality development that is adaptable to future changes in climate;

> To minimise the negative impact of the proposed development on both the local and wider climate and environment;

> To achieve the highest viable levels of sustainable design and construction;

> To minimise emissions of pollutants such as oxides of nitrogen and particulate matter; and

> To create a pleasant, safe and friendly living environment that will be flexible to its occupants' needs.

1.4 This Statement does not duplicate the work of the technical reports prepared in support of the application but presents the findings in the overall context of sustainability.

1.5 **Chapter 2** introduces the site and the proposed development.

1.6 **Chapter 3** sets out the relevant national, regional and local policy documents which have been used to guide and inform the sustainability strategy for the proposed development.

1.7 **Chapters 4 to 12** outline the energy and sustainability strategies of the proposed development in relation to the policy documents listed in Chapter 3.

1.8 **Chapter 13** provides a summary of the key energy and sustainability features associated with the proposed development.

2. DEVELOPMENT OVERVIEW

Site Location

2.1 The proposed development site at 287-289 Inglewood Mansions is located within West Hampstead town centre in the London Borough of Camden. It is located to the west of West End Lane as shown in Figure 1 below, bounded by residential and commercial units to the north and south and approximately 300m to the north of West Hampstead Thameslink.

Figure 1: Site location – Map data © 2018 Google

2.2 The existing Inglewood Mansions building comprises bedsit and residential accommodation from the ground to third floor level and office accommodation at basement level.

Proposed Development

2.3 The proposed development will comprise a single storey mansard roof level extension to provide 13 non self-contained (bedsit) units (Sui Generis), together with associated cycle parking and the installation of roof lights at third floor level.

2.4 Figure 2 illustrates the proposed fourth floor layout.

Figure 2: Proposed fourth floor layout - AS-Studio Ltd. (March 2018)

3. RELEVANT PLANNING POLICY

3.1 The following planning policies and requirements have informed the sustainable design of the proposed development.

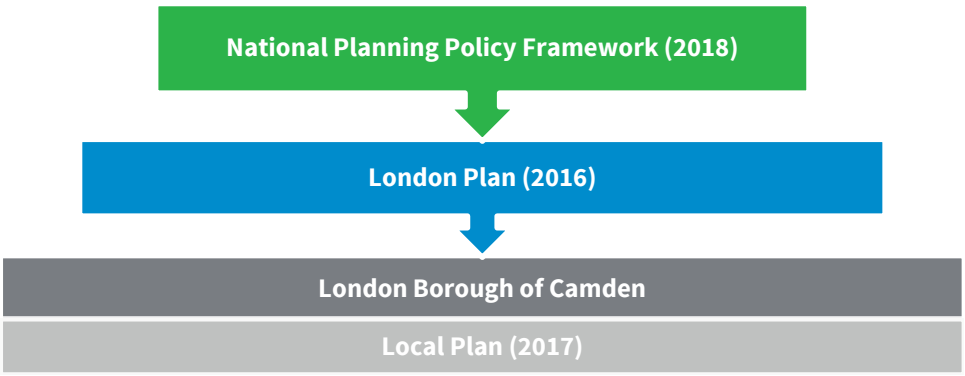


Figure 3: Relevant planning policy documents

National Policy: NPPF

3.2 The revised National Planning Policy Framework (NPPF) was published on the 24th July 2018 and sets out the Government's planning policies for England.

3.3 The NPPF provides a framework for achieving sustainable development, which has been summarised as "*meeting the needs of the present without compromising the ability of future generations to meet their own needs*" (Resolution 42/187 of the United National General Assembly). At the heart of the framework is a **presumption in favour of sustainable development**.

3.4 The document states that the planning system has three overarching objectives which are interdependent and need to be pursued in mutually supportive ways:

a) **An economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

b) **A social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

c) **An environmental objective** – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Regional Policy: The London Plan

3.5 The Draft London Plan was published for consultation on 1st December 2017, and consultation took place on this document up to 2nd March 2018. The Greater London Authority is now reviewing consultation feedback, with a view to formally adopting the document towards the end of 2019.

3.6 While the document is only currently in draft, it remains a material consideration in planning terms although it can currently be afforded only limited weight. Once adopted, it will inform decisions on London's development.

3.7 The existing London Plan sets out an integrated economic, environmental, transport and social framework for the development of London. The following key policies are considered relevant to the proposed development and this Sustainability Statement:

3.8 **Policy 3.2 – Improving Health and Addressing Health Inequalities** encourages new developments to be designed, constructed and managed in ways that improve health and promote healthy lifestyles to help reduce health inequalities.

3.9 **Policy 3.5 – Quality and Design of Housing Developments** requires housing developments to be of the highest quality internally, externally and in relation to their context and to the wider environment, taking account of strategic policies to protect and enhance London's residential environment and attractiveness as a place to live.

3.10 **Policy 5.2 – Minimising Carbon Dioxide Emissions** requires major development proposals to make the fullest contribution to minimising carbon dioxide emissions in accordance with the Energy Hierarchy: *Be Lean, Be Clean and Be Green*. This includes a requirement for residential buildings to achieve *Zero Carbon* status from 2016 and non-domestic buildings to achieve a 35% reduction in carbon dioxide emissions. This is however not relevant for this project as it is considered to be non-domestic and not a major development.

3.11 **Policy 5.3 – Sustainable Design and Construction** states that the highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments. Major development should meet the minimum standards outlined in the London Plan Supplementary Planning Guidance and this should be clearly demonstrated. The standards include sustainable design principles such as minimising CO_2 emissions; avoiding internal overheating; efficient use of natural resources (including water); minimising pollution (including noise, air and urban run-off); minimising the generation of waste and maximising reuse and recycling; avoiding impacts from natural hazards (including flooding); ensuring developments are

comfortable and secure for users; securing sustainable procurement of materials, using local suppliers where feasible; and promoting and protecting biodiversity and green infrastructure.

3.12 **Policy 5.6 – Decentralised Energy** requires that all developments should evaluate the feasibility of Combined Heat and Power (CHP) systems and examine the opportunities to extend the system beyond the site boundary to adjacent sites.

3.13 **Policy 5.7 – Renewable Energy** states that within the framework of the energy hierarchy, major development proposals should provide a reduction in expected carbon dioxide emissions through the use of on-site renewable energy generation, where feasible.

3.14 **Policy 5.8 – Innovative Energy Technologies** encourages the more widespread use of innovative energy technologies to reduce use of fossil fuels and carbon dioxide emissions.

3.15 **Policy 5.9 – Overheating and Cooling** seeks to reduce the impact of the urban heat island effect, reduce potential overheating and reduce reliance on air conditioning systems in line with the cooling hierarchy.

3.16 **Policy 5.12 – Flood Risk Management** states that new development must comply with the flood risk assessment and management requirements and will be required to pass the Exceptions Test addressing flood resilient design and emergency planning.

3.17 **Policy 5.15 – Water Use and Supplies** requires that development should minimise the use of mains water by incorporating water saving measures and equipment and that residential development is designed so that mains water consumption meets a target of 105 litres/person/day or less.

3.18 **Policy 5.17 – Waste Capacity** requires new developments to provide suitable waste and recycling storage facilities.

3.19 **Policy 6.9 – Cycling** expects development proposals to provide secure, integrated and accessible cycle parking facilities in line with minimum standards, as well as on-site changing facilities and showers for cyclists.

3.20 **Policy 7.3 – Designing Out Crime** requires that development should reduce the opportunities for criminal behaviour and contribute to a sense of security without being overbearing or intimidating.

3.21 **Policy 7.13 – Safety, Security and Resilience to Emergency** states that development proposals should contribute to the minimisation of potential physical risks, including those arising as a result of fire, flood and related hazards. Development should also include measures to design out crime.

3.22 **Policy 7.14 – Improving Air Quality** states that development proposals should:

> Minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within Air Quality Management Areas (AQMAs) and where

development is likely to be used by large numbers of those particularly vulnerable to poor air quality;

> Promote sustainable design and construction to reduce emissions from the demolition and construction of buildings following the best practice guidance;

> Be at least 'air quality neutral' and not lead to further deterioration of existing poor quality; and

> Ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site.

3.23 **Policy 7.15 – Reducing Noise and Enhancing Soundscapes** requires development proposals to manage noise by avoiding significant adverse noise impacts on health and quality of life as a result of new development as well as mitigating and minimising the existing and potential adverse impacts of noise.

3.24 **Policy 7.19 – Biodiversity and Access to Nature** states that development proposals should wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity.

London Plan Housing Supplementary Planning Guidance (2016)

3.25 The London Plan Housing SPG was published in March 2016 to replace the 2012 Housing SPG and provide guidance on the implementation of housing policies in the 2015 London Plan and the 2016 MALP. The document includes a chapter on 'housing quality' which updates the London housing standards to reflect the implementation of the Government's new national technical standards through the MALP. Some amendments have also been made to the standards not affected by the new national standards to improve clarity, implementation and alignment with other Mayoral guidance.

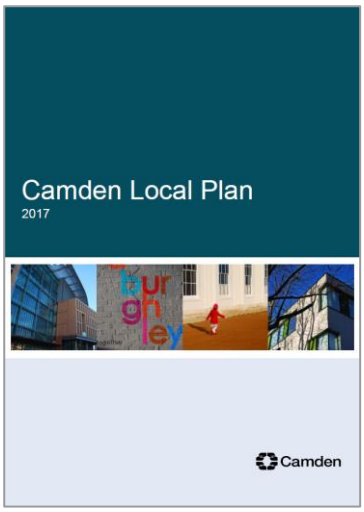
Sustainable Design and Construction Supplementary Planning Guidance (2014)

3.26 The London Plan Sustainable Design and Construction SPG was adopted in April 2014 and provides detail and best practice guidance on how to implement the sustainable design and construction and wider environmental sustainability London Plan policies.

3.27 The SPG provides guidance on topics such as energy efficient design; meeting carbon dioxide reduction targets; decentralised energy; how to off-set carbon dioxide where the targets set out in the London Plan are not met; retro-fitting measures; monitoring energy use during occupation; air quality; resilience to flooding; urban greening; pollution control; basements and local food growing.

Local Policy: London Borough of Camden

3.28 The London Borough of Camden's Local Plan document was adopted in July 2017, to replace The Core Strategy and Development Policies planning documents adopted in 2010. The following policies are considered relevant to this Statement:



3.29 **Policy CC1: Climate Change Mitigation** – The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. The Council will:

> Promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;

> Ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;

> Support and encourage sensitive energy efficiency improvements to existing buildings; and

> Expect all developments to optimise resource efficiency.

> Expects all developments over 500 m^2 or involving five or more dwellings to achieve a CO_2 reduction of 19%. There are no targets prescribed for projects that are not in this category.

> Expects all developments over 500 m^2 or involving five or more dwellings to determine if feasible a CO_2 reduction of 20% with the use of renewables if . There are no targets prescribed for projects that are not in this category.

3.30 **Policy CC2: Adapting to Climate Change –** All development should adopt appropriate climate change adaption measures such as:

> The protection of existing green spaces and promoting new appropriate green infrastructure;

> Not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;

> Incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and

> Measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

The Council will promote and measure sustainable design and construction by:

> Ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;

> Encourage new build residential development to use the Home Quality Mark and Passivhaus design standards; and

> Encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dwellings to achieve 'excellent' in BREEAM domestic refurbishment.

3.31 **Policy CC3: Water and Flooding** – The council will require the development to incorporate water efficiency measures; consider the impact of development in areas at risk of flooding; and utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off where feasible.

3.32 **Policy CC4: Air Quality** – Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

3.33 **Policy CC5: Waste** – Developments should include facilities for the storage and collection of waste and recycling.

3.34 **Policy T1: Prioritising Walking, Cycling and Public Transport** – Developments must provide accessible, secure cycle parking facilities exceeding minimum standards outlined within the London Plan (Table 6.3).

3.35 **Planning Guidance CPG3 : Energy Efficiency** – developments or alternations to existing buildings to include proportionate measures to be taken to improve their environmental sustainability. As a guide at least 10% of the project costs should be spent on improvements.

BREEAM

3.36 Policy CC2 of Camden's Local Plan encourages extensions of more than five dwellings to achieve excellent in BREEAM domestic refurbishment. Whilst the proposed development is for an extension of more than five bedsits, assessment under the BREEAM domestic refurbishment scheme is not applicable in this instance and has been agreed with the Sustainability Officer prior to application.

3.37 The BREEAM domestic refurbishment (2014) technical manual sets out the scope of the assessment and types of buildings that can be assessed. The following definitions are taken directly from version 2.2 of the BREEAM domestic refurbishment (2014) technical manual:

*"**Extensions***

While existing dwellings that are being extended can be assessed under the scheme, as the scheme is a whole house assessment methodology, it would require both the extension and the existing dwelling to be included as part of the assessment. This means that in order to achieve credits under the scheme as well as the minimum standards, improvements will be required to the existing dwelling in order to achieve a rating under the scheme.

Newly constructed dwellings

The scheme cannot be used for newly constructed dwellings."

3.38 The proposals do not include the refurbishment of the existing HMO building and therefore it is not possible to assess the development under the BREEAM domestic refurbishment scheme.

Summary of Policy Targets

3.39 The proposed development will comprise a single storey mansard roof level extension to provide 13 non self-contained (bedsit) units (Sui Generis).

3.40 The development consists of 13 bedsits and as they are non-self-contained units, they do not fall under the classification for an energy assessment using the Part L's Standard Assessment Procedure (SAP) for dwellings. As a result, the energy assessment used the Part L's National Calculation Methodology (NCM) tool for assessing compliance for developments other than dwellings.

3.41 As a non-domestic extension that is less than 500 m^2, the proposal is considered a minor development and does not have energy or carbon dioxide emission reduction targets. . Despite this, it is proposed that the project aim for 10% of project budget to be spent on energy efficiency measures in accordance with Camden's Planning Guidance CPG3.

3.42 To ensure a balance between the target for domestic and non-domestic developments is preserved, the development targets a carbon dioxide emissions reduction of 19%, determining if renewables can be applied and targets to provide energy efficiency improvements that would account for 10% of the project costs.

3.43 BREEAM has been determined as not applicable to this development. This is because the proposals do not include the refurbishment of the existing HMO building. This has been confirmed with the Sustainability Officer at the London Borough of Camden.

4. ENERGY CONSERVATION AND CO_2 REDUCTION

Energy Strategy

4.1 The purpose of this Energy Statement is to demonstrate the commitment, key measures and CO_2 reductions identified at each stage of the energy strategy for the proposed Inglewood Mansions development in the London Borough of Camden.

4.2 The London Borough of Camden's Planning Policy CC1 requires reducing carbon emissions in line with the energy hierarchy. The overall savings represent an improvement over the requirement for an extension as if it were considered as a new build under Part L (2013).

4.3 With regards to Building Regulations Part L (2013), the development is considered to be an extension which means that the development would fall under Approved Document L2B. This development is however assessed in line with the carbon emissions for a new development against Approved Document L2A, as recommended by the Council's sustainability team.

4.4 As described in the Summary of Policy Targets, this energy strategy ensures a balance between the requirements for domestic and non-domestic developments. The development targets a carbon dioxide emissions reduction of 19%, determining if renewables can be applied and provide energy efficiency improvements that would account for 10% of the project costs.

4.5 This energy strategy has been formulated following the London Plan Energy Hierarchy: ***Be Lean***, ***Be Clean*** and ***Be Green***. The objective in the formulation of the strategy is to maximise the reductions in CO_2 emissions through the application of this Hierarchy with a cost-effective approach that is technically appropriate.

4.6 Following an examination of both local and national policy requirements, it has been determined that the proposed development is to show a feasible reduction in CO_2 emissions.

4.7 This statement first establishes a baseline assessment of the energy demands and associated CO_2 emissions for the build types. The report will then follow The London Plan Energy Hierarchy approach of ***Be Lean***, ***Be Clean*** and ***Be Green*** to enable the maximum viable reductions in Regulated and Total CO_2 emissions over the baselines.

4.8 The estimated annual energy demands have been calculated using the Dynamic Simulation Methodology (DSM) from Design Builder. This software is a registered calculation tool to determine regulated energy demands associated with hot water, space heating and fixed electrical items alongside the unregulated energy demands.

4.9 The baseline emissions are based on the target emission rate which are determined by the NCM modelling guide.

4.10 A range of ***Be Lean*** energy efficiency measures are proposed for the development. This is in line with the London Plan Energy Hierarchy. They enable the proposed elements to meet or exceed the baseline cases through fabric efficiency alone. This included ensuring the thermal elements meet the requirements of the Approved Document Part L 2B and surpass where appropriate.

4.11 The following table highlights the requirements of the extension's thermal envelope:

Table 1: Thermal envelope

Thermal element	Proposed U value (W/m^{2}K) at least	ADL2B:2013 U value (W/m^{2}K)
Wall	0.18 (at least 390 mm thick)	0.28
Roof	0.15	0.18
Window	1.60	1.60
Rooflight	1.80	1.80

4.12 The building will be built to a high-quality standard. Given that the development is an extension to an existing building we believe that that an air permeability rate of at least 8 m^3/m^2.hr is achievable.

4.13 The **space heating and hot water** will be provided by highly efficient condensing gas boiler (with a gross efficiency at least 92%) which will provide the heating and hot water to the development. It is presumed that there will not be a requirement for storing hot water given the size of the development.

4.14 The internal task **lighting** is expected to be efficiently designed using LED lighting such that the design will have a lighting power density that is at least 2 W/m^2/100lux. All the spaces are expected to utilise occupancy sensing, with transitionary spaces such as corridors turning lighting on and off automatically and with all other areas manually being turned on but automatically turning off. The lighting controls are to ensure that they turn off after a sensible time period.

4.15 The **ventilation** is presumed to be provided through window openings with local mechanical extract from the bathrooms. The bathroom extract is expected to utilise efficient fan with a specific fan power up to 0.30 W/l/s.

4.16 The spaces are not proposed to have **mechanical cooling**. An overheating assessment was not covered as a part of this work. This report presumes that a natural ventilation strategy can be

applied to this development. It presumes that the local air quality does not preclude the development from a natural ventilation strategy for thermal comfort purposes. It has been confirmed that the external acoustic enables natural ventilation.

4.17 In accordance with the Energy Hierarchy, the feasibility of decentralised energy production as a ***Be Clean*** measure has also been carefully examined. The technical challenge posed as a result of the size and location of the development means that district energy was not considered feasible. As a result, clean technologies do not provide CO_2 emission savings.

4.18 The Be Lean options present a building that would, if new built, provide a 19% carbon saving. As a result of this ***Be Green*** renewable energy generating technologies have been evaluated as not feasible on the following basis:

> PV panels have been disregarded on the basis that the roof is being utilised for providing daylight and the payback would be greater than commercially viable for this scale of project.

> Wind turbine are not recommended in urban areas as such this technology is unviable.

> Heat pumps would lead to greater energy costs, given the development is an HMO, the costs would be expected to be passed onto residents, as such this technology is not proposed.

> Solar thermal has a greater payback than PV and therefore not deemed feasible.

4.19 The development is a small extension and therefore does not have to target a percentage reduction in carbon emissions. Despite this, the proposed energy strategy shown above, the tables below demonstrate a 19% reduction in carbon emissions over Building Regulations Part L (2013). This also represents a project investment greater than 10% on energy efficiency improvements and goes to demonstrate compliance on the basis it is an HMO.

Table 2: Carbon dioxide emissions table

Carbon dioxide emissions (TCO_2.a)		
	Regulated	Unregulated
Baseline	6.7	2.5
After *Be Lean (energy demand reduction)*	5.4	2.5
After *Be Clean (heat network / CHP)*	5.4	2.5
After *Be Green (renewable energy)*	5.4	2.5

Table 3: Regulated carbon dioxide emission savings

Regulated carbon dioxide emissions savings (TCO_2.a)		
	Savings	%
After *Be Lean (energy demand reduction)*	1.3	19
After Be Clean (heat network / CHP)	0.0	0
After Be Green (renewable energy)	0.0	0
Total Cumulative Savings	1.3	19

External Lighting

4.20 All external lighting, and any security lighting, will be energy efficient and adequately controlled using PIR sensors, daylight cut-off sensors or time switches where possible. This will ensure the conservation of energy when the lighting is not in use.

Appliances

4.21 The choice of energy efficient appliances and the effective use of them will significantly reduce unregulated CO_2 emissions.

4.22 Where provided, white goods will aim to be energy efficient as outlined in Table 4.

Table 4: Energy efficient white goods

Appliance	Energy Efficiency Rating
Fridges, freezers and fridge-freezers	A+
Dishwashers	A
Washing machines	A
Washer Dryers	B
Tumble dryers	B

5. WATER REDUCTION

Internal Water Efficiency

5.1 Water conservation is at the core of sustainable development. Every person in the UK uses approximately 150 litres of water per day which has continued to rise by 1% since 1930. Water is a finite resource and during times of drought supplies can run low. Many natural ecosystems in the United Kingdom can suffer as a result of water abstraction.

5.2 Reducing water consumption will not only help to preserve our water sources but will save energy. As much as 25% of a household's energy consumption is used for heating water. As such, internal water consumption will be significantly reduced through the use of practical and hygienic water saving measures in accordance with the London Plan Policy 5.15.

Residential Water Use

The proposed development will target a minimum water efficiency standard of **105 litres/person/day** in accordance with the above planning policy and the optional tighter Building Regulations Approved Document G requirement (110 litres/person/day). An evaluation of the proposed fixtures and fittings will be undertaken during the detailed design however an illustrative strategy to achieve this water target is set out in Table 5 and **Appendix B**.

Table 5: Sanitaryware specification

Installation Type	Water Capacity/Flow Rate
WC	6/4 litres dual flush
Shower	8 litres/minute flow rate
Kitchen tap	5 litres/minute flow rate
Basin tap	4 litres/minute flow rate
Washing machine	8.17 litres/kg
Dishwasher	1.25 litres/place setting

5.3 Water usage will be lower than average because no baths are proposed as part of the new development. As such, the water calculator within **Appendix B** demonstrates that the total internal water consumption is likely to be 88.9 litres/person/day.

Leak Detection and Prevention

5.4 Another method of reducing water consumption is to ensure that water leaks do not go undetected. As such a leak detection system may be installed which will be capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter.

Water Metering

5.5 A water meter with a pulsed output will also be installed on the mains supply. This will allow the water consumption of the development to be monitored and managed and therefore encourage reductions.

6. WASTE MANAGEMENT

6.1 Waste reduction and recycling is another key challenge of sustainable development and something which is strongly encouraged in the London Plan (Policy 5.17). The waste hierarchy, illustrated in Figure 4, prioritises those waste management options which are best for the environment.

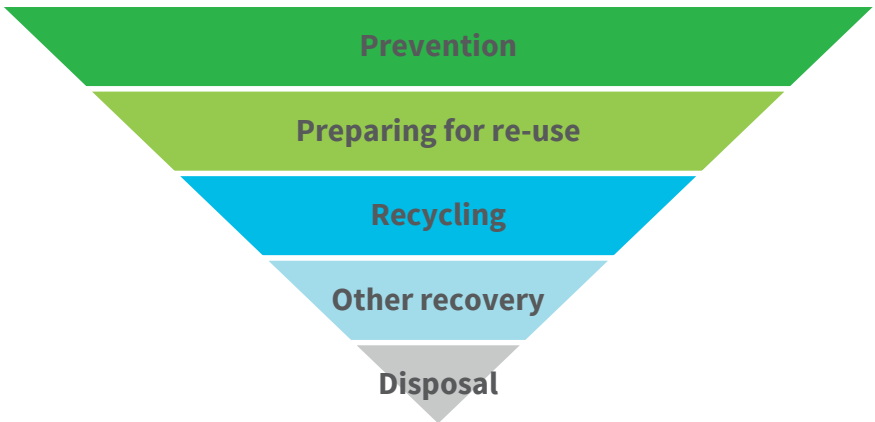


Figure 4: Waste hierarchy

6.2 The waste hierarchy places great importance on the prevention of waste in the first instance through using less materials in the designing and manufacturing processes. Once waste is created, the hierarchy then prioritises the re-use of materials through cleaning, repairing and refurbishing whole

items. It then gives priority to recycling which is the turning of waste into a new product or substance, including composting. 'Other recovery' including incineration with energy recovery and anaerobic digestion and then final disposal (to landfill or incineration without energy recovery) are seen as the least favourable options.

Household Waste

6.3 The Applicant is committed to following the above waste hierarchy and reducing waste sent to landfill. As such, adequate storage is to be provided, where both recyclable and non-recyclable waste can be stored in accordance with the London Borough of Camden's waste collection service.

6.4 In addition, space will be provided for segregated recycling waste bins within the kitchen areas. This will involve the installation of recycling bins, where waste can be segregated into paper, glass, cans, plastic and cardboard, if necessary.

Construction Waste

6.5 The reduction of construction waste not only minimises environmental impacts through ensuring the responsible use of resources and waste disposal but can also significantly reduce construction costs for the developer.

6.6 A Construction Management Plan has been produced for the development by Motion, using Camden's CMP Pro forma. Page 35 of this document outlines the proposed waste management measures.

6.7 Prior to construction, a Site Waste Management Plan will be developed. This will establish ways of minimising waste at source, assess the use, reuse and recycling of materials on and off-site and prevent illegal waste activities. This plan will then be disseminated to all relevant personnel on and off-site.

6.8 The following waste minimisation actions will be considered:

> Opportunities for zero cut and fill to avoid waste from excavation or groundworks;

> Design for standardisation of components and the use of fewer materials;

> Design for off-site or modular build;

> Return packaging for reuse;

> Consider community reuse of surplus materials or offcuts; and

> Engage with supply chains and include waste minimisation initiatives and targets in tenders and contracts.

6.9 As part of their commitment to divert construction waste from landfill, the site's waste reduction performance will be regularly monitored and recorded. This will be compared against a target benchmark where at least 85% (by volume) of non-hazardous waste is to be diverted from landfill.

7. MATERIALS

Environmental Impact

7.1 New building materials will be selected, where possible, to ensure that they minimise environmental impact and have low embodied energy – from manufacture, transportation and operational stages, through to eventual demolition and disposal.

7.2 The BRE Green Guide to specification can be used as a way to evaluate the environmental impact of materials used. Where possible, materials with an A+ to B rating will be specified.

7.3 All insulation materials will have an Ozone Depleting Potential (ODP) of zero and a Global Warming Potential (GWP) of less than 5. In addition, all decorative paints and varnishes will meet the relevant standards in order to reduce the emission levels of volatile organic compounds (VOCs).

Local and Responsible Sourcing

7.4 In accordance with London Plan Policy 5.3, preference will be given to the use of locally sourced materials and local suppliers, where viable. This will benefit the local economy as well as having environmental benefits through reduced transportation.

7.5 The main building materials will be responsibly and legally sourced from manufacturers with environmental management systems and/or responsible sourcing credentials, such as BES 6001.

7.6 Timber used on site, including timber used in the construction phase, such as hoarding, fencing and scaffolding, will be sourced from sustainable forestry sources (e.g. PEFC and FSC) where possible.

Recycled Materials

7.7 Where feasible, reused or recycled materials will be used. The use of recycled materials (e.g. crushed concrete from waste, used for hard-standing) has less embodied energy impact, other than that expended in their processing or transport.

8. POLLUTION

Noise Pollution

8.1 The Applicant is committed to reducing noise disturbance to internal and external areas to improve the health and wellbeing of the occupants and to help protect community cohesion.

Air Quality

8.2 An Air Quality Assessment has been undertaken by Air Quality Consultants in support of the application. The assessment report concludes that air quality impacts are not deemed to be significant and therefore there is no requirement for further mitigation.

8.3 It is expected that nitrogen dioxide concentrations at the development site will reduce in the near future, through the continued infiltration of cleaner vehicles into the London vehicle fleet, as well as through the implementation of measures set out in local, regional and national air quality plans and policies.

8.4 The full Air Quality Assessment report should be referred to for further details.

9. FLOOD RISK

Flood Risk

9.1 Developments in low flood risk areas are promoted to, not only protect homes and local communities and reduce the cost implications if flooding occurs, but to protect the environment from the transfer of pollutants during flooding events.

9.2 According to the Environment Agency's Flood Map shown in Figure 5, the proposed development lies in a low risk flood zone (Flood Zone 1), indicating that the probability of flooding is 0.1% (1 in 1000 years).

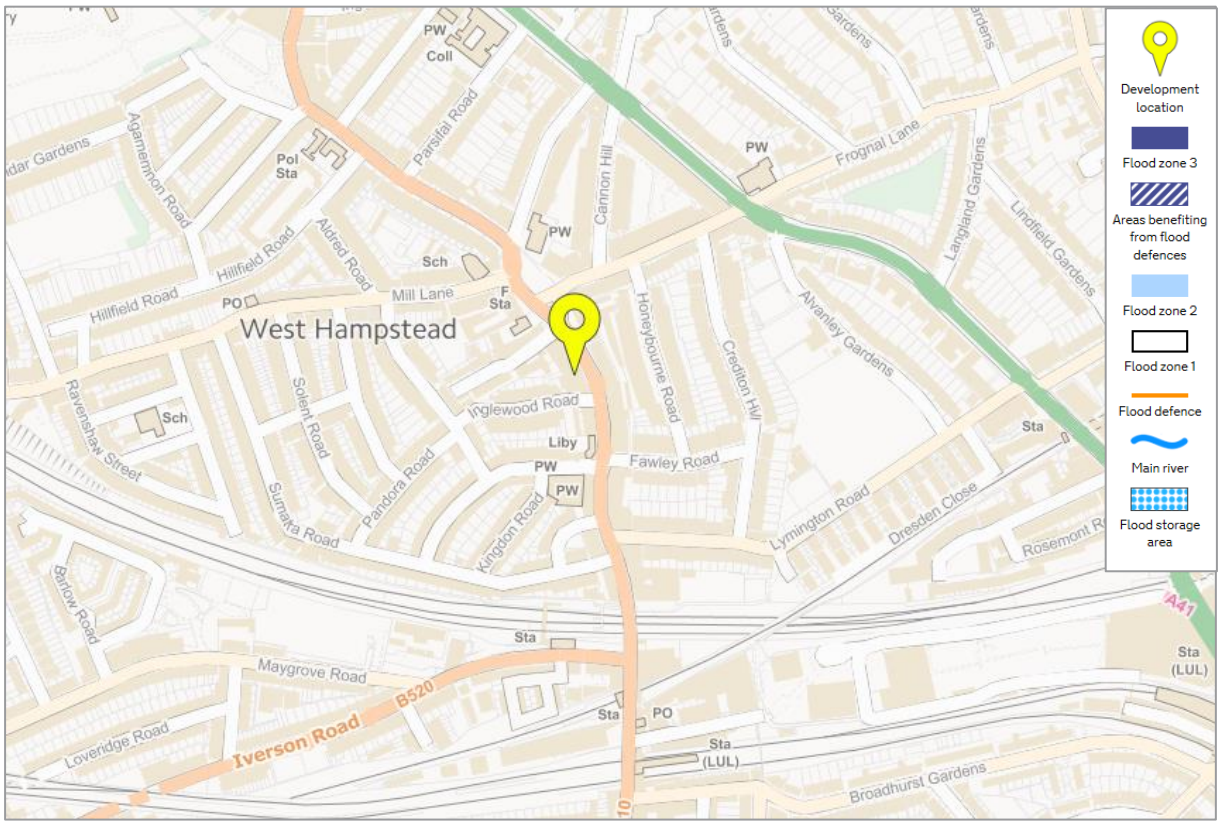


Figure 5: Environment Agency Flood Map – https://flood-map-for-planning.service.gov.uk

10. BUILDING QUALITY

Security

10.1 The proposed development will be safe and secure for the occupants; reduce the risks and costs associated with crime; and improve occupiers' quality of life by reducing the fear of crime.

10.2 The proposed development will aim to incorporate the principles of Secured by Design where appropriate. This may involve consultation with a Security Consultant during the detailed design stage.

Sound Insulation

10.3 In order to reduce the likelihood of noise complaints and to ensure a high-quality development is created, the development will be aiming to achieve airborne sound insulation values that will improve upon the performance standards outlined within the Building Regulations for England and Wales, Approved Document E.

Inclusive Design

10.4 The Applicant's commitment to inclusivity will ensure that the proposed development is scaled appropriately so as to respond to the needs of all its users. The proposals will endeavour to incorporate the requirements of the Equality Act (2010) into the design, making reasonable adjustments to enable disabled access, regularly reviewing whether the buildings are accessible and effective, and providing necessary design adjustments where it is practical to do so.

11. TRANSPORT AND LOCAL AMENITIES

Local Amenities

11.1 Located in West Hampstead town centre, the proposed development has access to the following key amenities in the local area which will help to reduce dependency on private transport:

> Administrative services (e.g. post office, banks and cash points);

> Health services (e.g. GP practices, health centres and pharmacies);

> Small/large scale retail services (e.g. shops and restaurants);

> Recreation and leisure facilities (e.g. sports centres and cinemas); and

> Education and community facilities (e.g. nurseries, schools and community centres).

Public Transport

11.2 The site is well located within close proximity to a number of transport links, such as:

> **West Hampstead Thameslink Station** is a National Rail Station on the Midland Main Line and provides Thameslink trains to Luton, St Albans City, Bedford, Sutton, Sevenoaks and Brighton;

> **West Hampstead Underground Station** is on the Jubilee Line which operates between Stanmore and Stratford;

- **West Hampstead Overground Station** provides Overground trains eastbound to Stratford and westbound to Richmond and Clapham Junction;
- **Hampstead Underground Station** is on the Northern Line and operates between Morden and High Barnet & Edgeware; and
- **Local bus services** within the immediate vicinity of the site, providing frequent trips in all directions.

11.3 The Transport for London Public Transport Accessibility Level (PTAL) map for the site is presented in Figure 6. The site's PTAL rating of 6a represents a very good level of transport accessibility.

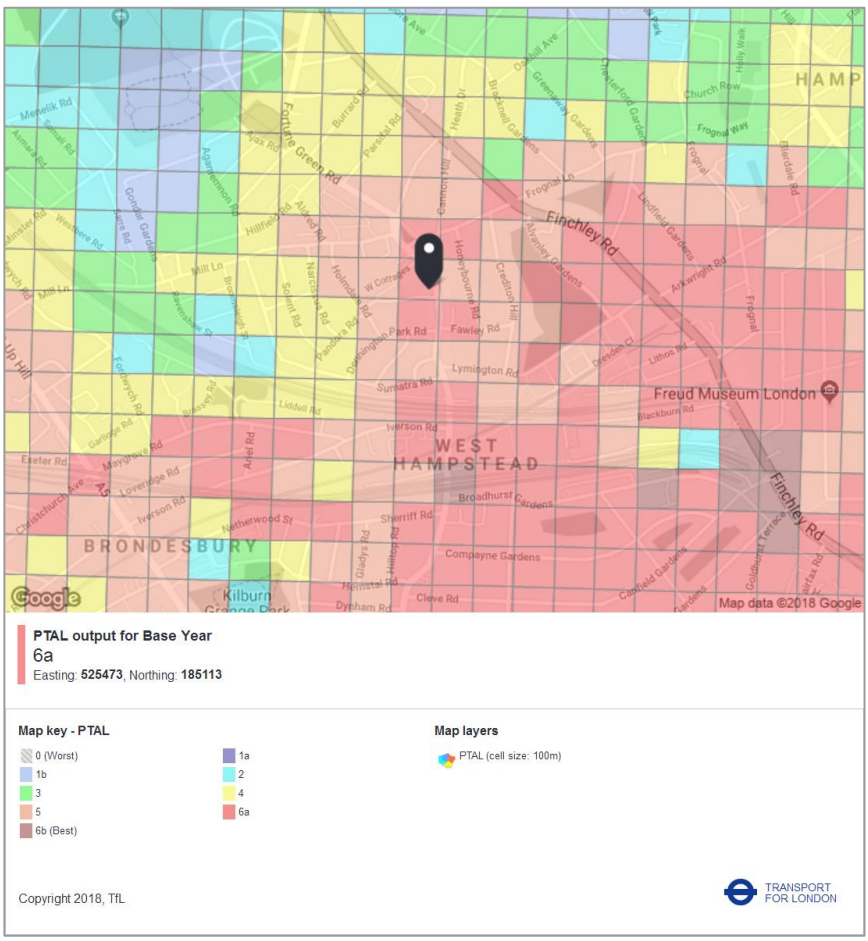


Figure 6: PTAL map – www.tfl.gov.uk

Sustainable Transport

11.4 Sustainable transport links are central to the sustainability debate. They provide a positive contribution to environmental, societal and economic sustainability of the places they serve.

11.5 The provision of alternative sustainable transport options and associated facilities reduces dependency on traditionally fuelled cars and has the following benefits:

> Encourages active travel and helps improve people's health and wellbeing;

> Reduces congestion and encourages clean travel which helps to improve the air quality of the local area; and

> Provides cost savings compared with maintaining and running traditionally fuelled cars.

11.6 A Transport Statement has been produced by Motion in support of the planning application for the proposed development. The report concludes that that the proposals accord with national, regional and local transport related policies and can be accommodated without a detrimental effect on the local highway network.

Cycle Parking

11.7 Encouraging cycling not only makes a positive contribution to health and well-being, but also reduces pressure on existing transport systems in accordance with Policy 6.9 of the London Plan.

11.8 A total of 13 secure cycle spaces will be provided on-site for the additional residential residents. The cycle parking in the form of secure lockers will be located on the external hardstanding to the rear of the property accessed off Inglewood Road.

Car Free Development

11.9 There is currently no on-site car parking associated with the site and no car parking is proposed for the additional residential units. Given the highly accessible location of the site, this is considered appropriate and is in accordance with policy T2 of the LB Camden Local Plan.

11.10 Car Club schemes contribute to the sustainability of the scheme as they reduce the need for car ownership and discourage unnecessary car travel. In addition, car club vehicles are usually energy efficient and cleaner than the average car which helps to further reduce emissions. The nearest car club vehicle to the site is located approximately 200 metres to the north on Fortune Green Road and comprises 1 space operated by ZipCar.

12. SUSTAINABLE CONSTRUCTION

12.1 Sustainable construction is described as involving the prudent use of existing and new resources and the efficient management of the construction process. This includes the following measures:

> Reducing waste during construction and demolition and sorting waste on site where practical;

> Reducing the risk of statutory nuisance to neighbouring properties as much as possible through effective site management;

> Controlling dust and emissions from demolition and construction; and

> Complying with protected species legislation.

12.2 A Construction Management Plan has been produced for the development by Motion, using Camden's CMP Pro forma. Page 35 of this document outlines the proposed sustainable travel measures for during construction.

Considerate Constructors Scheme

12.3 The development site will be registered with the Considerate Constructors Scheme. This is designed to encourage environmentally and socially considerate ways of working, to reduce any adverse impacts arising from the construction process. As commonly known, the Considerate Constructors Scheme aims are as follows:

> Enhancing the appearance;

> Respecting the community;

> Protecting the environment;

> Securing everyone's safety;

> Caring for the workforce.

12.4 The site will target *'Beyond Best Practice'* certification, achieving a score of between 35 out of 50, with all of the five sections scoring at least seven points.

Monitoring Construction Site Impacts

12.5 During the construction processes, control procedures will be put in place to minimise noise and dust pollution and roads will be kept clean. The management systems will generally comprise

procedures and working methods that are approved by the development team together with commercial arrangements to ensure compliance.

12.6 Further to the above, additional measures will be adopted to minimise the impact on the local area during construction. This will include the limiting of air and water pollution in accordance with best practice principles, as well as the recording, monitoring and displaying of energy and water use from site activities during construction.

12.7 In terms of construction traffic, this will be minimised by restricting deliveries and arrival times in order to manage potential impacts on existing and future occupants. Work will be limited to appropriate hours to be agreed with the Council, and suppressors will be used to reduce noise from machinery.

13. CONCLUSION

13.1 The issue of sustainable development has been considered throughout the design of the proposed development at Inglewood Mansions by Emer Ltd in the London Borough of Camden. In particular, the incorporation of sustainable design and construction methods, energy and water saving measures, waste reduction techniques as well as measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.

13.2 The proposed development will comprise a single storey mansard roof level extension to provide 13 non self-contained (bedsit) units (Sui Generis), together with associated cycle parking and the installation of roof lights at third floor level. The proposal is an extension of an existing building in residential and bedsit use (use class C3 and Sui Generis). Through the incorporation of sustainable design and construction methods, energy and water saving measures and waste reduction techniques, a good quality and sustainable development is proposed.

13.3 The development consists of 13 bedsits and as they are non-self-contained (bedsit) units, they do not fall under the classification for an energy assessment using the Part L's Standard Assessment Procedure (SAP) for dwellings. As a result, the energy assessment was carried out using the Part L National Calculation Methodology (NCM) tool for assessing compliance for developments other than dwellings.

13.4 As a non-domestic extension that is less than 500 m^2, the site is considered a minor development and does not have energy or carbon dioxide emission reduction targets. It is recommended that the project should aim for 10% of project budget to be spent on energy efficiency measures.

13.5 Given the development is a large scale house with multiple occupancy (HMO), we have ensured that the development takes a balanced approach. The work considers both requirements for domestic and non-domestic extensions and attains a 19% reduction in carbon dioxide (CO_2) emissions. This is required of new dwellings. Renewable technologies have also been considered but ruled out on technical and financial basis.

13.6 The key sustainability features outlined in this Sustainability Statement are listed below:

> **Energy efficiency:** The development will target a 19% reduction in Regulated CO_2 emissions through energy efficiency measures;

> **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day;

> **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling;

- **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible;
- **Security:** Consultation with a Security Specialist will take place to ensure the development is safe and secure for its residents;
- **Sound insulation:** The dwellings are to target an improvement on Building Regulations Part E through party walls and floors;
- **Inclusive access:** 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3);
- **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 13 cycle storage spaces; and
- **Sustainable construction:** The site will aim to achieve a 'Beyond Best Practice' score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

APPENDICES

Appendix A: Example BRUKL

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Inglewood Mansion As designe

Date: Tue Jul 31 12:15:33 2018

Administrative information

Building Details

Address: Information not provided by the user, London,

Certification tool

Calculation engine: EnergyPlus

Calculation engine version: "v8.6.0.001"

Interface to calculation engine: DesignBuilder DSM

Interface to calculation engine version: v5.4.0

BRUKL compliance check version: v5.4.b.0

Owner Details

Name:

Telephone number:

Address: , ,

Certifier details

Name: Georgios Koronaios

Telephone number:

Address: , ,

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	22.2
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	22.2
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	18
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.18	0.18	L04 1 - Living_Unit12_W_2
Floor	0.25	-	-	"No External Floor in project"
Roof	0.25	0.15	0.15	L04 1 - Bed_Unit11_R_1
Windows***, roof windows, and rooflights	2.2	1.69	1.8	L04 1 - Living_Unit11_G_1_1
Personnel doors	2.2	-	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

* There might be more than one surface where the maximum U-value occurs.
** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.
*** Display windows and similar glazing are excluded from the U-value check.
N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
$m^3/(h.m^2)$ at 50 Pa	10	8

Appendix B: Water Efficiency Calculator

Water Efficiency Calculator
Inglewood Mansions

	Internal Water Consumption			
Installation Type	**Unit of Measure**	**Capacity / Flow Rate**	**Litres/person/day**	**Notes**
WC	Full Flush Volume (Litres)	**6**	8.76	Low flush WCs will be installed to reduce the volume of water consumed during flushing. All WCs will have dual flush cisterns which will provide both part (3L) and full (6L) flushes.
	Part Flush Volume (Litres)	**4**	11.84	
Basin Tap	Flow Rate (Litres/minute)	**4**	7.90	All taps (excluding kitchen taps) will be reduced to 3 litres/minute using flow restrictors. Where multiple taps are to be provided the average flow rate will be used.
Bath	Capacity (Litres to overflow)	**0**	0.00	No baths are proposed
Shower	Flow Rate (Litres/minute)	**8**	34.96	Shower flow rates will be reduced to a maximum of 8 litres/minute using flow restrictors fixed to the shower heads. These contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure.
Kitchen Tap	Flow Rate (Litres/minute)	**5**	12.56	Kitchen taps will be reduced to 5 litres/minute using flow restrictors which will be fitted within the console of the tap or in the pipework.
Washing Machine	Water Consumption (Litres/kg)	**8.17**	17.16	Water efficient washing machines or washer-dryers will be specified. The make and model numbers of the appliances are unknown at this stage therefore a default figure of 8.17 litres/kg has been assumed.
Dishwasher	Water Consumption (Litres/place setting)	**1.25**	4.50	All dishwashers will be water efficient. The make and models numbers are unknown therefore a default figure of 1.25 litres/place setting has been assumed at this stage.
Net Internal Water Consumption (Litres/person/day)			**97.7**	
Normalisation Factor			**0.91**	
Total Internal Water Consumption (Litres/person/day)			**88.9**	The total *internal* water consumption target of ≤105 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement Approved Document G.
Allowance for External Water Consumption (Litres/person/day)			**5**	
Total Water Consumption (Litres/person/day)			**93.9**	The *total* water consumption target of ≤110 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement of Approved Document G.