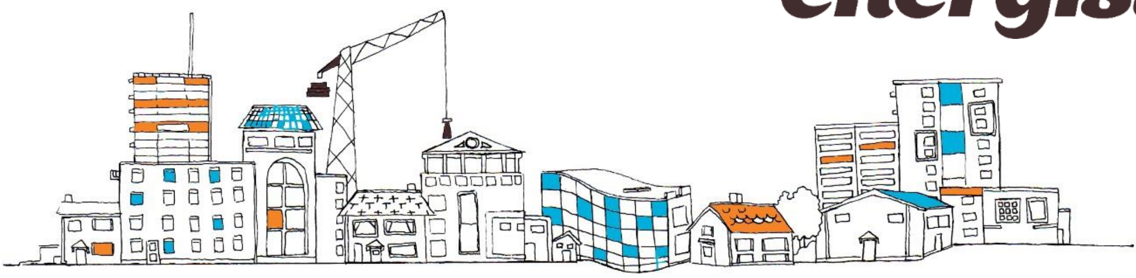
Energy Statement

Camden House, 152 Royal College Street

On behalf of Henning Stummel Architects Ltd

Revision A

Date: 15th August 2017



REVISION HISTORY

Revision	Issue Date	Description	Issued By	Checked By
A	15/08/2017	Original Document	DS	RP

Calculations contained within this report have been produced based on information supplied by the Client and the design team. Any alterations to the technical specification on which this report is based will invalidate its findings.

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CONTENTS

1. EXECUTIVE SUMMARY

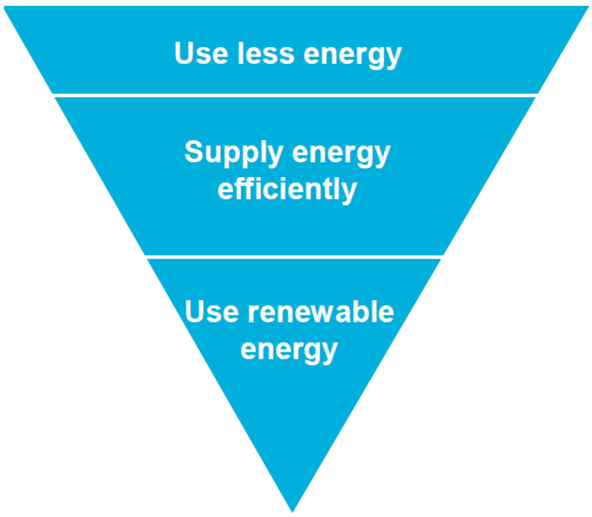
This Energy Statement has been produced by Energist UK on behalf of Henning Stummel Architects Ltd ('the Applicant') and is written in support of the following Full Application (REF:2015/4396/P).

It will set out the measures planned by the Applicant to achieve CO_2 reductions at the proposed development site: Camden House, 152 Royal College Street (the Development') demonstrating compliance with:

i) National Planning Policy Framework.
ii) Approved Document Part L of the Building Regulations 2013.
iii) The local planning policy requirements for Camden Council to meet:

- *Prior to construction the development hereby approved shall submit an energy statement demonstrating how a 19% reduction in carbon dioxide emissions beyond Part L 2013 Building Regulations.*

The Energy Statement sets out how design measures will be incorporated as part of the Development, aligning with the principles of the energy hierarchy.



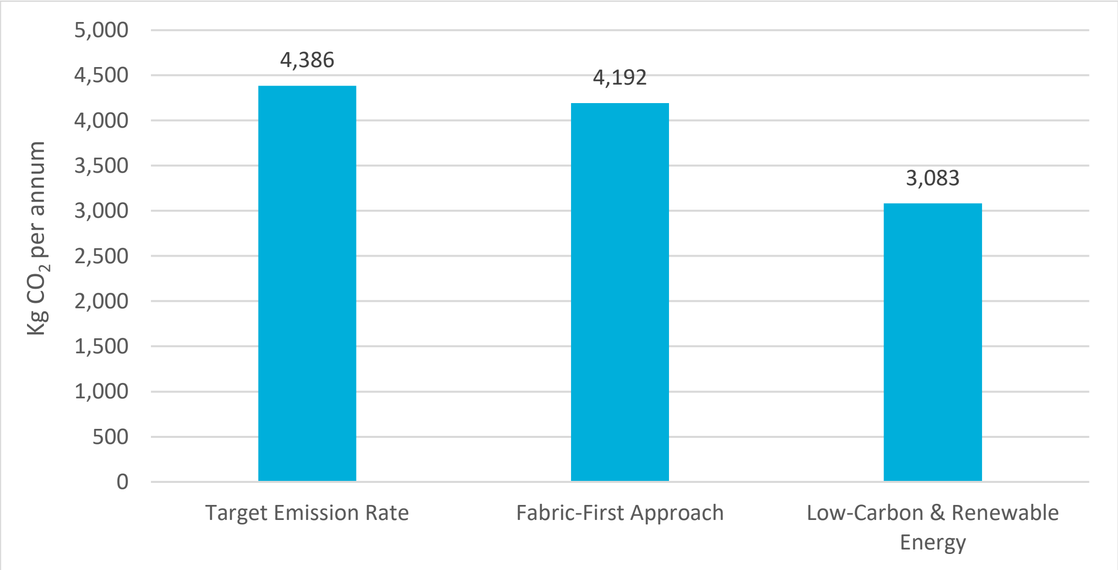
The Energy Statement concludes that the following combination of measures, summarised overleaf in Table 1, will be incorporated into the Development demonstrating how the energy standard will be delivered by the Applicant. This is described in this Statement as an equivalent 19% improvement in CO_2 emissions over the Approved Document Part L (ADL) 2013.

Table 1: Measures incorporated to deliver the energy standard.

Fabric first: Demand-reduction measures	▪ Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs. ▪ High-efficiency double-glazed windows throughout. ▪ Quality of build will be confirmed by achieving good air-tightness results throughout. ▪ Efficient-building services including high-efficiency heating systems. ▪ Low-energy lighting throughout the building.
Renewable and low-carbon energy technologies	▪ A minimum of 2.5 kWp of PV will be installed South facing, on a 45° pitch. Approximately 17.5 m² to 20.0m² of panels. This exceeds the requirements to achieve a 19% reduction, this leads to a predicted A rating for the EPC for the residential property. ▪ Along with an ASHP's, Daikin Altherma to the residential property and an ASHP with COP 3.5, EER 3.5, SEER 5.0 to the Commercial unit.

The impact of these design measures in terms of how the Applicant delivers the energy standard is illustrated in Figure 1.

Figure 1: How the Development meets the energy standard.



The calculated reduction in CO_2 emissions and the percentage reduction in CO_2 over ADL 2013 is demonstrated in Table 2.

Table 2: CO_2 emissions and percentage reduction over ADL 2013.

	CO_2 emissions	
	Kg/CO_2 per annum	% reduction
Target Emission Rate: Compliant with ADL 2013	4,386	-
Fabric first: Demand-reduction measures	4,192	4.42%
Low-carbon and renewable energy	3,083	25.28%
Total savings	**1,303**	**29.70%**

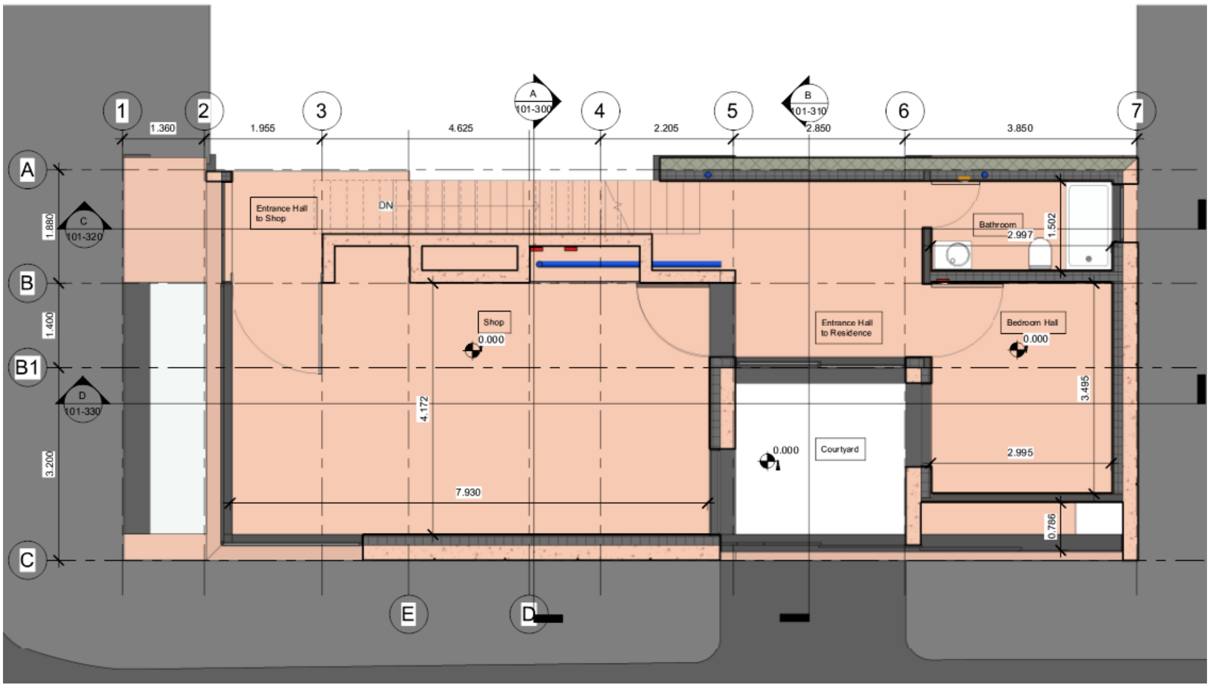
2. INTRODUCTION

2.1 Site Description

This Energy Statement has been prepared for the non-residential & residential development at Camden House, 152 Royal College Street. This falls under the jurisdiction of Camden Council.

The Development consists of one commercial unit and one residential property.

Map 1: Ground floor plan for Camden House, 152 Royal College Street.



Source: Henning Stummel Architects Ltd, June 2017

2.2 Purpose of the Energy Statement

This Statement sets out how the Applicant intends to meet:

i) National Planning Policy Framework.
ii) Approved Document Part L of the Building Regulations 2013.
iii) The local planning policy requirements for Camden Council to meet:

- *Prior to construction the development hereby approved shall submit an energy statement demonstrating how a 19% reduction in carbon dioxide emissions beyond Part L 2013 Building Regulations.*

For a detailed overview of the planning policy requirements specific to this development, refer to Appendix 2.

The way in which the Applicant meets the energy standard at Camden House, 101 Roya College Street will be set out in this Statement as follows:

- **Baseline energy demand**: The Development's Target Emission Rate (TER) will be calculated to establish the minimum on-site standard for compliance with ADL 2013.

- **Fabric first – reduced energy demand:** The Development's Dwelling Emission Rate (DER) & Building Emission Rate (BER) will be calculated to explain how the Applicant's design specification will lead to a reduced energy demand and an improved fabric energy efficiency. The better the design of the building fabric in terms of, for example, insulation, air tightness and orientation to maximise solar gain, the less energy required to heat the dwelling and so the better the fabric energy efficiency.

- **Low-carbon and renewable energy:** Low-carbon and renewable energy technologies will be assessed for their suitability and viability in relation to the Development. Solutions will be put forward for the development and the resulting CO_2 emission savings presented.

2.3 Methods

Energist UK has used SBEM 5.3a methodology to calculate the energy demand for the commercial elements of the Development. In addition, Energist UK has used SAP 2012 methodology to calculate energy demand for single property within the development.

3. BASELINE ENERGY DEMAND

3.1 Introduction

In order to measure the effectiveness of demand-reduction measures, it is first necessary to calculate the baseline energy demand and this has been done using SAP 2012 & SBEM 5.3a methodology. This can also be referred to as the Target Emission Rate (TER.)

The resulting ADL 2013 TER for Camden House, 152 Royal College Street has been calculated using Part L model designs which have been applied to the Applicant's Development details. The TER, or baseline energy demand, represents the maximum CO_2 emissions that are permitted for the building in order to comply with ADL 2013.

3.2 The Development Baseline

The resulting TER, representing the total maximum CO_2 emissions permitted for the Development, has been calculated as 4,386 kg/CO_2 per annum. To ensure compliance with ADL 2013, CO_2 emissions should not exceed this figure.

Table 3. Baseline design specification.

Element	Baseline Design Specification
Ground Floor U-Value (W/m^2.K)	0.13
External Wall U-Value (W/m^2.K)	0.18
Party Wall U-Value (W/m^2.K)	0 (fully filled and sealed)
Roof – insulated at ceiling U-Value (W/m^2.K)	0.13
Roof – insulated at slope U-Value (W/m^2.K)	0.13
Roof – flat, U-Value (W/m^2.K)	0.13
Glazing U-Value, including frame (W/m^2.K)	1.4
Door U-Value (W/m^2.K)	1.2
Design Air Permeability	5
Space Heating	Mains Gas
Heating Controls	Heating System Controls
Domestic Hot Water	Mains Gas
Ventilation	Natural ventilation with intermittent extract fans
Low Energy Lighting	100%
Thermal Bridging	Appendix R values

4. FABRIC-FIRST APPROACH - REDUCED ENERGY DEMAND

4.1 Introduction

Many Local Planning Authorities are now recognising the benefits of a fabric-first approach, where the lifetime energy consumption of a building takes precedence over the use of bolt-on renewable energy technologies.

It is clear that the fabric-first approach can create buildings with a very comfortable living and working environment. The internal temperature is consistent and fuel bills are kept to a minimum. One key advantage of a fabric-first approach is that it does not require changes to the behavioural patterns of the occupants and, as such, a building designed using a fabric-first approach will often perform more effectively once completed than a building that incorporates a low-carbon or renewable-energy technology that requires behavioural change (e.g. solar thermal). This becomes an increasingly important consideration as energy costs rise and the issue of fuel poverty becomes commonplace.

Energist UK has considered a fabric-first approach as the priority solution for this Development.

4.2 The Development - Reduced Energy Demand

The Applicant will integrate the following design measures to reduce energy demand:

- Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs.
- High-efficiency double-glazed windows throughout.
- Quality of build will be confirmed by achieving good air-tightness results throughout.
- Efficient-building services including high-efficiency heating systems.
- Low-energy lighting throughout the building.

The Applicant's design specification and intended demand-reduction measures for the Development have been modelled using the same SAP 2012 & SBEM 5.3a methodology as before. This allows us to assess the effectiveness of demand-reduction measures as a percentage reduction in CO_2 emissions over the Baseline.

The total calculated CO_2 emissions for Camden House, 152 Royal College Street is 4,192 Kg/CO_2 per annum, which is a reduction of 4.92 % or 194 Kg/CO_2 per annum over the Baseline. Refer to Appendix 3 for SAP & SBEM Results and Table 4 for the fabric-first design specification.

Table 4. The fabric-first design specification at Camden House, 152 Royal College Street

Element	Fabric-First Design Specification
Ground Floor U-Value ($W/m^2.K$)	0.14
External Wall U-Value ($W/m^2.K$)	0.18
Party Wall U-Value ($W/m^2.K$)	0 (fully filled and sealed)
Roof – insulated at ceiling U-Value ($W/m^2.K$)	0.11
Roof – insulated at slope U-Value ($W/m^2.K$)	0.15
Roof – Flat U-Value ($W/m^2.K$)	0.11
Glazing U-Value – including Frame ($W/m^2.K$)	1.5 (1.4 Roof Lights)
Commercial Glazing U-Value – including Frame ($W/m^2.K$)	1.5 (G value 0.4)
Door U-Value ($W/m^2.K$)	1.5
Commercial Design Air Permeability	5.0
Design Air Permeability	4.0
Space Heating	Mains Gas
Heating Controls	Zone Controls
Domestic Hot Water	From Mains Gas Boiler
Ventilation	MVHR
Commercial Ventilation	MVHR – SFP 1.5W/l/s, HR efficiency 80%
Low Energy Lighting	100%

Commercial Low Energy Lighting	LED fittings with power density of 5W/m2; Occupancy sensing throughout with daylight sensing on GF
Thermal Bridging	Accredited Construction details

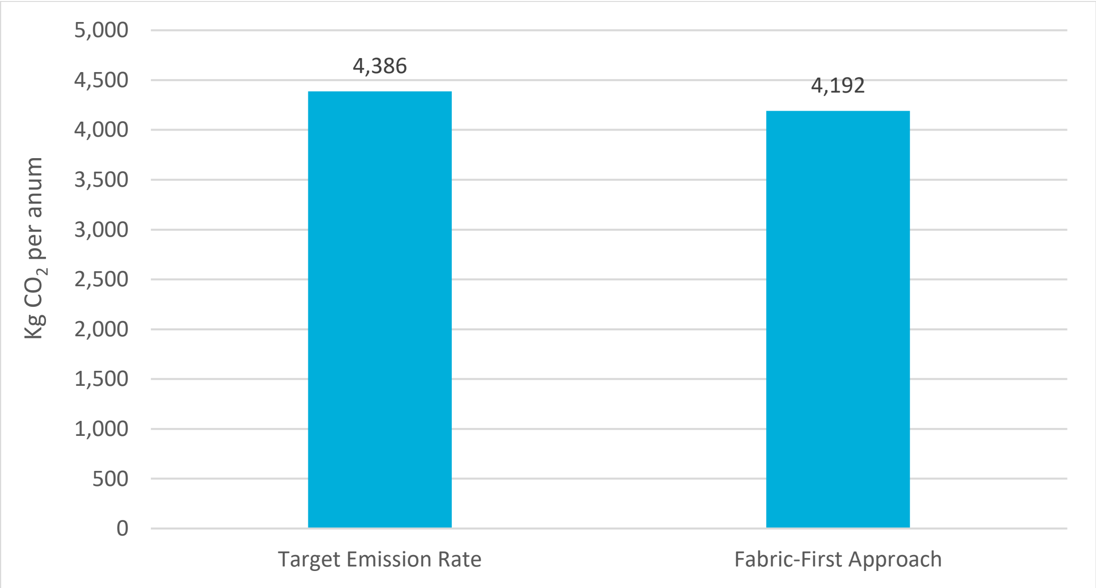
4.3 Conclusion

By incorporating sustainable design and energy-reduction design measures at Camden House, 152 Royal College Street, the Applicant will reduce CO_2 emissions by 4.42% over the Baseline for ADL 2013. This is illustrated in Table 5 and in Figure 2 below.

Table 5: The CO_2-emissions baseline and fabric-first, demand-reduction measures.

	CO_2 emissions	
	Kg/CO_2 per annum	% reduction
Target Emission Rate: Compliant with ADL 2013	4,386	-
Fabric first: Demand-reduction measures	4,192	4.42%

Figure 2: Baseline and fabric-first CO_2-emissions summary.



5. LOW-CARBON AND RENEWABLE ENERGY

5.1 Introduction

The Applicant adopts a fabric-first approach as the priority solution for this Development and steps have been taken to reduce energy demand through high-quality sustainable design. The planned integration of efficient building fabric and building services has been modelled and is predicted to lead to an enhancement over Part L of the Building Regulations 2013.

The low-carbon and renewable energy solutions applicable to this development scheme are assessed and potentially-viable solutions recorded.

Viability of the following low-carbon and renewable energy technologies have been considered:

- Wind
- Solar
- Aerothermal
- Geothermal
- Biomass

5.2 Wind	*The ability to generate electricity via a turbine or similar device which harnesses natural wind energy. This could be considered as an onsite solution to reducing carbon emissions (turbines included within the development), or offsite (investing financially into a nearby wind farm).*
Installation considerations	▪ Wind turbines come in a variety of sizes and shapes. Turbines of 1 Kw can be installed to single house and large-scale turbines of 1-2 MW can be installed on a development to generate electricity to multiple dwellings and other buildings. In both instances the electricity generated can be used on site or exported to the grid. Vertical- or horizontal-axis turbines are available. ▪ A roof-mounted 1 kW micro wind system costs up to £3,000. A 2.5 kW pole-mounted system costs between £9,900 and £19,000. A 6 kW pole-mounted system costs between £21,000 and £30,000 (taken from the Energy Saving Trust, TBC by supplier) ▪ Local average wind speed is a determining factor. A minimum average wind speed of 6 m/s is required. ▪ Noise considerations can be an issue dependent on density and build-up of the surrounding area. ▪ Buildings in the immediate area can disrupt wind speed and reduce performance of the system. ▪ Planning permission will be required along with suitable space to site the turbine, whether ground installed or roof mounted.
Advantages	▪ Generation of clean electricity which can be exported to the grid or used onsite. ▪ Can benefit from the Feed in Tariff, reducing payback costs.
Disadvantages	▪ Planning restrictions and local climate often limit installation opportunities. ▪ Annual maintenance required. ▪ High initial capital cost. It is usual for an investor to consider a series of turbines to make the investment financially sound.
Development feasibility	▪ Installing a large turbine in an area such as this is not considered to be appropriate due to its appearance and physical impact on the built-up environment. Residents' and neighbours' concerns may include the look of the turbine, the

hum of the generator and the possibility of stroboscopic shadowing from the blades on homes.

- Wind speed has been checked for the development scheme using the NOABL wind map: http://www.rensmart.com/Weather/BERR. The wind speed at ten metres for the development scheme is 4.8 metres per second (m/s) which is below the minimum of 5 m/s and threshold for technical viability.

- Typical payback times for a single turbine are expected to be greater than 15 years which means that the cost of installing and maintaining a single wind turbine is not considered a commercially-viable option.

5.3 Solar PV and Solar Thermal

The ability to generate energy (either electricity, hot water or a combination of the two) through harnessing natural solar energy. This could include the use of solar thermal panels, photovoltaic (PV) panels, or a combined solution. PV panels, similarly to turbines, can be considered both on and offsite.

Solar Photovoltaics convert solar radiation into electricity which can be used on site or exported to the national grid.

Solar Thermal generates domestic hot water from the sun's radiation. Glycol circulates within either flat plate or evacuated tube panels, absorbing heat from the sun, and transferring this energy to a water cylinder. A well designed solar thermal system will account for 50-60% of a dwelling's annual hot water demand. Sizing the system to meet a higher demand will lead to excess heat generation in the summer months, and overheating of the system.

Installation considerations

- Operate most efficiently on a south-facing sloping roof (between 30 and 45-degree pitch.)
- Shading must be minimal (one shaded panel can impact the output of the rest of the array.)
- Panels must not be laid horizontally on a flat roof as they will not self-clean. Panels will therefore need to be installed at an angle and with appropriate space between them, to avoid over-shading.
- Large arrays may require upgrades to substations if exporting electricity to the grid.

	▪ Local planning requirements may restrict installation of panels on certain elevations. ▪ Installation must take into account pitch and fall of the roof, along with any additional plant on the roof to ensure there is sufficient room. ▪ The average domestic solar PV system is 4kWp and costs £5,000 - £8,000 (including VAT at 5 per cent) - (taken from the Energy Saving Trust, TBC by supplier.)
Advantages	▪ Relatively straightforward installation, connection to landlord's supply and metering. ▪ Linear improvement in performance as more panels are installed. ▪ Maintenance free. ▪ Installation costs are continually reducing. ▪ Can benefit from the Feed in Tariff to improve financial payback.
Disadvantages	▪ Not appropriate for high-rise developments, due to lack of roof space in relation to total floor area. ▪ With Solar Thermal, performance is limited by the hot water demand of the building – system oversizing will lead to overheating.
Development feasibility ✓	▪ The suitability of Solar panels has been considered for this Development and are concluded as a technically-viable option. ▪ There are potential areas of roof space suitable for the positioning of unshaded Solar PV arrays. ▪ The Development is not on land which is protected or listed, so it is considered that Solar panels would not have a negative impact on the local historical environment or the aesthetics of the area. ▪ The occupants may be entitled to claim the Feed-In-Tariff for any energy which is generated. If solar thermal panels were to be used, the occupants would see a reduction in hot water bills.

5.4 Aerothermal	*The transfer of latent heat in the atmosphere to a compressed refrigerant gas to warm the water in a heating system. This includes air to water heat pumps and air conditioning systems.* Air Source Heat Pumps (ASHPs) extract heat from the external air and condense this energy to heat a smaller space within a dwelling or non-domestic building. A pump circulates a refrigerant through a coil to absorb energy from the air. This refrigerant is then compressed to raise its temperature which can then be used for space heating and domestic hot water. They can feed either low-temperature radiators or underfloor heating and often have electric immersion heater back-up for the winter months.
Installation Considerations	▪ ASHPs operate effectively in buildings with a low energy demand, as they emit low levels of energy suitable for maintaining rather than dramatically increasing internal temperatures. It is therefore vital that the dwelling has a low heating demand to ensure the system can provide appropriate space-heating capability. ▪ Underfloor heating will give the best performance but oversized radiators can also be used. ▪ Immersion heater back-up required to ensure appropriate Domestic Hot Water (DHW) temperature in winter months. ▪ Noise from the external unit can limit areas for installation. ▪ £7,000-£11,000 per dwelling (taken from the Energy Saving Trust, TBC by supplier.)
Advantages	▪ Air source systems are a good alternative solution to providing heating and hot water to well-insulated, low heat loss dwellings. ▪ They require additional space when compared to a gas boiler. Space for an external unit is needed, as is space for the hot water cylinder and internal pump. ▪ Heat pumps are generally quiet to run, however if a collection of pumps were used, this could generate a noticeable hum while in operation. ▪ Running costs between heat pumps and modern gas boilers are comparable.
	▪ Residents need to be made aware of the most efficient way of using a heat pump; as the low flow rates used by such a system

Disadvantages	means that room temperature cannot be changed as reactively as a conventional gas or oil boiler system. ▪ Will not perform well in homes that are left unoccupied and unheated for a long period of time. ▪ Back-up immersion heating can drastically increase running costs. ▪ Noise and aesthetic considerations limit installation opportunities.
Development feasibility ✓	▪ ASHPs are considered a technically-viable option for this development scheme.

5.5 Geothermal	*The transfer of latent heat from the ground to a compressed refrigerant gas to warm the water in a heating system. This includes ground source heat pumps. Heat can be collected through the use of either horizontally laid or vertically installed coils.* Ground Source Heat Pumps (GSHPs) operate on the same principle as an Air Source Heat Pump (ASHP) in that they extract heat from a source (in this instance the ground) and compress this energy to increase temperature for space heating and hot water. Pipework is installed into the ground, either through coils or in bore holes and piles, circulating a mix of water and antifreeze to extract energy from the ground, where the year-round temperature is relatively consistent (approx. 10℃ at 4 metres depth). This leads to a reliable source of heat for the building. Again, an electrically powered pump circulates the liquid and powers the compressor, however annual efficiencies for GSHPs tend to be higher than those of ASHPs.
Installation considerations	▪ Require appropriate ground conditions to sink piles/bore holes or excavate for coils (which also require a large area of land.) ▪ Decision between coils or piles can lead to significant extra cost.

	▪ Need to consider whether low temperature output is fed through underfloor heating (most efficient) or oversized radiators. ▪ Similar to ASHPs, perform best in well-insulated buildings with a low heating demand. ▪ Electric immersion heater required for winter use. ▪ £11,000-£15,000 per dwelling dependent on the size of the system (taken from the Energy Saving Trust, TBC by supplier.)
Advantages	▪ Perform well in well-insulated buildings, with limited heating demand. ▪ More efficient than ASHPs.
Disadvantages	▪ The coils can be damaged by natural earthworks and by intensive gardening practices – occupants would need to be aware of the location of the coils for this system, and how to operate the system efficiently. Coils may also be damaged within the dwelling where the circuit is connected to the internal unit. ▪ Will not perform well in buildings that are left unoccupied and unheated for a long period of time. ▪ Back up immersion heating can drastically increase running costs. ▪ Large area of ground needed for coil installation.
Development feasibility ✘	▪ GSHPs are considered a technically-viable option for this development scheme as there are no physical constraints in terms of ground conditions and area available for installation. ▪ The capital installation cost would, however, be high which leads us to the conclusion that GSHPs would not be a commercially-viable option for this development scheme.

5.6 Biomass

Providing a heating system fuelled by plant based materials such as wood, crops or food waste.

Biomass boilers generate heat for space heating and domestic hot water through the combustion of biofuels, such as woodchip, wood pellets or potentially biofuel or bio diesel. Biomass is considered to

	be virtually zero carbon. They can be used on an individual scale or for multiple dwellings as part of a district-heating network. A back-up heat source should be provided as consistent delivery of fuel is necessary for continued operation.
Installation considerations	▪ Biomass boilers are larger than conventional gas-fired boilers and also require what can be significant storage space for the fuel source. This needs to be considered at planning stage to ensure an appropriate plant room can be provided. ▪ Flue required to expel exhaust gases – design needs to be in line with the requirements of the Building Regulations. ▪ Need to consider whether fuel deliveries will be reliable and consistent to the location of the site (especially relevant in rural areas) and whether the plant room can be easily accessed by the delivery vehicle. ▪ £9,000-£21,000 per dwelling dependent on size (taken from Energy Saving Trust, TBC by Supplier).
Advantages	▪ Considerable reduction in CO_2 emissions.
Disadvantages	▪ Limited reduction in running costs compared to A-rated gas boilers, but at a substantially higher up-front cost. ▪ Plant room space required for boiler and storage. ▪ Dependent on consistent delivery of fuel. ▪ Ongoing maintenance costs (need to be cleaned regularly to remove ash.)
Development Feasibility ✘	▪ Biomass is considered a technically-viable option for this development scheme as there are no apparent physical constraints on site in terms of installing biomass boilers or storing a sufficient supply. ▪ There are, however, concerns regarding a sustainable supply of biomass to the site. ▪ The capital installation cost would, however, be high which leads us to the conclusion that biomass would not be a commercially-viable option for this development scheme.

5.7 Conclusion

The following low-carbon and renewable energy technologies, summarised here in Table 6, are considered potentially-viable options for the mixed-use development scheme at Camden House, 152 Royal College Street.

Table 6: Summary of Feasibility for Camden House, 152 Royal College Street.

✓	▪ Solar ▪ Solar PV ▪ Aerothermal
✗	▪ Wind ▪ Geothermal ▪ Biomass

The Applicant proposes to install a minimum of 2.5 kWp of PV will be installed South facing, on a 45° pitch. Approximately 17.5 m² to 20.0m² of panels. With little or no over shading. Along with an ASHP's, Daikin Altherma to the residential property and an ASHP with COP 3.5, EER 3.5, SEER 5.0 to the Commercial unit.

6. CONCLUSIONS

The Applicant demonstrates commitment to delivering the energy standard at Camden House, 152 Royal College Street as follows:

- The Development has been designed to generate a total reduction in CO_2 emissions of 29.07% over the TER ADL 2013.
- This energy standard is delivered through a fabric-first approach to design and low-carbon and renewable energy.
- A standard that is equivalent to Level 4 Code for Sustainable Homes will be achieved by the Applicant. This is demonstrated through exceeding the 19% reduction in CO_2 emissions over the ADL 2013.
- The residential property is designed to achieve a predicted A rated EPC.

A combination of demand-reduction measures, energy-efficiency measures and low-carbon and renewable energy will deliver the Applicant's target for on-site reduction in CO_2 emissions.

The following measures, summarised here in Table 7, are incorporated in the development proposals.

Table 7. Measures incorporated to deliver the energy standard.

Fabric first: Demand-reduction measures	▪ Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs. ▪ High-efficiency double-glazed windows throughout. ▪ Quality of build will be confirmed by achieving good air-tightness results throughout. ▪ Efficient-building services including high-efficiency heating systems. ▪ Low-energy lighting throughout the building.
Renewable and low-carbon energy technologies	▪ A minimum of 2.5 kWp of PV will be installed South facing, on a 45° pitch. Approximately 17.5 m^2 to 20.0m^2 of panels. This exceeds the requirements to achieve a 19% reduction, this leads to a predicted A rating for the EPC for the residential property. ▪ Along with an ASHP's, Daikin Altherma to the residential property and an ASHP with COP 3.5, EER 3.5, SEER 5.0 to the Commercial unit.

The way in which these design measures deliver the Applicant's commitment to the energy standard is illustrated in Figure 3 and Table 8 overleaf.

Figure 3: How the Development delivers the energy standard.

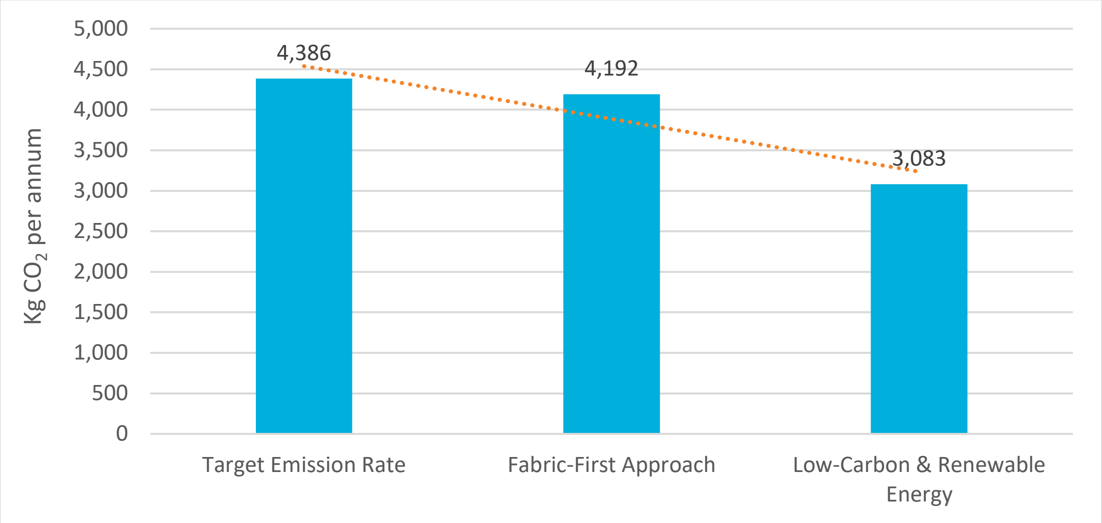


Table 8: How the Development reduces CO_2 emissions.

	CO_2 emissions	
	Kg/CO_2 per annum	% reduction
Target Emission Rate: Compliant with ADL 2013	4,386	-
Fabric first: Demand-reduction measures	4,192	4.42%
Low-carbon and renewable energy	3,083	25.28%
Total savings	**1,303**	**29.70%**

7. APPENDICES

APPENDIX 1: LIST OF ABBREVIATIONS

ADL 2013	Approved Document Part L of Buildings Regulations 2013
ASHP	Air Source Heat Pump
BER	Building Emission Rate
CHP	Combined Heat & Power
DER	Dwelling Emission Rate
DHN	District Heat Network
DHW	Domestic Hot Water
ESCO	Energy Services Company
GSHP	Ground Source Heat Pump
LPA	Local Planning Authority
PV	Photovoltaics
SAP	Standard Assessment Procedure
SBEM	Simplified Building Energy Model
TER	Target Emission Rate

APPENDIX 2: PLANNING POLICY AND DESIGN GUIDANCE

The Climate Change Act (2008)

Passed in November 2008, the Climate Change Act mandated that the UK would reduce emissions of six key greenhouse gases, including Carbon Dioxide, by 80% by 2050.

As a consequence, the reduction of carbon dioxide emissions is at the forefront of National, Regional and Local Planning Policy, along with continuing step changes in performance introduced by the Building Regulations Approved Document L (2013).

Approved Document L (2013)

This development is subject to the requirements of Approved Document L (2013). ADL 2013 represented an approximate reduction of 6% in the Target Emission Rate (Kg/CO_2/sqm per annum) over the requirements of Approved Document L (2010) for residential development and an aggregate 9% reduction for non-residential development. ADL (2013) also sees the introduction of a Fabric Energy Efficiency Target, a measure of heating demand (kW hrs/sqm per annum) to ensure new-build dwellings with low-carbon heating systems still meet satisfactory energy-efficiency standards.

National Policy

The National Planning Policy Framework encourages Local Planning Authorities to "Have a positive strategy to promote energy from renewable and low-carbon sources" (NPPF paragraph 97), whilst "Ensuring that the adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts". This suggests that although LPAs should encourage renewable technology, the merits of such should be assessed on a site-by-site basis.

The NPPF also requires that policy-making and planning obligations do not threaten the viability of a development, by maintaining competitive returns for developers and landowners alike. In this respect flexibility is encouraged by LPAs to ensure sustainability standards can be met without incurring unreasonable development costs.

Camden Local Development Framework (Adopted 2010)

Policy CS13. Tackling climate change through promoting higher environmental standards

Reducing the effects of and adapting to climate change The Council will require all development to take measures to minimise the effects of, and adapt to, climate change and encourage all development to meet the highest feasible environmental standards that are financially viable during construction and occupation by:
a) ensuring patterns of land use that minimise the need to travel by car and help support local energy networks;
b) promoting the efficient use of land and buildings;
c) minimising carbon emissions from the redevelopment, construction and occupation of buildings by implementing, in order, all of the elements of the following energy hierarchy: - ensuring developments use less energy, - making use of energy from efficient sources, such as the King's Cross, Gower Street, Bloomsbury and proposed Euston Road decentralised energy networks; - generating renewable energy on-site; and
d) ensuring buildings and spaces are designed to cope with, and minimise the effects of, climate change. The Council will have regard to the cost of installing measures to tackle climate change as well as the cumulative future costs of delaying reductions in carbon dioxide emissions

The Housing Standards Review and implications on Local Planning Policy

On March 25th 2015 the Government confirmed its policy to limit energy-efficiency targets that can be imposed on a development as a result of the Housing Standards Review. New developments should not be conditioned to achieve a reduction in Carbon Emissions exceeding a 19% improvement over the requirements of Approved Document L (2013) – the equivalent energy performance of a Code for Sustainable Homes Level 4 dwelling.

In addition the Government confirmed that the Code for Sustainable Homes is no longer an applicable standard for planning permissions granted on or after March 26th 2015. If a Local Planning Authority has an existing policy requirement for the CSH it may still condition the Ene 1 and Wat 1 requirements for CSH Level 4, but cannot require assessment against the remaining categories and full CSH Certification.

Sites with planning permission granted prior to March 25th 2015 can still be assessed and certified against the Code for Sustainable Homes, where there is a requirement to do so (known as legacy sites).

A CSH requirement can also apply where a previously approved Outline Planning Permission has been granted prior to March 25th 2015.

APPENDIX 3: SAP & SBEM RESULTS.

Dwelling Type	Total Target Emissions	Fabric-First	Low-Carbon & Renewable
SBEM - Office	1,638	1,712	1,712
SAP	2,748	2,480	1,371
Total Emissions	**4,386**	**4,192**	**3,083**

APPENDIX 4: RESIDENTIAL PREDICTED EPC .

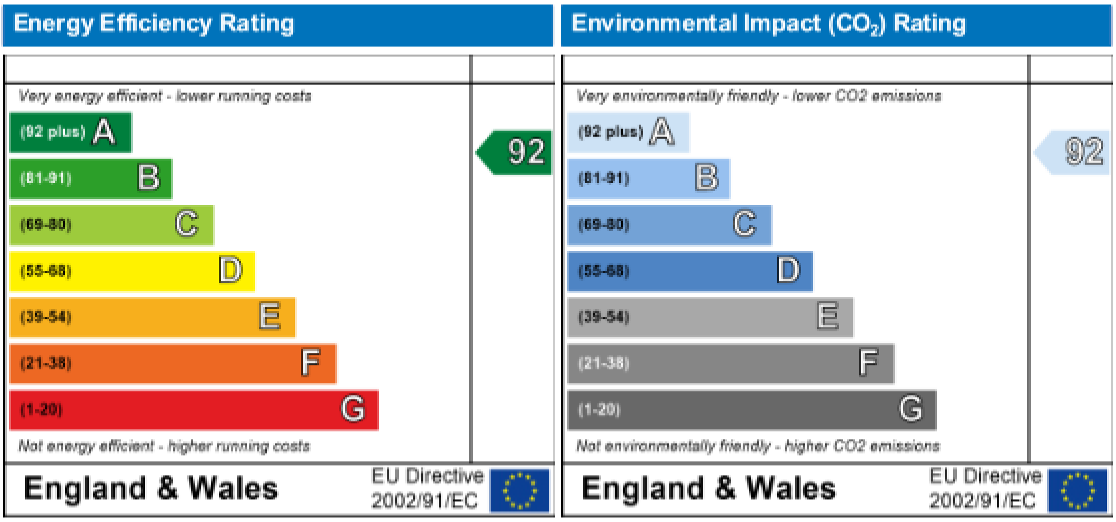
Predicted Energy Assessment

Camden House
101 Royal College Street
London
NW1 0SE

Dwelling type: Semi-detached House
Date of assessment: 28 July 2017
Produced by: Dominique Stockford
Total floor area: 182.33 m²

This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbonn dioxide (CO2) emissions. The higher the rating the less impact it has on the environment.