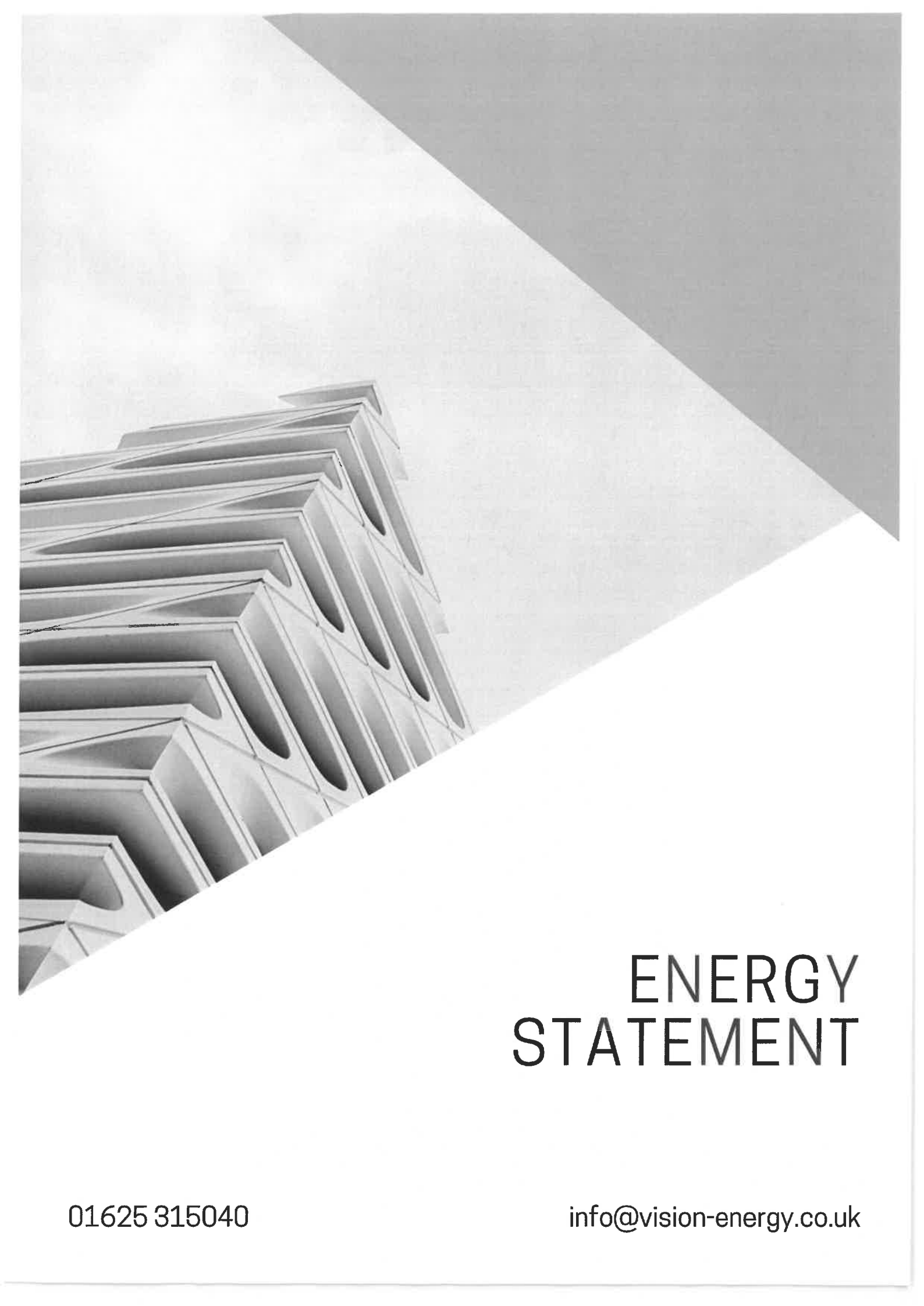




V  **VISION
ENERGY**



ENERGY STATEMENT

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SAP06882 Energy Statement Proposed Development at Flat A,

29 Eldon Road,

N22 5DX

Document Version

REV	DATE	DESCRIPTION	PREPARED	CHECKED
1	13/07/2026	First Draft V1	D.Barsted	B.Whittingham

This report has been prepared for the client only and expressly for the purposes set out in July 2026 and we owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

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1. Executive Summary

1.1 Introduction

- 1.1.1 This energy strategy has been prepared on behalf of Mr Teen Chon, hereafter referred to as the Applicant, in support of a full planning application for the development known as Flat A, 29 Eldon Road, N22 5DX hereafter referred to as the Development.

1.2 Policies and Requirements

1.2.1 National Policies

- 1.2.1.1 Below outlines the national policies this energy statement has been developed in accordance with,

1.2.2 National Planning Policy Framework

- 1.2.2.1 The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied.

- 1.2.2.2 It provides a framework within which locally-prepared plans for housing and other development can be produced.

1.2.3 Building Regulations Approved Document Part L

- 1.2.3.1 Part L of Building Regulations covers the conservation of fuel and power, Notional specifications have been designed as a benchmarking tool to assess against.

- 1.2.3.2 The DER (Dwelling Emission Rate) can therefore be assessed against the notional specification TER (Target Emission Rate).

- 1.2.3.3 As the proposed development contains existing structures, a notional baseline calculation has been calculated in the place of the TER (Target Emission Rate) targets.

1.2.3.4 The London Plan 2021

1.2.3.5 Policy SI 2 Minimising greenhouse gas emissions

1.2.3.6 Major development should be net zero-carbon.¹⁵¹ This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:

1.2.3.7 be lean: use less energy and manage demand during operation

1.2.3.8 be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly

1.2.3.9 be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site

1.2.3.10 be seen: monitor, verify and report on energy performance.

1.2.3.11 Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.

1.2.3.12 A minimum on-site reduction of at least 35 per cent beyond Building Regulations¹⁵² is required for major development. Residential development should achieve 10 per cent, and non-residential development should achieve 15 per cent through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided, in agreement with the borough, either:

1.2.3.13 through a cash in lieu contribution to the borough's carbon offset fund, or

1.2.3.14 off-site provided that an alternative proposal is identified and delivery is certain.

1.2.3.15 Boroughs must establish and administer a carbon offset fund. Offset fund payments must be ring-fenced to implement projects that deliver carbon reductions. The operation of offset funds should be monitored and reported on annually.

1.2.3.16 For more information, please visit: [the london plan 2021.pdf](#)

1.2.4 Local Policies

1.2.4.1 Below outlines the local policies this energy statement has been developed in accordance with,

1.2.5 Haringey's Local Plan Strategic Policies 2013-2026

1.2.5.1 SP4: Working Towards A Low Carbon Haringey

- 1.2.5.1.1 Over the life time of the Local Plan, reducing energy use in buildings and working towards a low carbon borough will be one of the key challenges facing Haringey. The Council will promote the measures outlined below to reduce carbon emissions from new and existing buildings.
- 1.2.5.1.2 In line with London Plan policy, the Council will promote and require all new developments to take measures to reduce energy use and carbon emissions during design, construction and occupation, by incorporating the following measures:
- 1.2.5.1.3 From 2011 onwards, all new residential development will achieve a minimum 25% reduction in total (regulated) CO2 emissions in line with Code for Sustainable Homes Level 4 energy standards, and should aim to achieve Level 6. All new residential development shall be zero carbon from 2016 onwards; and
- 1.2.5.1.4 From 2011 onwards all new non-residential development shall be built to at least BREEAM "very good" standard and should aim to achieve BREEAM "excellent" or the current nationally agreed standard. All new non-residential development shall be zero carbon from 2019.
- 1.2.5.1.5 The Council will promote low- and zero-carbon energy generation through the following measures:
- 1.2.5.1.6 Requiring all developments to assess, identify and implement, where viable, site-wide and area-wide decentralised energy facilities including the potential to link into a wider network;
- 1.2.5.1.7 Establishing local networks of decentralised heat and energy facilities by requiring developers to prioritise connection to existing or planned networks where feasible;
- 1.2.5.1.8 Working with neighbouring boroughs and other partners to explore ways of implementing sub-regional decentralised energy networks including the potential in the Upper Lee Valley Opportunity Area; and
- 1.2.5.1.9 All new developments are required, where viable, to achieve a reduction in predicted carbon dioxide emissions of 20% from on site renewable energy regeneration, which can include connections to local sources of decentralised renewable energy.

1.2.5.1.10 Haringey Development Management DPD 2017

1.2.5.1.11 Policy DM21: Sustainable design, Layout and Construction

1.2.5.1.12 All new development, including building and landscape works, will be expected to consider and implement sustainable design, layout and construction techniques. Proposals should:

1.2.5.1.13 Apply the energy hierarchy to minimise energy use in order to meet, and if possible exceed, minimum carbon dioxide reduction requirements;

1.2.5.1.14 Apply the cooling hierarchy to reduce the potential for overheating and limit reliance on mechanical air conditioning systems;

1.2.5.1.15 Maximise opportunities to enhance biodiversity on-site, including through appropriate landscaping, Sustainable Drainage Systems, living roofs and green walls

1.2.5.1.16 Wherever possible, use building materials with high environmental performance ratings; and

1.2.5.1.17 Seek opportunities for locally sourced labour.

1.2.5.1.18 The Council will support appropriate measures to sustainably retrofit existing homes and non residential buildings.

1.2.5.1.19 Proposals that fail to demonstrate adequate consideration for sustainable design, layout and construction techniques will be resisted.

1.2.5.1.20 Consideration will be given to the use of carbon offset payments, to be secured by planning obligations, where it can be demonstrated that proposals are unable to meet carbon dioxide emission reduction targets on-site.

1.3 Assessment Methodology

1.3.1 As per the above national and local criteria, the below strategy has been adopted for the site,

1.3.1.1 To better reflect the emissions associated with the production of electricity, update fuel factors will be used as part of the assessment.

1.3.1.2 The energy hierarchy and a fabric first approach will be utilised.

1.4 Energy Efficiency Measures

1.4.1 The proposed development incorporates several energy efficiency measure and designs to ensure compliance & CO₂ reduction including:

1.4.2 Fabric Insulation improvements on Building Regulations Part L minimum standards,

1.4.3 Improved glazing U & G Values for the development,

1.4.4 Low Energy lighting scheme adopted on site,

1.4.5 Improvement upon air tightness of construction.

1.5 Low Carbon Energy Supply

1.5.1 The proposed development is not within an area of which allows for a decentralised energy network to be utilised,

1.5.2 Therefore, this option will not be explored further within this energy statement.

1.5.3 The proposed site sits within a Heat Network Priority Area; therefore, it is recommended that the site is development in a manner that will allow to connection to a district heating system in the future is one is to become feasible.

1.6 On-site renewable technologies

1.6.1 The proposed design of the development incorporates the use of **Air Source Heat pump** to meet the requirements of the local authority.

1.6.2 Further options have been reviewed to provide further carbon reductions; the use of on-site renewable technologies has been reviewed in further details within this statement.

1.7 Site Description

- 1.7.1 The proposed development is set as Flat A, 29 Eldon Road, N22 5DX.
- 1.7.2 The proposed works to the site is the erection of no.1 new build dwelling
- 1.7.3 The proposed development is to incorporate a high level of thermal performance and incorporate Renewable technology to ensure the new development achieve the local policy requirements.



Fig.1 Proposed Site Plans

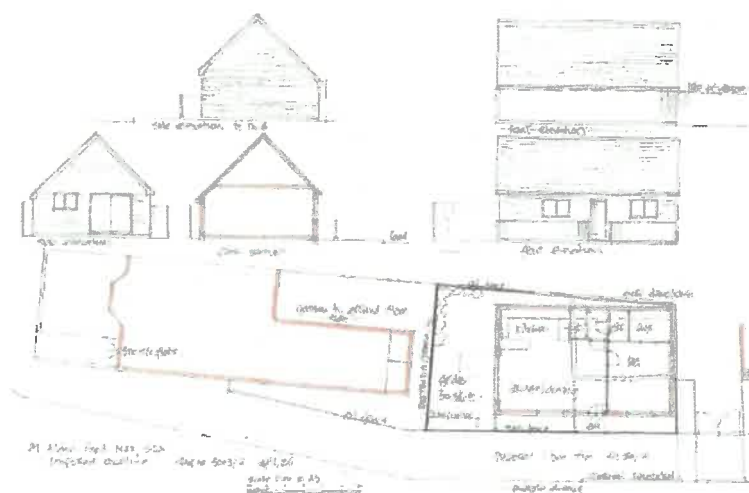


Fig.2 Proposed Floor Plans & Elevations

1.8 Renewable and Low Carbon Energy

	Regulated domestic carbon dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Be lean: Savings from energy demand reduction	0.1	16%
Be clean: Savings from heat network	0.0	0%
Be green: Savings from renewable energy	0.3	43%
Cumulative on site savings	0.4	60%

	Regulated domestic carbon dioxide	
	(Tonnes CO ₂ per annum)	
Baseline Carbon Emissions (Part L2021 standards)	0.7	
After Be Lean Measures	0.6	
After Be Green Measures	0.3	

2. Methodology

2.1 Limitations

- 2.1.1 The calculations and figures utilised within this energy statement are based on Building regulations Part L methodology and should not be understood as a predictive assessment of likely future energy requirements.
- 2.1.2 Other external factors will be present such as occupant system operation patterns and weather patterns.

2.2 Energy Hierarchy

- 2.2.1 The assessment has been carried out in accordance to the energy hierarchy method in line with GLA policy/s.
- 2.2.2 The energy hierarchy method has been utilised to ensure the design of the development has reduced the demand for energy as far as reasonably practicable prior to the consideration of integrating Low or Zero Carbon technologies.



2.3 Carbon Factors

- 2.3.1 The below emissions factors have been used within the calculations based on SAP10 emission factors.

Fuel	Emission Factor (kgCO ₂ /KWh)
Gas	0.210
Electricity	0.136

3. Be Lean Measures

3.0.1 The following sections details the design measures that have been considered/to be implemented at the development.

3.1 Thermal insulation

- 3.1.1 In order to reduce the overall heating and cooling requirements for the development it is imperative that the development incorporates an efficient thermal envelope.
- 3.1.2 The below elements have been considered for the development.
- 3.1.3 Fabric Insulation improvements on Building Regulations Part L minimum standards,
- 3.1.4 Air permeability targets implemented as part of the project to minimise heat loss,
- 3.1.5 Improved glazing U & G Values for the development,
- 3.1.6 Low Energy lighting scheme adopted on site.
- 3.1.7 The table below outlines the u-value targets for the development in comparison to the limiting factor set out in Building regulations Part L.

Element	U-Value (W/m2K)
	Development
External Facade (New Element Table 4.2)	0.18
Sloped Roof (New Element Table 4.2)	0.12
Plane roof (New Element Table 4.2)	0.10
Ground Floor (New Element Table 4.2)	0.13
Glazing	1.2
Doors	1.1
Air Permeability	3
Low Energy Lighting	120 lm/W
Thermal Bridging (Y-Value)	Default
MVHR	Vent Axia Sentinel
Waste Water Heat Recovery System	N/A

4. Be Clean Measures

4.1 Low Carbon Energy Supply

- 4.1.1 The proposed development does not have a significant thermal demand and is not within an area of which allows for a decentralised energy network to be utilised.
- 4.1.2 Therefore, this option will not be explored further within this energy statement.
- 4.1.3 The development does however fall within a heat network priority area, the development therefore will ensure that if a heat network does become available, the site will be ready for connection.



5. Be Green Measures

5.0.1 The following sections discuss the renewable energy generation measures that have been considered, and those which will be implemented at the Development.

5.0.2 Renewable technologies harness energy from the environment and convert this to a useful form. Many renewable technologies are available. However, not all these are commercially viable, suitable for city-centre locations or appropriate for the Development.

5.0.3 Technologies considered for the Development include:

- Solar Hot Water Panels (Solar Thermal)
- Photovoltaic (PV) Cells
- Combined Heat and Power (CHP) and Micro-CHP (mCHP)
- Ground Source Heat Pumps (GSHP)
- Air Source Heat Pumps (ASHP)
- Wind Turbines
- Biomass

5.1 Solar Hot Water Panels

- 5.1.1 Solar Hot Water Panels or, Solar Panels as they are commonly known, are used to supplement the energy required for the domestic hot water requirement. The system will collect and absorb solar radiation and transfer the heat directly to the storage tank.
- 5.1.2 The circulation may then be either 'passive' thus relying on the natural convection or 'active' using a pump which increases a system's efficiency but has additional costs for the controls and energy requirement.
- 5.1.3 There are two main types of solar panel collector available to the UK market. The first is Flat Plate Collectors which consist of a dark absorber sheet with pipes built into the sheet encased in a weatherproof box.
- 5.1.4 This will pump the collected solar radiation to the storage device to heat the water for use. The second main system is Evacuated Tube Collectors.
- 5.1.5 These devices are more efficient and are effective under a "...wider range of conditions..." (TM38:2006) due to the energy being drawn from "...light rather than outside temperature..." This therefore allows this type of system to adapt to cooler climates.
- 5.1.6 **Solar Hot Water Panels have been deemed possible for this development due to the available roof space and DHW demand, the available roof space would allow the design to fully support the DHW. However, an alternative technology has been selected to further reduce the carbon emissions on site and to meet the financial and on-site feasibility.**

5.2 Photovoltaic (PV) Cells

- 5.2.1 Solar panel electricity systems, also known as solar Photovoltaics' (PV), capture the sun's energy using photovoltaic cells. These cells do not need direct sunlight to work - they can still generate some electricity on a cloudy day. The cells convert the sunlight into electricity, which can be used to run household appliances and lighting.
- 5.2.2 PV cells are made from layers of semi-conducting material, usually silicon. When light shines on the cell it creates an electric field across the layers. The stronger the sunshine, the more electricity is produced. Groups of cells are mounted together in panels or modules that can be mounted on your roof.
- 5.2.3 The power of a PV cell is measured in kilowatts peak (kWp). That is the rate at which it generates energy at peak performance in full direct sunlight during the summer. PV cells come in a variety of shapes and sizes. Most PV systems are made up of panels that fit on top of an existing roof, but you can also fit solar tiles.
- 5.2.4 **Photovoltaic (PV) Cells have been considered and have been deemed viable for this site, the available roof space available would allow for a solar PV array, the carbon emission reduction target has been met via other technology however further feasibility is to be considered as part of the development if the south roof can be utilised.**

5.3 Combined Heat and Power (CHP) and Micro-CHP (mCHP)

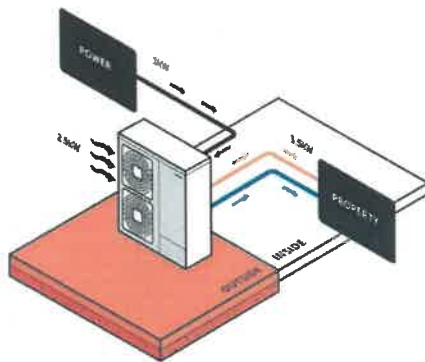
- 5.3.1 Micro-CHP' stands for micro combined heat and power. This technology generates heat and electricity simultaneously, from the same energy source, in individual homes or buildings. The main output of a micro-CHP system is heat, with some electricity generation, at a typical ratio of about 6:1 for domestic appliances.
- 5.3.2 A typical domestic system will generate up to 1kW of electricity once warmed up: the amount of electricity generated over a year depends on how long the system is able to run. Any electricity you generate and don't use can be sold back to the grid.
- 5.3.3 Domestic micro-CHP systems are currently powered by mains gas or LPG; in the future there may be models powered by oil or bio-liquids. Although gas and LPG are fossil fuels rather than renewable energy sources, the technology is still considered to be a 'low carbon technology' because it can be more efficient than just burning a fossil fuel for heat and getting electricity from the national grid. Micro-CHP systems are similar in size and shape to ordinary, domestic boilers and like them can be wall hung or floor standing. The only difference to a standard boiler is that they are able to generate electricity while they are heating water.
- 5.3.4 For the householder, there is little difference between a micro-CHP installation and a standard boiler. If the dwelling already has a conventional boiler then a micro-CHP unit should be able to replace it as it's roughly the same size. However, the installer must be approved under the Micro generation Certification Scheme. Servicing costs and maintenance are estimated to be similar to a standard boiler – although a specialist will be required.
- 5.3.5 **CHP and mCHP have been considered for the project, in order to house the system, an external additional plant area would be required and therefore the feasibility of the CHP has not been deemed acceptable or viable due to planning restrictions.**

5.4 Ground Source Heat Pumps (GSHP)

- 5.4.1 Ground source heat pumps use pipes which are buried in the garden to extract heat from the ground. This heat can then be used to heat radiators, underfloor or warm air heating systems and hot water in the home.
- 5.4.2 A ground source heat pump circulates a mixture of water and antifreeze around a loop of pipe - called a ground loop - which is buried in the garden. Heat from the ground is absorbed into the fluid and then passes through a heat exchanger into the heat pump. The ground stays at a constant temperature under the surface, so the heat pump can be used throughout the year - even in the middle of winter.
- 5.4.3 The length of the ground loop depends on the size of the home and the amount of heat needed. Longer loops can draw more heat from the ground, but need more space to be buried in. If space is limited, a vertical borehole can be drilled instead. Running costs will depend on several factors - including the size of the dwelling and how well insulated it is.
- 5.4.4 **Ground Source Heat Pump has been considered for this project and has not been deemed viable due to the available external space. A more suitable technology has been selected to reduce the carbon emissions as well as financial and on-site feasibility.**

5.5 Air Source Heat Pumps (ASHP)

- 5.5.1 Air source heat pumps absorb heat from the outside air. This heat can then be used to heat radiators, underfloor heating systems, or warm air convectors and hot water in dwellings.
- 5.5.2 An air source heat pump extracts heat from the outside air in the same way that a fridge extracts heat from its inside. It can get heat from the air even when the temperature is as low as -15°C . Heat pumps have some impact on the environment as they need electricity to run, but the heat they extract from the ground, air, or water is constantly being renewed naturally.
- 5.5.3 Running costs will vary depending on several factors - including the size of the home, and how well insulated it is, and what room temperatures are achieved.
- 5.5.4 **Air Source Heat Pump has been considered for the project and has been deemed a viable option for the project, the carbon reductions of the installation of a ASHP ensure compliance the council requirements when compared to other non-zero carbon heat sources. Therefore, this technology has been adopted for the main heating and DHW.**



Location	Ground/External Façade/internally Mounted
Acoustic considerations	Noise impacts of Air source heat pumps should be considered due to pumps and plant located Externally.
Groundworks	No groundwork requirements
Export possible	Export of electricity to the grid is not possible for this technology
Maintenance	heat pumps are a low-maintenance heating option, it is still important to have them serviced regularly to make sure they are performing safely and efficiently
Service Life	20-25 years

5.6 Wind Turbines

- 5.6.1 Wind turbines harness the power of the wind and use it to generate electricity. Forty percent of all the wind energy in Europe blows over the UK, making it an ideal country for domestic turbines (known as 'microwind' or 'small-wind' turbines). A typical system in an exposed site could easily generate more power than a dwelling's lights and electrical appliances use.
- 5.6.2 Wind turbines use large blades to catch the wind. When the wind blows, the blades are forced round, driving a turbine which generates electricity. The stronger the wind, the more electricity produced. There are two types of domestic-sized wind turbine:
- 5.6.3 **Pole mounted:** these are free standing and are erected in a suitably exposed position, often around 5kW to 6Kw
- 5.6.4 **Building mounted:** these are smaller than mast mounted systems and can be installed on the roof of a home where there is a suitable wind resource. Often these are around 1kW to 2kW in size. Wind turbines are eligible for the UK government's Feed-in-Tariffs which means money can be earned from the electricity generated by the turbine. Payments for the electricity not use and export to the local grid are available as well. To be eligible, the installer and wind turbine product must be certified under the Microgeneration Certification Scheme (MCS). If the turbine is not connected to the local electricity grid (known as off grid), unused electricity can be stored in a battery for use when there is no wind. Please note that the Feed-in Tariffs scheme is not available in Northern Ireland.
- 5.6.5 **Wind Turbines have been considered for this project, Pole mounted wind turbine has been excluded due to nature of the development and building mounted would not achieve the required reductions on site to meet the local requirements, therefore this has not been explored further.**

5.7 Biomass

- 5.7.1 Energy from Biomass is produced by burning organic matter. Biomass fuel sources include trees, crops or animal dung are "...harvested and processed to create energy in the form of Electricity, Heat and Steam." (TM38:2006) Biomass is carbon based and when used as a fuel, produces carbon emissions. However, the carbon emitted during the combustion process is "...equivalent to the amount absorbed during growth..." (TM38:2006) The only carbon emissions associated with this energy source is treatment and transportation costs of the fuel to the end user.
- 5.7.2 Carbon savings that can be attributed to this technology type are significant. Biomass boiler installation can "...deliver all of the heating requirements for a building...using an almost carbon neutral fuel source." (TM38:2005) Biomass can be cost effective when directly compared to convention as oil and electricity heating sources. The benefit can be increased when the biomass source, for example wood chips, is diverted from the waste stream. However, maintenance requirements of a biomass system are higher and should be taken into account when installing one. Additionally, the UK introduced the Clean Air Act (1993) (www.uksmokecontrolareas.co.uk) to control the smoke pollution in areas caused by burning of smoky fuels.
- 5.7.3 Biomass been considered for the project, in order to house the system, an external additional plant area would be required and therefore the feasibility of the CHP has not been deemed acceptable or viable due to planning restrictions. If planning restrictions are limited on Biomass it is recommended to review the financial feasibility as the Biomass option exceeds the planning requirements.

5.8 Summary of Be Green Measures

Technology	Deemed Viable	Adopted on site
Solar Hot Water Panels (Solar Thermal)	✓	✗
Photovoltaic (PV) Cells	✓	✗
Combined Heat and Power (CHP) and Micro-CHP (mCHP)	✗	✗
Ground Source Heat Pumps (GSHP)	✗	✗
Air Source Heat Pumps (ASHP)	✓	✓
Wind Turbines	✗	✗
Biomass	✗	✗

	Regulated domestic carbon dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Be lean: Savings from energy demand reduction	0.1	16%
Be clean: Savings from heat network	0.0	0%
Be green: Savings from renewable energy	0.3	43%
Cumulative on site savings	0.4	60%

	Regulated domestic carbon dioxide	
	(Tonnes CO ₂ per annum)	
Baseline Carbon Emissions (Part L2021 standards)	0.7	
After Be Lean Measures	0.6	
After Be Green Measures	0.3	

6. Conclusion

- 6.1.1 After reviewing the above renewable technologies, **Air Source Heat pump** has been identified as the most viable options to achieve the criteria set out by the local authority. These flats were identified for the ASHP installation given the ground floor installation feasibility and construction characteristics that would efficiently suit the performance of the chosen technology.
- 6.1.2 The development has been deemed viable for additional measures and therefore it is recommended to explore the financial feasibility of these options to maximise the reduction in carbon emissions on site.
- 6.1.3 The key focus on site was to minimise heat loss and reduce the regulated energy consumption on-site through utilisation of the energy hierarchy.

7. Summary of energy efficient measures

Element	U-Value (W/m2K)
	Development
External Facade (New Element Table 4.2)	0.18
Sloped Roof (New Element Table 4.2)	0.12
Plane roof (New Element Table 4.2)	0.10
Ground Floor (New Element Table 4.2)	0.13
Glazing	1.2
Doors	1.1
Air Permeability	3
Low Energy Lighting	120 lm/W
Thermal Bridging (Y-Value)	Default
MVHR	Vent Axia Sentinel
Waste Water Heat Recovery System	N/A

7.1 Summary of renewable or Low Carbon measures

Element	
Main Heating System (Residential)	Mitsubishi Ecodan 5kW
Hot Water System (Residential)	Provided via Main Heating System
Cylinder Volume/Loss (kwh/day)	200/1.86
Renewable Technologies	N/A
Mechanical Ventilation Heat Recovery System	Vent Axia Sentinel Econiq S
Waste Water Heat Recovery	N/A

7.2 Appendix 1 – SAP Documents

- 7.2.1 SAP documentation has been included in a separate folder and is to be used in conjunction with this document to validate figures and reductions.





OVERHEATING ANALYSIS

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Building address:
Flat A,
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TM59 & Part O Overheating Analysis Report

Document Version:

Table 1 Document Version

Rev	Date	Description	Prepared	Proofed
R1	16/07/2026	V1	Dr Bilal Alsheglawi	D.Barsted

This report has been prepared for the developer/owner only and we owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. This report has been based solely on the specific design assumptions and criteria stated herein.

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1. Executive Summary

Thermal Overheating modelling has been undertaken on the proposed site Flat A, 29 Eldon Road, N22 5DX. This is to determine the impact of summer overheating in accordance with CIBSE guide TM59 & Building Regulations Part O, IES VE software has been used to undertake the assessment and has been designed in accordance with AM11, TM59, NCM guides & CIBSE Guide A. The model has been created in accordance with the below architectural drawing.

- Sdplannings26061215180

2. Project Overview

The proposed project consists of one floor residential dwelling built in accordance with the standards set out in Building Regulations Approved Documents. The homes are predominantly naturally ventilated and incorporates good levels of insulation, air permeability and low carbon heating.

3. TM59 Overheating Criteria

Homes that are predominantly naturally ventilated, including homes that have mechanical ventilation with heat recovery (mvhr), with good opportunities for natural ventilation in the summer should assess overheating using the adaptive method based on CIBSE TM52 (2013), as described in section 3.1 below. In order to allow the occupants to 'adapt', each habitable room needs operable windows with a minimum free area that satisfies the purge ventilation criteria set in Part F of the Building Regulations for England (NBS, 2010), and equivalent regulations in other countries, i.e. the window opening area should be at least 1/20th of the floor area of the room (different conditions exist for windows with restricted openings, and the same requirement applies for external doors). Control of overheating may require accessible, secure, quiet ventilation with a significant openable area.

Homes that are predominantly mechanically ventilated because they have either no opportunity or extremely limited opportunities for opening windows (e.g., due to noise levels or air quality) should be assessed for overheating using the fixed temperature method based on CIBSE Guide A (2015a), as described in section 3.2 below.

3.1 Criteria for homes predominantly naturally ventilated

Compliance is based on passing *both* of the following two criteria:

- *For living rooms, kitchens, and bedrooms:* the number of hours during which DT is greater than or equal to one degree (K) during the period May to September inclusive shall not be more than 3 percent of occupied hours. (CIBSE TM52 Criterion 1: *Hours of exceedance*).
- *For bedrooms only:* to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26 °C for more than 1% of annual hours. (*Note:* 1% of the annual hours between 22:00 and 07:00 for bedrooms is 32 hours, so 33 or more hours above 26 °C will be recorded as a fail). Criteria 2 and 3 of CIBSE TM52 may fail to be met, but both (a) and (b) above *must* be passed for all relevant rooms.

3.2 Criteria for homes predominantly mechanically ventilated

For homes with restricted window openings, the CIBSE fixed temperature test must be followed, i.e., all occupied rooms should not exceed an operative temperature of 26 °C for more than 3% of the annual occupied annual hours (CIBSE Guide A (2015a)).

4. Overheating Model and Simulation Software

4.1 Simulation Software

The software used to model this simulation is IES VE (Virtual Environment), the following applications within IES VE have been utilised throughout the simulation process.

- IES Model IT
- IES Apache
- IES Macroflo
- IES VE Compliance (UK & Ireland)

4.2 Weather Files

During the analysis a number of different weather files have been used to review the overheating for both current and future climates as set out below:

- London_LWC DSY 1,2 & 3 2020 High 50
- DSY files 2 & 3 are not viewed as mandatory requirements and therefore have not been included within the reports, DSY2&3 files will be used to review the designs and the readiness for climate change.

4.3 Model Images

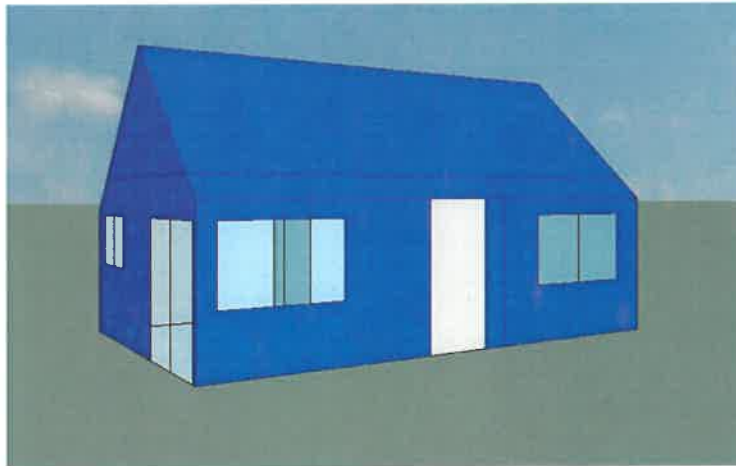


Figure 1 Model view

5. Construction Fabric Specifications

The below table outlines the fabric U-Values used within the model, these elements are to be confirmed on site and if any alterations are made throughout the design process the simulations should be reran to ensure that the outcomes have not altered.

5.1 Fabric Overview

Table 2 Fabric details

Element	U-Value (W/m2K)
External walls	0.18
Internal Partitions	1.8
Roof	0.12
Ground Floor	0.13

5.2 Glazing Specification

Table 3 Glazing details

U-Value (W/m2K)	G-Value	Glazed Percentage	Frame Material
1.2	0.63	N/A	Metal

5.3 Air permeability

The Air permeability rate for the proposed site has target of 3.

6. HVAC Specification

The proposed building is to be heated using Electric powered air source heat pump operating on a low temperature system, controlled via zones. The zones will be ventilated via natural ventilation.

6.1 Heating Specifications

Table 4 Building heating details

Space Type	Heating Setpoint (°C) (Real)	Cooling Setpoint (°C) (Real)
Living Areas	21	N/A
Kitchen Dining Areas	21	N/A
Bedrooms	21	N/A
Circulation Areas (Corridors)	19	N/A
Bathrooms & En-Suites	19	N/A
Study	19	N/A
Store	19	N/A

6.2 Mechanical Ventilation

The proposed development does not incorporate a 'whole dwelling' ventilation system, wet rooms will contain exhaust fans with a SFP of 0.25 W(l/s).

7. Natural Ventilation

The Natural ventilation strategy has been outlined by the architectural drawings; the strategy will rely upon a large number of openable glazing across all aspects of the dwelling to allow for cross ventilation. The dwellings are multi-level and therefore the ability to open lower ground and upper ground windows to replicate stack effect is possible.

7.1 Falling protection

Openings which are intended to be open for long periods to reduce overheating risk might pose a higher risk of falls from height. Only the proportion of openings which can be opened with a very low risk of occupants falling from height should be considered to form part of the overheating mitigation strategy. Openings that can be opened wider than 100mm may form part of the overheating mitigation strategy where they meet all of the following conditions.

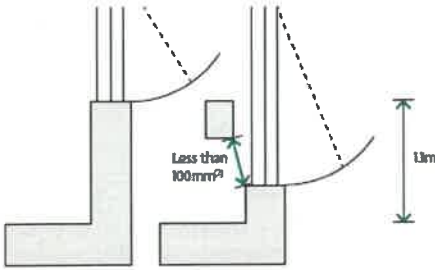
a. Window handles on windows that open outwards are not more than 650mm from the inside face of the wall when the window is at its maximum openable angle.

b. Guarding meets the minimum standards in following table.

c. Guarding does not allow children to easily climb it. For example, horizontal bars should generally be avoided.

Table 3.1 Guarding heights

Change in floor level between inside and outside	Guarding height ¹
Less than 600mm	See Approved Document K
More than 600mm	1.1m



NOTES:

1. This approved document has increased levels of protection from falling compared to Approved Document K. Where applicable, the higher standard applies.
2. Guarding should be sized to prevent the passage of a 100mm sphere.

7.2 Windows Openings Profiles and Types

Table 5 TM59 Windows opening and types profiles

Opening Type	Profile	Opening Specifications	
External window opening - Side Hung - Night Open	TM59/Part O Night Open	Day- Opening threshold if internal temperatures exceed 22°C window will start opening, Windows Fully open at 26°C. Night- Opening Threshold if internal temperatures exceed 23 °C	Areas assigned; security measures would be required to open ground floor windows at night
External window opening - Side Hung - Night Closed	TM59/Part O Night Closed	Day- Opening threshold if internal temperatures exceed 22°C window will start opening, Windows Fully open at 26°C. Night- Closed	All Bedroom/Living Area Sliding Doors
External window opening - Fixed	Closed Permanently	Closed	Front Door and Fixed panels adjacent to front door.
External Bifold opening - Side Hung Short - Night Closed	TM59/Part O Night Closed	Day- Opening threshold if internal temperatures exceed 22°C window will start opening, Windows Fully open at 26°C. Night- Closed	Ground floor Kitchen

All windows have been designed according to individual locations, sizes, orientations, and designs; it is also recommended that the openings have opening functions linked to internal CO₂ levels.

The dwelling does not allow for any open windows at night for ground floor areas or for any areas with easy accessibility, this is to ensure that a security issue is not present.

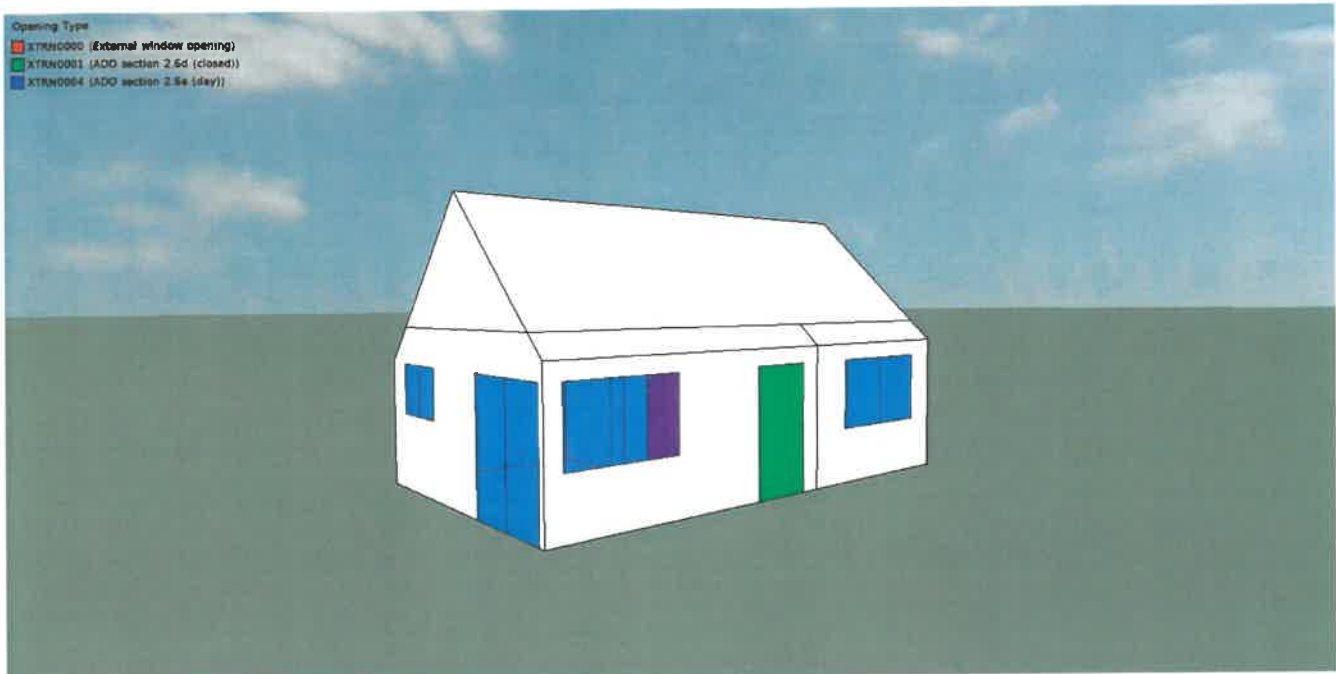


Figure 2 Openings type

8. Internal Gains, Profiles and Air Exchanges

The Internal gains for the model have been taken from the TM59 profiles as set out in the below table, these figures have been taken from the recommended profiles for habitable areas. The below profiles have been applied to the building zones as per the below Figure:

Figure 1 Heat gain profile

Number of people	Description	Peak load (W)		Period																							
		Sensible	Latent	Hour ending																							
				00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
1	Single bedroom occupancy	75	55	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
2	Double bedroom occupancy	150	110	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
2	Studio occupancy	150	110	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
1	1-bedroom living/kitchen occupancy	75	55	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
1	1-bedroom living occupancy	75	55	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
1	1-bedroom kitchen occupancy	75	55	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
2	2-bedroom living/kitchen occupancy	150	110	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
2	2-bedroom living occupancy	150	110	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
2	2-bedroom kitchen occupancy	150	110	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
3	3-bedroom living/kitchen occupancy	225	165	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
3	3-bedroom living occupancy	225	165	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
3	3-bedroom kitchen occupancy	225	165	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Single bedroom equipment	80		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Double bedroom equipment	80		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Studio equipment	450		0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	Living/kitchen equipment	450		0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	Living equipment	150		0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
	Kitchen equipment	300		0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
	Lighting profile	2 (W/m ²)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 3 TM59 Heat Gain Profiles

9. Overheating mitigation strategies

The ground-floor bedroom failed the initial overheating assessment. A glazing G-value of 0.47, MVHR and window guarding to enable secure night-time ventilation were considered; however, the bedroom still failed to meet the overheating criteria. We therefore recommend installing air conditioning in the bedroom to achieve compliance with the overheating requirements.

10. Calculation Results

10.1 DSY1 2020 High 50

Table 6 Overheating summary

Natural ventilated rooms	Natural ventilated criterion (a) results	Natural ventilated criterion (b) results	Pass/Fail
GF-Bedroom	Pass	Pass	Pass
GF-KDL	Pass	N/A	Pass

Table 7 Natural ventilated rooms criterion (a)

Room Name	Occupied Hours	No. hours $\Delta T \geq 1^\circ\text{K}$	% Occupied hours $\Delta T \geq 1^\circ\text{K}$	Pass/Fail
GF-Bedroom	3672	0	0.0	Pass
GF-KDL	1989	32	1.6	Pass

Table 8 Natural ventilated rooms criterion (b)

Room Name	No. hours $> 26^\circ\text{C}$ 22:00-24:00	No. hours $> 26^\circ\text{C}$ 00:00-07:00	Total hours $> 26^\circ\text{C}$	Pass/Fail
GF-Bedroom	0	0	0	Pass
GF-KDL	N/A	N/A	N/A	N/A

11. Summary

Overheating analysis has been undertaken on the proposed development at Flat A, 29 Eldon Road, N22 5DX. The development meets the criteria set out in TM59 for naturally ventilated buildings for DSY1.

Table 9 Summary

1 Modelling Details		
Dynamic software name and version	IES Virtual Environment Version 2025.2.0.0	
Weather file location used, including any additional, more extreme weather files	London_LWC DSY1,2 &3 2020 High 50	
Number of sample units modelled, including an explanation of why the size/selection has been chosen	N/A	
2 Modelled occupancies		
Has the project passed the assessment described in CIBSE's TM59, taking into account the limits detailed in paragraphs 2.5 and 2.6? (1)	Yes	No
Details of the occupancy profiles used	TM59 (detailed in report)	
Details of the equipment profiles used	TM59 (detailed in report)	
Details of the opening profiles used	Bespok in line with TM59/Part O (detailed in report)	
3 Modelled overheating mitigation strategy		
Free areas	Calculated in model	
Infiltration and mechanical flow rates	0.15	
Window g-value	N/A	
Shading strategy	Local Shading	
Mechanical cooling	N/A	
4 Modelling results		
Has the project passed the assessment described in CIBSE's TM59, taking into account the limits detailed in paragraphs 2.5 and 2.6?	Yes	No
What is the overall overheating strategy (i.e. what design features are key to the project passing)?	Natural Ventilation / openable areas	
5 Designer's declaration		
Has the building construction proposal been modelled accurately?	Yes	No
Consultant's name	Dr Bilal Alsheglawi	
Consultant's organisation	Vision Energy	
Consultant's signature	Bilal Alsheglawi	
Date	16/07/2026	