

Energy Statement

For

1no Dwelling

at

Land to the side of 1 Lister Rd, Middleton

On Behalf of

Maga Projects



DCLG/ODPM Components of a Sustainable Community

Both client and the appointed design team have incorporated sustainability and energy issues throughout the design processes of the project and to create a sustainable building and community as defined by the former Office of the Deputy Prime Minister (ODPM). The main goals of this are:-

- Active, Inclusive and Safe -
- Environmentally Sensitive
- Well Designed and Built.
- Well Connected
- Well Served

Building Regulations Part L: Conservation of Heat & Power

The Approved Document L1 & L2 requires improved building fabric and air-tightness performance in new construction.

Building Regulations Part O: Overheating

NPPF and Local Policy

The current National Planning Policy Framework (NPPF) sets out planning policy guidance from central government. Section 14 of the NPPF provides policy guidance on 'Meeting the challenge of climate change, flooding and coastal change'. Paragraph 152 states:-

"The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."

Upon consultation with the local Plan it confirms that new Development is relevant. Any new development proposals are required to outperform existing Building regulations.

To achieve this, it is proposed that any new development, will achieve net zero carbon emissions in order to meet the 2038 carbon neutrality target.

Changes to building regulations in relation to Part L, were introduced in June 2022. The current standards outperform the performance required by Core Strategy Policy SD-3

The Local Authority require an integrated approach to the sustainable energy objectives of the adopted Plan.

This adopts measures through building fabric as a priority, followed by introducing renewable technology. It is noted that a SAP assessment as part of the building regulations, identifies a requirement for renewable sources, together with improvements to the building fabric.

Introduction of Part O Overheating in June 2022, requires that the building will limit the overheating via solar gain in summer and will provide adequate methods to remove indoor heat.

The planning policies require a review of technical feasibility, together with the economic implications of the renewable technologies.

The local authority suggest the following to be assessed:-

1. Solar
2. Wind power
3. Biomass Combined Heat and Power
4. Micro Hydro
5. Solar hot water
6. Heat pumps (ground and air source)
7. Biomass Heating

Energy

Baseline energy predictions and under current law and building regulations, the development has to achieve the minimum energy consumption as specified in Building Regulation Part L (2022).

However, given that the Local Authority are trying to achieve Net Zero Carbon by 2038, a number of renewables and operation of the building and its occupants, aim to assist with achieving this aim

Assuming normal condition, the proposed thermal insulation levels meet the requirements of Part L (2023) of the Building Regulations. However, given the Local authorities aims, the design will outperform this requirement.

Technology	Technical Feasibility	Carbon Savings	Estimated Costs	Financial Viability (insert proportion of estimated project costs)
Solar photovoltaics	The optimum panel orientation is due south at an angle of 35° to 45°. PV panels are designed to be accommodated on the southern facing roof plane. The elevations shown the location of the panels (number and size are to detailed design)	Approx.5%	£1250 - £1750 per kWp for standard roof panel systems.	Unknown at this stage until detailed design work has been completed on the approval of planning / building regulations
Wind	Average wind speeds at the site according to the NOABL Wind Speed database is 4.7m/s at 10m above ground level. Therefore the technology is deemed unsuitable	N/A	N/A	N/A
Biomass CHP	Biomass is economically suited to large scale developments. Together with the size of plant needed and the amount of storage space required for the bio mass fuel, this technology is not deemed feasible.	N/A	N/A	N/A
Micro Hydro	There are no local watercourses in the area. Therefore the technology is deemed unsuitable	N/A	N/A	N/A
Solar Hot Water	There is insufficient space to accommodate a storage system within the dwelling given the size of the dwelling and its number of occupants / likely level of hot water usage.	N/A	£4000 - £6000 per average dwelling	£8000
Ground Source or Air Source Heat Pumps	The client is proposing to utilise a ASHP to offset the carbon usage	N/A	£12000	Unknown at this stage until detailed design work has been completed on the approval of planning / building regulations

Proposed design solution

The proposed design for the development seeks to address energy efficiency through high specification of insulation (specified above 2023 Part L: Energy Conservation Building Regulation compliance and to comply with Part O), renewables and other methods of reducing energy usage.

The combination of all factors such as renewables, construction techniques and following guidance ensures that the development is sustainable and goes to achieve the net zero carbon usage of the property.

Other contributing factors are:-

- Insulation and air tightness

Insulation and air tightness will be achieved by adopting the use of Robust details as defined within the Part L Building Regulations. Such construction methods will reduce cold bridging and minimize air leakage losses. The development also is to adopt a double glazing system which will reduce heat loss and improve air tightness.

- Energy Efficient Lights and Appliances

Energy efficient lights and A / A+ rated appliances will be specified throughout the units to reduce electrical demand.

- Energy Improvements including on-site renewable energy generation

For the proposed improved design solutions, including the on-site renewable generation, and using the same analysis technique as for the baseline case, the following performance levels can be calculated at a later stage for the development:

Increased Insulation

Energy efficient lights and appliances

Class 4/5 Combination condensing efficient boiler with secondary wood burner

Solar Panels

ASHP

Space Heating, Water heating, Lights and Appliances

Suggested Measures

1. Heating and hot water pre-heating to be provided by a combination of ASHP, condensing combination boiler (gas fired) to be minimum class 4 with secondary space heating by log burner / wood pellets
2. windows to be double glazed
3. washing line to be provided (to minimise use of forced drying)
4. 'White goods' to be minimum A rated
5. lighting to be energy efficient fittings
6. cycle store to be provided (to promote use of cycling and minimise use of motor)
7. provision of home office area (to minimize use of motor to travel to work)
8. water saving measures to be installed i.e. low flow taps, low capacity baths
9. water butts to be installed to minimise water usage
10. construction materials and methods to be energy efficient in use and their production
11. surface water run off to be minimize by use of SUDS
12. End use waste to be capable of being diverted away from land fills and recycled.
13. Construction use waste to be capable of being diverted away from land fill and recycled.
14. design of windows to minimize use of secondary lighting during daylight periods
15. private space to be provided
16. site management during construction to minimise travel, use of water etc
17. implementing secure by design recommendations
18. maintain ecological features of the site

Summary

The sustainability issues have been addressed and consist of:-

- Minimising energy consumption
- Maximise provision of onsite renewable energy supply
- Incorporating public and private open space
- Minimise the impact of ambient air and noise pollution
- Minimise water consumption
- Minimise the speed and quality of surface water run off
- Minimise the impact of flood risks
- Maximise the use of responsibly sourced and/or recycled building material
- Minimise construction waste
- Incorporate adequate waste recycling facilities
- Maximise the provision of wildlife habitats
- Incorporate facilities for cyclists and pedestrians