



# Energy Statement

Land to rear of 189 Newark Road, North Hykeham

## 1. Policy S6: Design Principles for Efficient Buildings

- 1. Orientation of buildings – such as positioning buildings to maximise opportunities for solar gain, and minimise winter cold wind heat loss;*
- 2. Form of buildings – creating buildings that are more efficient to heat and stay warm in colder conditions and stay cool in warmer conditions because of their shape and design;*
- 3. Fabric of buildings – using materials and building techniques that reduce heat and energy needs. Ideally, this could also consider using materials with a lower embodied carbon content and/or high practical recyclable content;*
- 4. Heat supply – net zero carbon content of heat supply (for example, this means no connection to the gas network or use of oil or bottled gas);*
- 5. Renewable energy generated – generating enough energy from renewable sources on-site (and preferably on plot) to meet reasonable estimates of all regulated and unregulated total annual energy demand across the year.*

The proposed dwelling is orientated along the South East – North West axis.

The perimeter fencing and large oak tree to the rear offer some significant energy benefits: as well as an increased level of privacy, the screening will provide some natural solar shading from the high-level summer sun to prevent the dwelling from overheating.

As a development located in a highly well connected position, the proposed dwelling would introduce additional alternative housing that Policy LP10 seeks, close to employment areas, public services, transport and amenities.

The dwelling has been designed to be sympathetic to the neighbouring properties keeping both the eaves and ridge heights as low as possible and incorporating rooflights to avoid overlooking concerns. Natural light would be provided by additional windows to the side elevations at ground floor level only.

The proposal features a low ridge line with a gable construction that faces the street some distance away and hidden from sight by the host dwelling. The proposals do not contain any large openings / glazing – thus, resulting in a significantly large area of cavity wall construction, that offers the greatest u-value figures for minimising heat loss / energy efficiency.

It is the client's intention to utilise building techniques and materials that achieve U-values that exceed the requirements of the current Building Regulations (which have only recently been improved and are already very thermally efficient). This approach will reduce the need / reliance on heat and energy needs.

### **TARGET U-VALUES – DOMESTIC 2022**

*Requirement of current Building Regulations*

Roof (all Types)	0.11 W/m <sup>2</sup> K
Walls	0.18 W/m <sup>2</sup> K
Floor	0.13 W/m <sup>2</sup> K
Windows	0.12 W/m <sup>2</sup> K
Doors	0.12 W/m <sup>2</sup> K

### **SUGGESTED U-VALUES**

*Which goes beyond the minimum requirement of the Building Regulations*

Pitched Roof	0.10 W/m <sup>2</sup> K
Walls	0.14 W/m <sup>2</sup> K
Floor	0.11 W/m <sup>2</sup> K
Windows	0.10 W/m <sup>2</sup> K
Doors	0.09 W/m <sup>2</sup> K

The potential use of an air source heat pump to provide space heating and hot water, when combined with underfloor heating or low surface temperature radiators, will use less energy to heat the home when compared to more traditional methods of gas or oil etc.

Our client will ensure that all built-in appliances, such as fridges, freezers, cookers and dishwashers will all be A rated, and all lighting will be LED. (Appliances and lighting make up approximately 18.5% of the overall energy use and therefore consumption).

MVHR will also be adopted by our client to provide the dwellings with warm fresh air, heated by the recovered heat via the heat exchanger.

It is our belief that the measures prescribed below will demonstrate our client's commitment to go beyond the requirements of the Building Regulation Requirements, to ensure that the proposed dwelling achieves excellent thermal performance and reduces the reliance on heat and energy.

- Traditional masonry construction to provide a shorter supply chain and therefore less embodied energy
- Excellent elemental U-values
- Air tightness (high standard)
- Good thermal bridging techniques
- Use of air source heat pump
- A rated appliances
- LED lighting throughout
- MVHR

## **2. Policy S7: Reducing Energy Consumption**

*Unless covered by an exceptional basis clause below, all new residential development proposals must include an Energy Statement which confirms in addition to the requirements of Policy S6 that all such residential development proposals:*

- 1. Can generate at least the same amount of renewable electricity on-site (and preferably on-plot) as the electricity they demand over the course of a year, such demand including all energy use (regulated and unregulated), calculated using a methodology proven to accurately predict a building's actual energy performance; and*
- 2. to help achieve point 1 above, target achieving a site average space heating demand of around 15-20kWh/m<sup>2</sup>/yr and a site average total energy demand of 35 kWh/m<sup>2</sup>/yr, achieved through a 'fabric first' approach*



*to construction. No single dwelling unit to have a total energy demand in excess of 60 kWh/m<sup>2</sup>/yr, irrespective of amount of on-site renewable energy production. (For the avoidance of doubt, 'total energy demand' means the amount of energy used as measured by the metering of that home, with no deduction for renewable energy generated on site).*

In order to comply with Policy S7, the SAP route has been taken for which the calculations are provided and attached to this application. The proposed dwelling has been designed to meet the target space heating demand of 15-20 kWh/m<sup>2</sup>/yr in order to be supported by Policy S7. An air source heat pump and 2.1kW peak of solar panels will be provided to supplement the dwelling's energy needs. A completed energy efficiency checklist spreadsheet has also been provided to explain this in further detail.