



Energy and Building Statement

1. Introduction

- 1.1 This Energy and Building Statement has been prepared on behalf of Crest Nicholson to support the submission of an outline planning application on land at Pit Lane, Wombwell.

2. Relevant Policy and Legislation

Building Regulations

- 2.1 Whilst not planning policy, the Building Regulations and specifically Approved Document Part L: Conservation of Fuel and Power has relevance to the requirements for energy efficiency and carbon emissions of new buildings. The primary mechanism for reducing carbon emissions in new residential and commercial development is progressive changes to Part L aiming to deliver zero carbon buildings.
- 2.2 On this basis, a minimum requirement for the reduction in carbon emissions to be delivered by new buildings' is set within the Building Regulations, with each update requiring lower carbon emissions than the previous version to achieve compliance.
- 2.3 The update in June 2022 required new residential and buildings other than dwellings to achieve 31% and 27% reduction in carbon emissions over the 2013 (with 2016 amendments) Regulations respectively. This uplift is regarded as a first step towards making all buildings 'net zero ready' from 2025 when the Future Buildings Standard comes into effect, mandating a 75% reduction in emissions.

Approved Document 2021 Part L Volume 1: Dwellings

- 2.4 This approved document took effect on 15 June 2022 for use in England. Part L amendments introduce a new principal performance metric measuring energy efficiency. 'Primary energy' will be used in combination with CO₂ metrics to assess compliance with Part L. Primary energy calculations take into account factors such as the efficiency of the building's heating system; power station efficiency for electricity; and energy used to produce fuel and deliver it to the building.

The Future Homes/Buildings Standard

- 2.5 The Future Homes/Buildings Standard: 2021 Consultation on changes to Part L is a document published by the UK government in January 2021, outlining proposed changes to Part L (Conservation of fuel and power) and Part F (Ventilation) of the Building Regulations. The main goal is to improve the energy efficiency of buildings and reduce carbon emissions.
- 2.6 The consultation sought feedback from industry professionals, architects, engineers, and other stakeholders to refine the proposed changes before implementing them as part of the 2025 Future Homes/Buildings Standard.

3. Energy and Carbon Emission Reduction

- 3.1 Developing energy efficient, low carbon buildings is a key objective of national/local policy, enforced through progressive changes to the Building Regulations which require the achievement of a target carbon performance for compliance.
- 3.2 Building performance is determined by a variety of factors including the efficiency of heating, DHW, ventilation, and lighting systems as well as building fabric performance, plant efficiencies, air permeability and the avoidance of overheating.

- 3.3 The Proposed Development is proposed to be compliant with Part L (2021) of the Building Regulations. It is anticipated that this performance will be achieved from a combination of passive design, energy efficiency and renewable technologies.
- 3.4 Potentially feasible technologies for the Proposed Development are Solar Photovoltaic (PV), Solar Thermal, Wastewater Heat Recovery System, and Air Source Heat Pump (ASHP).
- i. **Solar PV:** Solar photovoltaic systems generate electricity by converting sunlight into direct current (DC) using solar panels. The DC power is then converted to alternating current (AC) which could then be used in the Proposed Development for electricity and/ connection to the electricity grid.
 - ii. **Solar Thermal :** Solar thermal technology harnesses sunlight to generate heat, typically for hot water or space heating purposes. Solar collectors absorb sunlight and transfer the heat to a working fluid, which is then used for various heating applications. For the Proposed Development, solar thermal could be used for heating the domestic hot water tank.
 - iii. **Wastewater Heat Recovery System:** This technology captures and reuses heat from wastewater generated in buildings. By recovering the heat energy, these systems help reduce energy consumption and lower greenhouse gas emissions associated with heating water. For the Proposed Development, wastewater heat recovery system could be used for heating the domestic hot water.
 - iv. **ASHP:** Air source heat pumps (ASHP) absorb heat from the outdoor air and transfer it indoors for space heating or hot water production. They work efficiently even at low ambient temperatures, making them a versatile renewable heating solution. For the Proposed Development, ASHP could be used for space heating, including water heating.
- 3.5 In summary, these renewable technologies - Solar PV, Solar Thermal, Wastewater Heat Recovery System, and ASHP offer diverse solutions for generating electricity and heat while reducing carbon emissions and improving energy efficiency. Their implementation supports the transition towards low-carbon energy systems stipulated by the local council.
- 3.6 The integration of a highly thermal efficient building envelope with Solar PV or Heat Pump etc. will ensure potential occupants are protected against the high energy prices. Essentially, the fabric first approach provides protection against fluctuations in both gas and electricity supply tariffs by inherently reducing energy consumption and expands the number of suitable energy generation & delivery options.

4. Summary

- 4.1 The application is in Outline and proposals to meet Future Homes Building Regulation standards are not therefore fixed yet. At Reserved Matters stage it is likely that more clarity around Building Regulation requirements to meet the Future Homes standard will be in place, and Crest will have identified their preferred approach to meeting the required standard. The detailed layout and housetype proposals will inform this strategy. We anticipate this can be covered by a suitably worded planning condition if required by Barnsley Council.