



HARNISS

CONSULTING

ENERGY & SUSTAINABILITY STATEMENT

PROPOSED CARE HOME on

FORMER BULL & MONKIE PUBLIC HOUSE

CHURCHGATE, SPALDING, PE11 2RA

For

CRISPEN HOLDINGS LTD

DOC No: 2109-REP-ES-01

REVISION P2
MAY 2023

Crispen Holdings Ltd
Former Bull & Monkie, Churchgate, Spalding, PE11 2RA

2109-REP-ES-01



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Revision	Date Issued	Description	Prepared	Approved
P1	16.01.2023	First Issue	TS	MC
P2	12.05.2023	Updated to incorporate comments	TS	MC

1 Executive Summary

The following statement seeks to outline the strategy for attaining a sustainable development with specific reference to the standards to be achieved for energy and water conservation at the proposed new-build 88-bed residential care home at the former Drum and Monkie, Churchgate, Spalding, PE11 2RA.

It should be noted that the scheme is not seeking certification under the BRE assessment methodology, however, the design of the proposed care home will be underpinned with a low-energy and sustainable ethos to meet the brief of the developer and align with the South East Lincolnshire Local Plan 2011-36 policies 30 & 31 adopted March 2019. These policies state:

Policy 30: Pollution

Development proposals will not be permitted where, taking account of proposed mitigation measures, they would lead to unacceptable adverse impacts upon:

1. Health and safety of the public;
2. The amenities of the area; or
3. the natural, historic and built environment; by way of:
4. air quality, including fumes and odour
5. noise including vibration
6. light levels
7. land quality and condition; or
8. surface and ground water quality.

Planning applications, except for development with the curtilage of a dwelling house as specified within Schedule 2, Part 1 of The Town and Country Planning (General Permitted Development) (England) Order 2015, or successor statutory instrument, must include an assessment of:

9. impact on the proposed development from poor air quality from identified sources;
10. impact on air quality from the proposed development;
11. impact on amenity from existing uses.

Suitable mitigation measures will be provided, if required. Proposals will be refused if impacts cannot be suitably mitigated or avoided. Development proposals on contaminated land, or where there is reason to suspect contamination, must include an assessment of the extent of contamination and any possible risks. Proposals will not be considered favourably unless the land is, or can be made, suitable for the proposed use.

Policy 31: Climate Change and Renewable and Low Carbon Energy

A. Climate Change

All development proposals will be required to demonstrate that the consequences of current climate change has been addressed, minimised and mitigated by:

1. employing a high-quality design;
2. the adoption of the sequential approach and Exception Test to flood-risk and the incorporation of flood-mitigation measures in design and construction to reduce the effects of flooding, including SuDS schemes for South East Lincolnshire Local Plan 2011-36 all 'Major' applications;
3. the protection of the quality, quantity and availability of water resources, including for residential developments, complying with the Building Regulation water efficiency standard of 110 litres per person per day;
4. reducing the need to travel through locational decisions and, where appropriate, providing a mix of uses;
5. incorporating measures which promote and enhance green infrastructure and provide an overall net gain in biodiversity as required by Policy 28 to improve the resilience of ecosystems within and beyond the site.

B. Renewable Energy

With the exception of Wind Energy the development of renewable energy facilities, associated infrastructure and the integration of decentralised technologies on existing or proposed structures will be permitted provided, individually, or cumulatively, there would be no significant harm to:

1. visual amenity, landscape character or quality, or skyline considerations;
2. residential amenity in respect of: noise, fumes, odour, vibration, shadow flicker, sunlight reflection, broadcast interference, traffic;
3. highway safety (including public rights of way);
4. agricultural land take;
5. aviation and radar safety;
6. heritage assets including their setting; and
7. the natural environment.

Provision should be made for post-construction monitoring and the removal of the facility and reinstatement of the site if the development ceases to be operational. Proposals by a local community for the development of renewable and low carbon sources of energy, in scale with their community's requirements, including supporting infrastructure for renewable energy projects, will be supported and considered in the context of contributing to the achievement of sustainable development and meeting the challenge of climate change.

The design stage calculations will be produced by the Design and Build contractor, however, the strategies and performance criteria stipulated herein is based upon the Employers Requirements and contract specifications, ensuring the implementation of these minimum standards through the design and construction process.

2 Energy and CO₂ Emissions

2.1 Overview

The building, its construction components and internal systems will be designed to achieve compliance with the Building Regulations Approved Document Part L2:2021, with energy efficiency measures and potentially the use of low carbon and or renewable energy technologies, subject to final compliance calculation.

The strategy for this development will centre upon the industry recognised energy hierarchy and the adopted local planning policies. With design considerations under each heading being fully considered and evaluated to enable incorporation where practically, economically and / or technically feasible.



Illustration 1 – Energy Hierarchy

2.2 Approach

The approach of the developments energy strategy shall be in line with I. (j) of Policy DSC1 which states:

Mitigate against flooding and climate change through incorporation of features such as tress and planting, water bodies, retention/filter beds, permeable paving, green energy features and the retention/selection of appropriate materials.

In line with the above adopted planning policies and industry best practices at the outset of the design process, it is vital to ensure that the development uses as little energy as possible. This shall be undertaken through energy efficient design of the building form, fabric and building services systems, which is borne from a collaborative approach from the entire design team. The use of energy in an efficient manner will always yield the greatest dividends in the design of a low carbon / low energy intensive development and have the largest impact on carbon savings.

Whilst Low & Zero Carbon technologies (green energy features) are useful in reducing the emissions caused by energy use in a development, it is essential to ensure that energy is not wasted through poor design and construction. It is for this reason that energy efficient design is always considered first.

The following energy efficient solutions are considered suitable for including in developments of this nature which have; and will continue to be, investigated fully with the development team from the out-set of the design process:

2.3 Energy Efficiency through Building Design (Be Lean)

- i) Reduce the heat loss in winter by providing efficient thermal performance of the building envelope (whilst considering over-heating in summer months).

- ii) Glazing percentage being considered with room volume and building orientation to ensure heat gains can be managed via natural means, where possible.
- iii) Consideration of room depths, again with glazed areas, to maximise benefits of natural light, where feasible
- iv) Low-emissivity, solar control glass to reduce heat loss in winter and cooling loads in summer, and to minimise artificial lighting energy consumption by maximising glazing to solid facade percentage.
- v) Potential for external shading to reduce direct solar gain.
- vi) Maximisation of potential for natural ventilation (where ambient noise levels and room function permit).
- vii) Minimise uncontrolled infiltration by robust construction details to achieve an air permeability of between 3.5 and 5m³/(hr.m²) @ 50Pa.

To achieve the above and in collaboration with the design team the development shall be seeking to achieve a significant betterment on Part L:2021 maximum elemental U-values.

2.4 Energy Efficiency through Services Design (Be Clean)

- i) High efficiency heating systems.
- ii) High efficiency heat-recovery ventilation systems coupled with occupant-controlled ventilation rates (via CO₂ sensor), where appropriate.
- iii) High-efficiency fan selections with 'boost' ventilation rates operated via presence detection.
- iv) Improved SFP's (specific fan power) for increased fan efficiency.
- v) High efficiency DX / VRV cooling systems (used only in instances where natural ventilation cannot offset the internal gains).
- vi) High efficiency ventilation systems with heat recovery, where options for natural ventilation have been exhausted thus requiring a mechanical solution.
- vii) Position plant to minimise pipe / cable / duct runs to reduce system losses.
- viii) High efficiency LED lighting used throughout minimising lighting electrical demand.
- ix) Improved efficacy levels for all lighting.
- x) Intelligent lighting control utilising occupancy sensors, absence control and daylighting levels – where appropriate.
- xi) Meter reading for energy and water consumption.

2.5 Assess the feasibility of Zero Carbon Technologies (Be Green)

Where appropriate to achieve compliance with the Building Regulations a full appraisal of the available technologies will be undertaken during the detailed design stage. The following principal technologies are considered as being the most feasible to apply to the care home; -

- Photovoltaics (PV).
- Air source heat pumps.



The following pictorially represents a summary of an initial desk-top appraisal of suitable renewable energy technologies which was undertaken to arrive at the above suggested technologies which are considered practically, technically, and economically feasible in their application specific to the 88-bed care home development at the former Bull and Monkie Public House, Spalding, PE11 2RA.

The symbols represent a 'traffic-light' system with ◀, ▲, ▶ symbolising poor, average and good; respectively, in relation to the criteria.

Low and Zero Carbon Technology	Criteria						Overall Feasibility
	Potential for Carbon Savings	Demand on Building Space	Potential Planning Issues (inc. air quality, ecology, visuals)	Noise	Whole Life Cost	Technical Feasibility	
Biomass Boilers	▲	▲	◀	▶	◀	◀	◀
Biomass CHP	▲	◀	◀	▲	◀	◀	◀
Solar Thermal	▲	▶	▲	▶	▲	▶	▲
District CHP	▲	▲	▶	▶	◀	◀	◀
Gas CHP	◀	◀	▲	▶	◀	▲	◀
PV	▶	▶	▲	▶	▶	▶	▶
Wind Turbines	▲	◀	◀	◀	▲	▲	◀
GSHP	▲	▲	▶	▶	▲	▲	▲
ASHP (Air to Water)	▶	▶	▲	▲	▶	▶	▶

Table 1 – LZC Technologies Assessment Matrix

3 Waste Management

A waste separation and recycling policy on site will be developed with the contractor, to establish a segregated waste system, with a minimum of five streams: masonry, steel, timber, cardboard, and general waste. If segregation cannot be undertaken on site, then all waste generated will be to a waste transfer station for segregation.

The use of CFCs by avoiding insulation materials which use CFCs as blowing agents, halon fire extinguishers, and any type of aerosols used on site which use CFCs as propellants, will be avoided.

Provision shall be made within the scheme to allow for recycling of waste from the building during its operation, by locating a dedicated recyclable waste storage / refuge area externally. The refuge area will have good vehicular access and be of sufficient area and aspect to enable separation and storage of construction waste.

4 Efficient Use of Resources

Where possible construction materials will be recovered from demolition or earth moving operations. Recycled or second-hand materials will be considered where these are available and commercially viable.

Timber is specified from sustainable sources and the use of tropical hardwoods is avoided. Where possible timber used will be FSC (Forest Stewardship Council) accredited.

Wood preservatives, paints and stains are to be applied in accordance with COSHH regulations, and the use of solvent-based paint and stains will be avoided.

All insulation will have zero ozone depletion and a global warming potential of less than five.

5 Health and Wellbeing

Visual comfort shall be considered with illuminance (lux) levels in all internal relevant building areas designed in accordance with the SLL Code for Lighting 2012. Illuminance levels for lighting in all external areas within the construction zone are specified in accordance with '*BS 5489-1:2013 +A2:2008 Lighting of roads and public amenity areas*'.

Internal temperatures will be in line with the design guide and industry standards to ensure thermal comfort levels are achieved within the building.

Water quality is ensured with all water systems designed in compliance with the measures outlined in the Health and Safety Executive's '*Legionnaires' disease - The control of legionella bacteria in water systems*' Approved Code of Practice and Guidance, 2000.

A wholesome supply of accessible, clean, and fresh drinking water shall be provided.

Internal and external noise levels will be kept to a minimum to avoid any impact on local surroundings and ensure comfortable noise levels within rooms.

6 Reduction of water demand

Similar to the energy hierarchy, the water strategy for the proposed building focuses first on resource reduction, then considers efficient use and finally recycling. The approach for water consumption will be as follows:

- The water usage specification has been designed to achieve an improvement against the limiting values set at 110 litres/person/day.
- Metering of water consumption is proposed. This will highlight any abnormal usage patterns and help in the creation and tracking of targets for water use minimisation. Primary billing meter communications link will also potentially provide the methodology for implementing leak detection through the alarm of 'out of range' values being recorded (this is subject to the billing meter location and configuration).
- Sub-metering is proposed for individual system usage such as domestic hot water, process loads for kitchen and laundry and building mains potable water distribution, etc, in line with *CIBSE TM39 and AD Part L* requirements with pulsed output capability to the BMS.
- Automatic irrigation systems will not be utilised with low maintenance landscaping features / plant species being proposed.