



HARNISS
C O N S U L T I N G

SUSTAINABILITY STATEMENT

for

**THE FORMER ASCOT ARMS, CENTRAL AVENUE,
GRAVESEND, DA12 5AW**

On behalf of

AVERY HEALTHCARE GROUP (AVERY)

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1 Executive Summary

The ethos of the development team is to deliver a first-class care experience with Sustainable Construction at its core.

This document primarily identifies the methodologies of the proposed building design to achieve an energy efficient building alongside other fundamental principles of achieving a sustainable building.

With energy efficiency and fuel conservations at its core, the design of the proposed 62-bedroom Care Home (Use Class 2) on the site of the former Ascot Arms, Central Avenue, Gravesend, DA12 5AW shall achieve the following enhancements resulting in significant improvements to current industry standards and best practice:

- Building fabric performance to be enhanced with improved u-values and air permeability.
- Low carbon and / or renewable technologies to provide compliance against Part L2a 2013 requirements.
- CO₂ emissions shall be reduced against the baseline building.
- High efficiency heating & cooling systems.
- High efficiency ventilation systems.
- High efficiency lighting with LED fitting used throughout.
- Intelligent lighting control utilising occupancy sensors and background lighting levels – where appropriate.
- Meter reading for energy and water consumption.
- Automatic irrigation systems will not be provided as the landscaping design will seek to utilise low maintenance landscaping features and plant species.
- Water efficient / low flow appliances and fittings are proposed to further minimise water consumption.
- A wholesome supply of accessible, clean, and fresh drinking water shall be provided.
- Provision of electric vehicle charging points.
- Careful selection and specification of materials to minimise environmental impacts of construction and operation.
- The Care Home will add to the local area by creating employment thus helping sustain the local economy.
- The quality of the building design also provides a positive response to the landscape character of the wider area.

Together, these key design principles will support a high quality, safe and comfortable environment for people with care needs, whilst exceeding minimum build standards to reduce the impact on the environment.

The rest of this document expands on the above summary and reviews further sustainability targets on this project to achieve the aims set out by the developer and their professional team.

2 Introduction

The concept of sustainability covers a wide range of related issues; however, the key principle is to ensure the development meets current needs without compromising the needs of future generations.

The most significant environmental impact for Sustainable Construction is energy efficiency and CO₂ emissions. The measures proposed on this project to deliver a sustainable and energy efficient development will be looked at in more detail in the following sections of this statement.

The other key principles of sustainability which shall be considered in the design and construction of this development are:

- Water Use.
- Efficient Use of Resources.
- Provision of electric vehicle charging points.
- Health and Wellbeing.

3 Energy and CO₂ Emissions

Producing a sustainable, energy efficient building starts with the building fabric itself. It is not practical to provide energy efficient features within the building if that building first cannot maintain a high level of energy retention.

The recognised energy hierarchy to “Be Lean, Be Clean, Be Green” shall be followed to minimise the building’s energy usage before applying renewable technologies to the design.

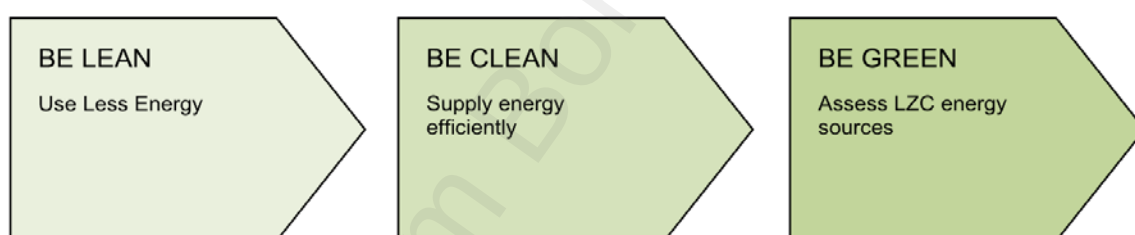


Figure 1 - Energy Hierarchy

Improvements over AD Part L2a limiting building fabric u-values shall be made throughout which will result in significant reductions in the CO₂ emissions of the building and reduce the energy needed to maintain comfort levels within the building.

In addition, the building shall reduce CO₂ emissions against the ‘baseline’ building with the use of high efficiency building services installations and the use renewable or low carbon solutions where feasible to ensure compliance against Part L2a.

The following principal renewable/low carbon technologies are considered as being the most feasible to apply to the care element of the development masterplan to achieve the energy requirements above:

- Combined Heat & Power (CHP).
- Photovoltaics (PV).
- Air Source Heat Pumps.

In achieving these requirements, the resultant design should exceed energy targets set out in building regulations and provide an energy efficient, sustainable development.

Limiting solar gain using high specification glazing reduces the need for additional cooling which further reduces the CO₂ emissions of the building.

The design of day spaces is fundamental to the health and wellbeing of the residents of the building, however, to achieve this, large expanses of glazing are necessary which will require close collaboration with the architect to arrive at the glazing area and glazing specification to ensure solar gain is controlled. The building shall be assessed, and the glazing specification enhanced areas to achieve compliance with Criterion 3 of the Building Regulations AD Part L2a 2013.

Further to the materials used, it is important to minimise uncontrolled ventilation losses in new buildings with good construction details to meet the stringent air permeability targets of Part L. This scheme will aim to significantly improve on the Part L minimum requirement of 10m³/m²/hr at 50Pa with a target air permeability of under 5m³/m²/hr at 50Pa. This target has been achieved successfully across several recent Care Home developments by Avery Healthcare Group (Avery) across the country.

Once the building form and the construction element performances have been developed as far as is practical, it is important to ensure energy efficient systems, plant, equipment, and devices are designed, selected, and installed.

Improvements to the energy efficiency of plant over those stated in the *Non-domestic Building Services Compliance Guide 2013*, shall be achieved throughout.

The following energy efficient solutions for building services systems are considered suitable for including in a development of this nature and shall be investigated fully with the development team and targeted from the out-set of the design process:

- High efficiency heating systems.
- High efficiency DX / VRV cooling systems, where specified.
- High efficiency ventilation systems with heat recovery, where mechanical solution is required.
- Position plant to minimise pipe / cable / duct runs thus reducing system losses.
- High efficiency lighting with LED fitting used throughout.
- Intelligent lighting control utilising occupancy sensors and background lighting levels – where appropriate.
- Meter reading for energy and water consumption.

4 Water Use

Like the energy hierarchy, the water strategy for the proposed Care Home will focus first on resource reduction, secondly efficient use and then finally any potential for recycling. The approach proposed is described in more detail below.

Reduction of water demand:

- Metering of water consumption is proposed. This will highlight any abnormal usage patterns and help in the creation of and subsequent tracking of consumption targets for water use minimisation.
- Sub-metering is proposed for individual system usage such as domestic hot water (where central system is utilised).
- Automatic irrigation systems will not be provided as the landscaping design will seek to utilise low maintenance landscaping features and plant species.

Efficiency:

- Water efficient / low flow appliances and fittings are proposed to further minimise water consumption.

Recycling:

- Recycling of water is not considered feasible and therefore is not proposed for this development.

5 Electric Vehicle Charging Points

The site and location will be provided with electric vehicle charging points to facilitate the use of low emission vehicles driven by staff and visitors. We anticipate that 2No electric vehicle charging points will be provided to cover the number of parking spaces.

6 Health and Wellbeing

Visual comfort shall be considered with illuminance (lux) levels in all internal relevant building areas designed in accordance with the 'BS EN 12464-1:2011 Light and lighting. Lighting of workplaces. Indoor workplaces'

Illuminance levels for lighting in all external areas within the construction zone are specified in accordance with 'BS EN 12464-2:2014 Light and lighting. Lighting of workplaces. Outdoor workplaces'

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.

7 Conclusion

Sustainable Construction shall be the key driver of the development team to deliver a Care Home that is built for the future and will provide residents with a high-quality environment that is not only fit for purpose but exceeds current standards throughout. The quality of the building design shall also provide a positive response to the landscape character of the wider area.

The Care Home at Ascot Road, Gravesend shall surpass current energy standards with improvements to the building fabric itself, as well as the systems installed, reducing the impact on the environment whilst minimising fuel consumption.

The Care Home's influence on water and energy use will be duly considered to ensure the building offers a positive impression on the local and wider areas.

In summary, it is the ethos of the development team to provide a care home that is sustainably designed and constructed to achieve a carbon reduction through a combination of energy efficiency, carbon compliance and sustainable solutions, which are in line with and exceeding current industry standards.

The technical feasibility of installing each LZC technology at the proposed care home has been assessed to discount any unsuitable options at an early stage. With careful consideration of the suitable technologies and known servicing strategies of the client, our recommendation would be to install a small-scale CHP correctly sized providing a year-round consistent output of electricity and heat which ties in with the load-profile of the care home.