Victoria Gate

119-127 South Road

Haywards Heath

Planning Support Statement

For

Energy & Sustainability

INTRODUCTION

This energy statement sets out the environmental aspirations for the proposed new development on 119-127 South Road, Haywards Heath Sussex and has been created to support the planning application being made on behalf of the client.

By adopting a sustainable approach in design, construction, and operation the proposed Victoria Gate development aims to meet the requirements of the planning policy of the Mid Sussex District Council. The proposals for the new development tackle the following key environmental issues: energy and CO_2 emissions, water, materials. A hierarchy will be applied during the detailed design phase of the Project.

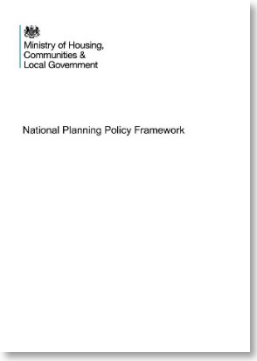
The Victoria Gate development is a proposal to extend the existing retail & residential development on South Road Haywards Heath.

KEY DRIVERS

The key driver documents used for the design and development of the project take into account current policies issue at a local and national level. These policies frame the direction of developments and provide direction to the contents

National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2021 is a key part of the governments reforms to make the planning process system less complex and more accessible, to protect the environment and promote sustainable growth. It sets out the government's planning policy for England and how these are expected to be applied. This document does not contain any specific environmental sustainability and energy targets.



Local Plan & Local Development Framework

The Mid Sussex District Plan was adopted in 2005 and expired in 2008. With the introduction of the new planning system. However, the government allowed the life of local plan policies to be extended ('saved') until replacement by the Local Development Framework (LDF)/Local Development Scheme (LDS)

The LDS includes policy R3 Energy Efficiency which does not give any specific targets to be met.

District Wide Policies

The council have created a 'Sustainability Checklist' to be included within Mid Sussex District plan which includes detailed criteria for which all developments will be assessed. These includes DP40 Renewable energy.

ENERGY STATEMENT

The proposed Victoria Gate development aims to minimise CO_2 emissions to the atmosphere arising from the operations of and within the building. To minimise CO2emission, the following energy hierarchy has been applied to the design strategy

(i) minimizing energy consumption through passive design measure **(BE LEAN)**
(ii) supplying energy efficiently through active systems **(BE CLEAN)**
(iii) maximising energy generation from on site low and zero carbon sources. **(BE GREEN)**

The three principles will be applied in sequence and systematically to the development of the project and are illustrated in the following sections.

Passive Design Measures

The energy efficient building design of the proposed Victoria Gate development will minimise the need for energy in operation whilst maximising the comfort of users during the lifetime of the buildings. The integration of passive design principles will enable the building to be less reliant on HVAC and minimise the dependence on artificial lighting tacking advantage of natural energy flows to maintain thermal comfort.

The external façade will be designed to optimise the use of natural daylight and passive solar gains during the winter months. To limit solar gains and where necessary solar control will be applied to windows to control glare.

The building envelope shall be designed to be compliant with current Building Regulations Approved Document Part L (2013) and addressees the conservation of Fuel & Power. Part L is divided into four sections of which Part L Vol1: Dwellings (2021 Edition with 2023 amendments) is the relevant document for this development.

The design of the façade is envisaged to go beyond the limiting U-values and air permeabilities as set out on the AD L1 Vol1

AD L1 Vol1 - Table 2 Limiting fabric parameters & proposed U-values

Element	AD L1 Vol1:2021	Proposed	Improvement
Roof	0.15 W/m^2K	0.135 W/m^2K	10%
Wall	0.18 W/m^2K	0.15 W/m^2K	17%
Floor	0.18 W/m^2K	0.15 W/m^2K	17%
Glazed windows	1.4 W/m^2K	1.2 W/m^2K	15%
Air Permeability	8 m^3/hm^2 @50PA	5 m^3/hm^2 @50PA	47.5%

Key areas which will be reveiwed during the detailed design to meet the aspirations of passive design measures including proposed U-values will be:

- good and improved levels of thermal insulation embedded within the fabric on all sides.
- attention to thermal bridging detailing using Accredited Construction details
- glazing specification, using good quality systems meeting good performance levels.
- Use of efficient heating systems and controls
- Use of natural ventilation avoiding the use of Air Conditioning

- Maximisation of natural daylight therefore reducing the demand for artificial lighting

Energy Efficient Systems

Following on from the passive design measures being considered for the development at Victoria Gate the next stage is to review energy efficient systems which would be considered and discussed during the next stage.

These systems will include the review of the primary heating source which could be either high efficiency Condensing gas boilers using the gas local network or the use of high efficiency electric heat pump.

These systems will be reviewed in more technical detail during the next stage of the design.

In addition to, and once, the primary heat source has been determined the system selection for the heating the building will be determined. This will either consist of underfloor heating using a wet system of pipework within the floor structure or via wall mounted panel radiators.

All mechanical ventilating requirements shall use units which the appropriate specific fan Power (SPF) to meet efficient energy levels.

Lighting within the apartments will utilise current LED lighting technology further reducing demand for energy. Lighting control such as localised dimming of the light fixtures will also be considered.

This will be achieved through the use controlled light optics and fixture design. In addition to this lighting controls incorporating movement detection and timeclocks will also be considered.

Renewable, Low & Zero Carbon Technologies

In order to reduce the overall CO_2 emissions of the development in use and meet and exceed the requirements set out by the local planning policy a number of systems have been reveiwed. The detailed sizing and use of these systems have not been determined at this time as there is no specific target set to be met.

The systems reviewed include: -

- Heat Pumps
- Biomass
- Micro Combined Heat & Power (CHP)
- Photovoltaic Panels
- Solar Hot Water
- Wind turbines

Systems immediately discounted at this stage of the design, but can be revisited if circumstances change, due to impractical or cost constraints are as follows: -

Biomass

Biomass systems use wood pellets within a burner to power centralized heating and hot water systems. Where these systems heat large singular areas or volumes then they are more practical and viable but when they are applied to individual apartments where there is limited storage space, they are not. There is an impracticality of having deliveries, usually via large commercial vehicle which would bring unnecessary traffic to the town.

Micro Combined Heat & Power (CHP)

MCHP systems use a fossil fuel (gas) to power an engine which in turn generates electricity and generate heat which is used via heat exchanger to heat hot water for the primary heating source. These types of systems are generally not regarded as being renewable but more, energy efficient system. However, the use of a fossil fuel has reduced its viability on sustainable grounds due to the CO^2 emissions.

This system has been discounted on sustainability, cost and maintenance grounds and that the system requires a yearly continuous demand for heat which for residential properties is limited during the summer months.

Wind Turbines

Using the natural wind to produce electricity is an efficient but sporadic renewable source of energy. The location of the turbine is dependant on the local landscape and geography and the location of the development in relation to the prevailing wind patterns.

Wind turbines come in various sizes and make and are best suited within rural areas where there is less of a built-up environment. The downside of turbines is that the larger the become they can generate noise and can prove to be a nuisance. As there are planning guidelines and towards the noise and aesthetic aspects of the development is decided that a wind turbine for the development is not a viable option in this instance

The systems which present genuine viability and are to be considered during the next stage of the design and evaluated accordingly are as follows.

Heat Pumps

There are primarily two types of heat pump system Air Source (ASHP) either Air to Air or Air to water & a Ground Source Heat Pump (GSHP).

A heat pump works by extracting heat from either the air or the ground and causes a refrigerant liquid to evaporate into a gas and when the gas is compressed it heats up and transfer this heat, via a heat exchanger, to liquid which is used to heat the apartment or hot water system.

If this is process uses a GSHP then it is normally achieved via either a vertical energy pile sunk into the ground or via a 'slinky' which is a buried loop circa 1m beneath the finished ground level. If an ASHP system is used the heat pump can be located on the roof or at high level against the property. In each instance a Heat pump is a viable technology and with future discussion and analysis an appropriate suitable system can be selected.

As the apartments are above ground the viability of a ground source solution is not practical.

Solar Hot Water

Solar thermal hot water systems use the heat from the sun to raise the temperature of a liquid to then transfer this heat to a domestic hot water system. The system works well in areas of high sunshine and daylight hours the panel are mounted at roof level. Consideration will be given to this technology during the next stage of the design but if a heat pump system is selected also this negates the need for solar hot water panels.

Solar Photovoltaic panels (PV's)

PV's use the suns energy to create electricity which is used to operate electrical items within the development. When used in conjunction with ASHP they offset a portion of the energy usage these high-capacity compressors use. The main consideration required when planning the location for the PV panel array is the panel orientation. In this instance the building has a flat roof without any direct overshadowing from other buildings.

The current development has the building on a northwest/southeast orientation and PV are suitable as they can be orientated for maximum effect.

Summary

The recommended energy & renewable systems for the development would be to utilise Air Source heat pumps with Photovoltaic electric panels on the roof. These will be the preferred technologies to be developed during the next stage of the design.