10.0 Environmental Strategy

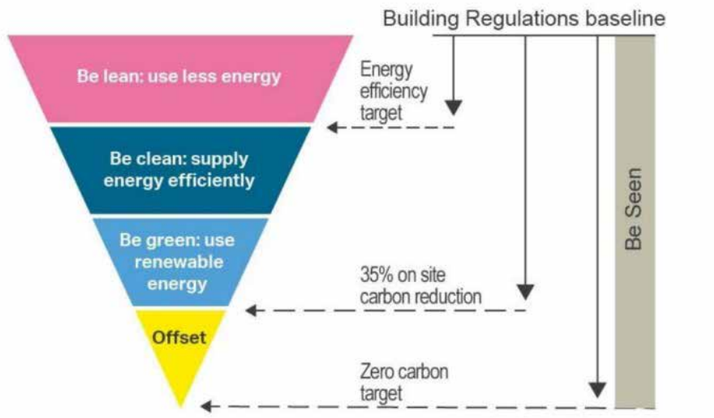
10.1 Energy

This development has been designed to satisfy the Current London Plan policy and to achieve a minimum 35% reduction in CO2 emissions compared with Part L 2021 Building Regulations, and also to satisfy zero carbon policy by providing a carbon offset payment for the remaining regulated carbon dioxide emissions, to 100%.

ENERGY STRATEGY HIERARCHY

Our design approach follows the London Plan energy hierarchy, as below:

Figure 1: *The London Plan energy hierarchy*



FABRIC FIRST APPROACH

As per London Plan policy the scheme has been designed to meet the requirement for an enhanced fabric performance and achieve a minimum 10%/15% reduction in regulated CO2 onsite through energy efficient design measures.

The building specification has been defined including high performing fabric U values, good thermal bridging details and improved building air permeability to achieve the required 10% target for the residential units and 15% for the non-domestic units, as per the London Plan requirements.

EFFICIENT HEATING STRATEGY

The developments sustainable design standards are integral to the proposal, these include supplying heating and domestic hot water via communal Air Source Heat Pumps to the residential properties.
This provides all the dwellings within the application a central, energy efficient form of heat delivery. The London Heat Map has been checked and there are not opportunities for connections to any existing or planned heat networks, however the communal nature of the heating enables the possibility to design in future connections if required.

Individual VRF ASHP systems will be proposed for the commercial shell & core units, however provision for future connection to a potential side wide network can be allowed for.

RENEWABLES

In addition to the above and to align with the requirements of the London Plan the scheme will maximise the use of photovoltaic panels (PVs) on the available roof space, after accounting for space required for other plant.

A summary of the proposed specifications can be found below:

Element	Value (Resi/Com)
External Walls (U-value)	0.16 W/m²K
Roof (U-value)	0.10 W/m²K
Floors (U-value)	0.10 W/m²K
Windows (Including Frame) (U-value)	1.2 W/m²K
Glazing total solar transmission (G-value)	45%
Air tightness	3.0/ 5.0 m³/h.m² @ 50Pa

Services	Proposal (Resi/Com)
Space Heating	Communal ASHPs / Individual VRF Split ASHP
Hot Water	Plate Heat Exchangers / Instantaneous Electric Hot Water
Space Cooling	None / Individual VRF Split ASHP
Ventilation	Efficient MVHR System / Efficient MVHR System
Renewables	PV will be maximised as per the available roof space

The above specification is designed to provide the required minimum 35% over Part L 2021.

OVERHEATING ANALYSIS

An overheating analysis will be carried out on IES 3d thermal modelling, in order to ensure that there are no significant overheating risks and that the development complies with CIBSE TM59: 2017 “Design Methodology for the Assessment of Overheating risk in Homes” which is directly associated with CIBSE TM52: 2013 ‘’The limits of thermal comfort: avoiding overheating in European buildings’’.

This analysis will also take into account Part O of the building regulations. This will include any potential limitations to window openings due to noise, air quality and safety concerns.

In line with the cooling hierarchy natural means of ventilation will be practised where possible with active cooling only used as a last resort. A sample of dwellings will be modelled with the following considerations:

- With large glazing areas
- On the topmost floor
- Having less shading
- Having large, sun-facing windows
- Having a single aspect, or
- Having limited opening windows

At least one corridor will be included in the assessment if the corridors contain community heating distribution pipework.

BE SEEN

As part of the “Be Seen” process, a Whole Life-cycle Carbon (WLC) analysis will be carried out. The main goals of WLC analysis are:

- Calculate the whole life carbon emissions including operational carbon emissions
- Identify the construction materials with higher embodied carbon and try to minimise their impact on the overall carbon footprint
- Inform and engage the design team to allow for decision-making throughout the design and construction process to optimise the design and reduce carbon emissions.

10.2 Sustainability

Our objective with this project is to create a low carbon design which is minimises its carbon footprint throughout the life cycle of the project.

There are two very distinct components of this project, the residential, and the football club. Each component has different operational and user requirements, but together they represent an unique opportunity to incorporate, passive and renewable design features to create a low carbon design.

Sustainable features proposed for this project can be summarised as follows:

- The retention and reuse of the Erith & Belvedere multi-purpose hall and ancillary accommodation
- Provision of new spectator seating fabricated from 100% recycled plastics.
- Extensive use of PV panels on the residential and football club buildings.
- Utilising a more sustainable granular infill for the 3G pitch such as cork. This will require approval by the FIFA approved contractor who will lay the pitch.
- The floodlighting to the ground will be replaced with energy efficient LED lamps which will be dimmable and zonable.

RETAINED AND REUSED BUILDINGS & STRUCTURES


PV PANELS


RECYCLED PLASTIC PLASTIC


CORK GRANULES INFILL FOR 3G PITCH


LED FLOODLIGHTING

CONTINUED

- Utilising the flat roofs and the pitch to collect grey water. This may be used to flush toilets and slicken the playing surface and help retain the granular infill.
- We will explore the use if biodigesters or composters to reduce the amount of food waste. The natural gas produced as a by-product could power boilers which in turn provides hot water to the wash rooms & changing rooms.
- Spectator recycling will be encourage by clearly labelled and accessible bins located at strategic points around the ground. The ambition is to become a zero waste stadium.
- Utilising the flat roofs to provide intensive and extensive green roofs and therefore contributing to the biodiversity net gain.
- Composite Timber Decking used on terraces and balconies. This is a fully recycled and recyclable material which is self healing and fire resistant
- A car club is proposed on Roseacre Road to help reduce potential car ownership of the new housing proposed. All local residents will be able to use this scheme.
- Secure cycle storage for all residential, commercial and club users/ supporters will be provided.

In addition to the above the scheme will incorporate:

- High performance glazing
- Energy efficient lighting and controls within dwellings and communal areas
- Low flush capacity WC's and water efficient taps
- Horizontal and vertical solar shading to the south pitch facade
- Sustainable drainage systems incorporating permeable paving and blue roofs.
- Additional ventilation and cooling capacity provided by an MHVR units within dwellings to prevent overheating.

INTENSIVE GREEN ROOFS

EXTENSIVE GREEN ROOFS

SUSTAINABLE COMPOSITE DECKING

SECURE CYCLE STORAGE

CAR CLUB

RAINWATER HARVESTING

10.3 Others

For further information on environmental subjects which accompany the design and access statement please refer to the following standalone reports.

These are (but not limited to) as follows:

- Sunlight/ Daylight / Overshadowing
- Noise
- Air Quality
- Flood Risk & SUDS
- Ecology
- Biodiversity
- Trees