



## ENERGY STATEMENT

FOR: APPLICATION FOR A NEW DWELLING

AT: LAND AT 130 DRACAENA AVENUE, FALMOUTH TR11 2ER

ON BEHALF OF: MR D. HEMLOCK

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Figure 1. Sketch Visual of Proposed Dwelling

## **1 INTRODUCTION**

This Energy Statement supports the Planning Application for the Proposed new dwelling on land to the rear of 130 Dracaena Avenue, Falmouth.

This Energy Statement illustrates how energy efficiency, low carbon and renewable energy measures have been considered and will be implemented within the development.

The proposed dwelling has been assessed using the Standard Assessment Procedure (SAP) and a completed Energy Summary Tool accompanies this Application.

## **2 CLIMATE CHANGE EMERGENCY DEVELOPMENT PLAN DOCUMENT (DPD)**

Cornwall Council declared a Climate Emergency in 2019 and an Ecological Emergency in 2022. As part of the Council's plans for Carbon Neutral Cornwall, new policies have been prepared to help address the climate and ecological emergencies. Of these, Policy SEC1 states that Development proposals will be required to demonstrate how they have implemented requisite principles and requirements in respect of Sustainable Energy and Construction.

Policy SEC1 reference the Energy Hierarchy, in which, within the design of buildings, all developments should prioritise fabric first, orientation and landscaping in order to minimise energy demand for heating, lighting and cooling. All proposals should consider opportunities to provide solar PV and energy storage.

In respect of applications for Residential Development, Policy SEC1 requires proposals to achieve Net Zero Carbon and submit an 'Energy Statement' that demonstrates how the proposal will achieve:

- Space heating demand less than 30kWh/m<sup>2</sup>/annum;
- Total energy consumption less than 40kWh/m<sup>2</sup>/annum; and
- On-site renewable generation to match the total energy consumption with a preference for roof mounted solar PV.

In addition to the above, Policy SEC1 references the use of water, with a requirement for dwellings to achieve an estimated water consumption of no more than 110 litres/person/day through water saving measures where feasible.

## **3 SITE CONTEXT AND CONSTRAINTS**

130 Dracaena Avenue is a House of Multiple Occupancy (HMO) utilised for rented Student Accommodation. The building was originally a dwelling house but was converted to its current use in the 2000s.

The garden to the former house serves as external amenity space for the residents of the property. The garden is currently underused, utilised primarily for drying clothes and as occasional external recreation space.

A flat roof garage building occupies a position to the south which also contains a small utility room and a sitting room for the student residents. This building partially extends into the southwest corner of the garden. The existing garden area possesses an access onto Ashfield Villas, a short cul-de-sac to the west of Dracaena Avenue. This access already consists of a large vehicle sized timber gate.

## 4 FABRIC OF DWELLING

High levels of thermal insulation within the building fabric are proposed within the dwelling aimed at enhancing energy efficiency and thermal comfort.

Effective thermal insulation encompasses various components of the building envelope, including walls, roofs, and windows, each of which plays a significant role in preventing heat transfer between the interior and exterior environments.

1. **Well-insulated walls:** Insulating walls helps to minimise heat loss during colder months and prevents heat gain during warmer periods. This is typically achieved through the installation of materials with high thermal resistance within wall cavities or within timber frame construction. Properly insulated walls not only reduce energy consumption for heating and cooling but also enhance indoor comfort by maintaining more stable temperatures.
2. **Insulated roofs:** Adequate insulation in the roof space is crucial for minimising heat loss through the top of the building. Insulating materials installed in the attic or roof rafters create a thermal barrier, preventing warm air from escaping in winter and reducing heat gain in summer.
3. **Energy-efficient windows:** Windows are significant areas of heat loss and gain within a home. To mitigate this, energy-efficient windows with multiple glazing layers, low-emissivity coatings, and insulated frames are installed. These windows effectively reduce heat transfer while still allowing natural light to enter the home. Additionally, proper sealing and weather-stripping around window frames further enhance energy efficiency by minimising air leakage.

By ensuring high levels of thermal insulation across walls, roofs, and windows, the proposed building will achieve optimal energy performance standards.

## 5 SPACE AND WATER HEATING

The proposed dwelling will be provided with a modern, efficient Air Source Heat Pump as the primary method of space heating and water heating. The proposed hot water system will utilise an appropriately sized hot water cylinder for the storage of hot water. Air source heat pumps offer several benefits making them an attractive option for homeowners seeking efficient and environmentally friendly heating solutions. These heat pumps extract heat from the outside air, even in cold temperatures, and transfer it indoors to provide warmth during winter months. Compared to fossil fuel-based heating systems, such as oil or gas boilers, Air Source Heat Pumps produce fewer carbon emissions, making them a more environmentally friendly choice of heating system.

## 6 ENERGY CONSUMPTION

The proposed dwelling will promote the use of low-consumption lighting and electronic appliances as a fundamental aspect of promoting energy efficiency and sustainability. Incorporating energy-efficient lighting and appliances can significantly reduce electricity usage, lower utility bills, and minimise environmental impact.

- **Lighting**  
Light-emitting diode (LED) or compact fluorescent lamps (CFLs) are lighting technologies which consume significantly less energy and last much longer than incandescent bulbs, making them cost-effective alternatives.

- **Electrical Appliances**

The use of electronic appliances with high energy efficiency ratings is essential for reducing electricity consumption in dwellings. Energy Star-rated appliances, including refrigerators, dishwashers, washing machines, and televisions, are designed to operate more efficiently, using less energy while delivering the same level of performance as their conventional counterparts. By utilising energy-efficient appliances, the homeowner can lower their energy bills and decrease their carbon footprint without sacrificing convenience or functionality.

## **7 ELECTRIC VEHICLE CHARGING POINT**

While Sustainable Transport is addressed within Policy T1 of the Climate Emergency DPD, domestic electric vehicle (EV) charging point infrastructure is proposed within this development. The dwelling will be provided with its own EV charging point. EV charging points offer a range of benefits, contributing to the widespread adoption of electric vehicles and promoting sustainable transportation solutions. This connection will support the use of an electric car by the homeowner, instead of a fossil-fuel equivalent.

## **8 ENERGY PRODUCTION**

The proposed dwelling will be installed with solar photovoltaic panels on its roof. The provision of solar panels offers a multitude of benefits, ranging from environmental sustainability to economic savings and energy independence. By harnessing the power of sunlight, solar panels provide a renewable and clean energy source that significantly reduces reliance on fossil fuels and mitigates harmful greenhouse gas emissions.

It is proposed that the dwelling will be provided with **3.2kWp** of Photovoltaic Panels.

## **9 WATER EFFICIENCY**

To meet the requirements of Policy SEC1 in respect of water usage, references the use of water, with a requirement for dwellings to achieve an estimated water consumption of no more than 110 litres/person/day through water saving measures where feasible.

- **Low flow fixtures**

Installing low-flow faucets, showers, and toilets can significantly reduce water consumption without sacrificing performance. These fixtures are designed to maintain adequate water pressure while using less water per use.

- **Dual-flush toilets**

Dual-flush toilets provide users with the option to choose between a reduced flush for liquid waste and a full flush for solid waste, helping to conserve water.

- **Water-efficient Appliances**

Water-efficient appliances such as dishwashers and washing machines can reduce water usage. Where appliances are installed, preference will be made towards appliances with high energy efficiency ratings and water-saving features.

- **Water-saving taps**

Flow restrictors on taps will reduce water flow rates without compromising usability.

By incorporating these measures, dwellings will not only meet the water efficiency requirements outlined within Policy SEC1 but also potentially reduce water bills for the occupant.

## 10 WASTE

In terms of waste management, the proposed dwelling will provide sufficient space internally and externally for the storage of domestic recycling. Externally, the proposals feature a designated bin store in which waste can be stored prior to collection. Providing such a space is seen as important in order to allow the occupants to appropriately manage their recycling, encouraging this process to happen and reducing the amount of waste which is going to landfill.

## 11 ENERGY SUMMARY TOOL

A completed Energy Summary Tool has been provided in support of this application to illustrate how the proposed development will meet the requirements of the Climate Emergency DPD Policy SEC 1 part 2b in respect of the proposed development's Space heating demand, the Total energy consumption and On-site renewable generation to match the total energy consumption with solar PV. The headline results are as follows:

<b>Space Heat Demand</b>	28.3 kWh/m <sup>2</sup> TFA/yr
<b>Total Energy Use</b>	33.4 kWh/m <sup>2</sup> GIA/yr
<b>On-site Renewables</b>	-2801 kWh/yr
<b>Renewable Generation</b>	111%
<b>Energy deficit</b>	0 kWh/yr
<b>Offsetting payment</b>	None Required

## 12 CONCLUSION

The proposals will deliver a modern energy efficient dwelling. The proposed building will utilise high levels of insulation, use technologies which conserve energy and water. As well as this, the property will be equipped with an Air Source Heat Pump and Solar Photovoltaic Panels, allowing it to be heated efficiently and to generate a significant amount of renewable electrical energy.

The proposed development will achieve energy efficiency values better than those nationally required within Part L of current Building Regulations.

It is considered that the proposed development meets Policy SEC1 and promotes sustainable development within the built environment.

Prepared by

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For and on behalf of **CAD Architects Ltd**