

ENERGY STATEMENT

FOR: APPLICATION FOR A NEW RESIDENTIAL ANNEXE

AT: Chycowlin, Quenchwell Road, Carnon Downs

ON BEHALF OF: MR P Lightfoot

DOCUMENT REF NO: 3298-3-Energy Statement

ISSUE DATE: 4th March 2024

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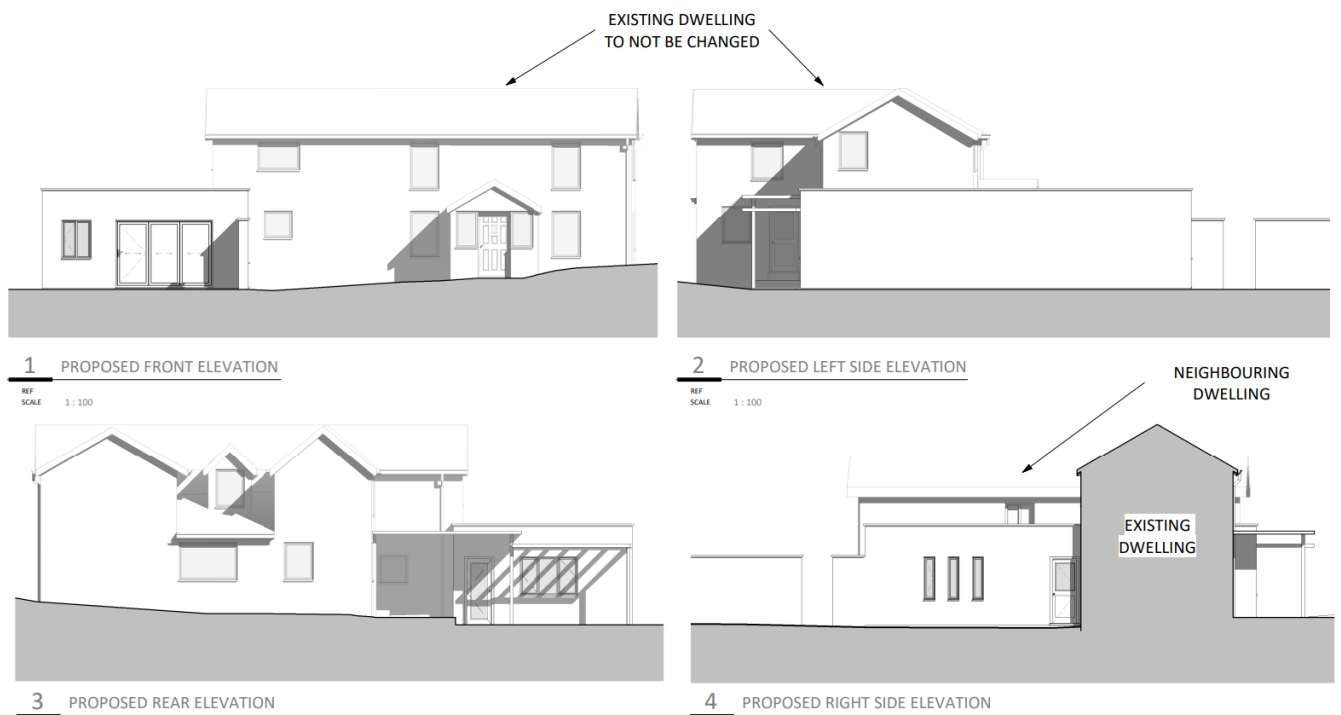


Figure 1. Proposed Elevations of Annexe

1 INTRODUCTION

This Energy Statement supports the Planning Application for the Proposed new annexe at Chycowlin, Carnon Downs. The annexe is attached to the dwelling but creates independent living accommodation for the applicant's elderly relatives. The accommodation comprises of one ensuite bedroom, a small hallway, and an open plan living room/kitchen/dining area. The extension has a flat roof and will be rendered to finish, which matches the house.

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

In preparing this Energy Statement, 'Achieve Green' have prepared a SAP calculation and these findings have been used to complete the Energy Summary Tool, required by Cornwall Council for validation purposes.

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, which includes annexes, 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/m²/annum;
- Total energy consumption less than 40kWh/m²/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.

Policy SEC1 confirms that where the use of onsite renewables to match total energy consumption is demonstrated to be not technically feasible, renewable energy generation should be maximised as much as possible. This document sets out the '**best endeavours**' for meeting the policy, given that the

proposal is for a one-bedroom annexe, which is small, is an extension to the existing house, and there are limited opportunities to meet the requirements of the Policy.

3 SITE CONTEXT AND CONSTRAINTS

Currently, the property has a single storey pitched roof garage at the side which is 23.8 sq. m. The proposed is located on a large plot with substantial gardens and set back from Quenchwell Road. There is one neighbour who is close to the western boundary, who has a window overlooking the garage and parking area.

4 FABRIC OF BUILDING

High levels of thermal insulation within the building fabric are proposed within the annexe 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 construction is crucial for minimising heat loss through the top of the building. Insulating materials installed in the 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. This proposal does not have significant areas of glazing, but sufficient to provide acceptable living conditions for the occupiers, together with suitable daylight and ventilation.

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

The homeowners will also be advised to improve the efficiency of the existing building which may include insulating the loft and wall cavities.

5 SPACE AND WATER HEATING

The proposed annexe, which is an extension to the main house, will include an extension to the existing heating and hot water system. The proposal will include a marginal increase in energy usage when

considering the size of the existing main house, as there is likely to be only 2 additional radiators, 2 additional taps, and a few domestic appliances.

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 occupier can lower their energy bills and decrease their carbon footprint without sacrificing convenience or functionality.

7 ELECTRIC VEHICLE CHARGING POINT

Sustainable Transport is addressed within Policy T1 of the Climate Emergency DPD. Domestic electric vehicle (EV) charging point infrastructure may be proposed in the future with this development, for the use of all the occupants of Chycowlin. EV charging points offer a range of benefits, contributing to the widespread adoption of electric vehicles and promoting sustainable transportation solutions. This future connection will support the use of an electric car by the homeowner, instead of a fossil-fuel equivalent.

8 ENERGY PRODUCTION

The proposed annexe will allow for a small array of solar photovoltaic panels to be installed on its roof, which in time could also be connected to more panels on the main roof. Given the size of the development, this is something that the homeowners may consider in the future. 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. The occupants will be encouraged to consider this option.

It is proposed that the annexe may be able to produce **770 W** (based on 2 standard panels), but a combination of panels on the main house will provide approximately with **3.9 kWp** of Photovoltaic Panels (based on 10 standard 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. This is not a dwelling, it is an annexe to an existing property.

- **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.

The occupants can also use water butts to save rainwater for use in the garden.

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 existing dwelling has sufficient space internally and externally for the storage of domestic recycling. The proposal does not introduce a new planning unit on the site and the occupiers will organise the collection of waste and recycling from the house and annexe. Occupants can appropriately manage their recycling, encouraging this process to happen and reducing the amount of waste which is going to landfill.

11 ENERGY SUMMARY TOOL

The applicants have taken professional advice from an energy assessor, Mr Stuart Thomas (Energy Access), who has confirmed that the scale of development will automatically fail to meet the total energy consumption as set out in the policy. However, where it is not technically feasible to meet the

Policy targets, renewable energy generation should be maximised. This document sets out the variety of measures which demonstrate compliance with the aims and intentions of the policy.

A completed Energy Summary Tool has been provided in support of this application by Achieve Green 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. The headline results are as follows:

Space Heat Demand	24.3 kWh/m ² TFA/yr
Total Energy Use	39.8 kWh/m ² GIA/yr
On-site Renewables	-1072 kWh/yr
Renewable Generation	46%
Energy deficit	1345 kWh/yr

The applicants have confirmation that their energy assessment complies with Part L of the Building Regulations (BREL Compliance Report prepared on 1st March 2024).

It is noted that the proposal results in an energy deficit. The accompanying guidance document to the Climate Emergency DPD highlights that Cornwall Council are open to applying Part 2b of the policy more flexibly within certain parameters until 14 June 2024 (inclusive) where the principal objectives of the policy are still met. We believe this is the case here.

12 CONCLUSION

The proposals will deliver a modern energy efficient building. The proposed annexe will utilise high levels of insulation, a high level of air tightness, and use technologies which conserve energy and water.

As well as this, the property could be improved in the future to include Solar Photovoltaic Panels, allowing it to be heated efficiently and to generate a significant amount of renewable electrical energy, and Electric Vehicle Charging.

It is considered that the proposed development meets Policy SEC1 and promotes sustainable development within the built environment. Given the small-scale nature of the proposal, and limited opportunities to include renewables, we consider that this energy statement satisfies the requirements of the policy.

This document is considered proportionate to the scale of the proposed development. Policy SEC1 confirms that where the use of onsite renewables to match total energy consumption is demonstrated to be not technically feasible, renewable energy generation should be maximised as much as possible. This document sets out the **'best endeavours'** for meeting the policy, given that the proposal is for a one-bedroom annexe, which is small, is an extension to the existing house, and there are limited opportunities to meet the requirements of the Policy.

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For and on behalf of CAD Architects Ltd
04.03.24

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