

Case Study

Carleon House



Scale of development

Small

Type of development

Single Dwelling

Sustainability features

-  Design
-  Energy
-  Biodiversity
-  Health & Wellbeing
-  Materials
-  Community

Features

- ❖ Upgraded despite strict planning requirements
- ❖ Energy requirements reduced by up to 6,000kWh PA
- ❖ Supports local ecology through features such as bat slates

Introduction

Built in a conservation area on Lizard Coast, Carleon house is a single building refurbishment, designed to house up to five National Trust volunteers. The upgraded building is designed with extra insulation and energy saving features.

Construction and Materials

The building itself is listed and thus the National Trust had to work with the original aesthetic in mind; the restoration has produced almost an identical design, with energy efficiency improved where possible. Even the addition of skylights and solar collectors required planning permission. This is an important issue for many of Cornwall's historic buildings, which are of cultural significance, making energy-efficiency improvements a challenge.

Windows have been upgraded with double glazing and external walls have insulation added to their interior. A sheep wool insulation has been added to the roof structure to reduce heat losses.

Energy Efficient Design and Technology

Extra insulation in walls and double glazing has reduced the space heating requirements of the building from 13-18,000kWh plus log fire to 12,000kWh PA. With this figure is a marked improvement in the internal temperature, with a much more comfortable living environment.

Skylights allow for extra natural lighting in the kitchen. A ground source heat pump supplying underfloor heating produces some of the required space heating, with a log fire providing additional heat when needed. Fuel for the fire is acquired responsibly from local woodland management activities.

Site Considerations

The building being listed and situated within a SAC (Special Area of Conservation) was a major factor in the design decisions, especially regarding the final appearance of the property. The roof incorporates bat slates as required for planning and to support local ecology.