



Scale of development
Small

Type of development
Single Dwelling

Sustainability features

-  **Design**
-  **Energy**
-  **Biodiversity**
-  **Water Conservation**
-  **Water treatment & discharge**
-  **Health & Wellbeing**
-  **Materials**
-  **Maintenance**
-  **Waste**
-  **Pollution**

Features

- Five acres of woodland will supply the majority of wood required for heating and cooking.
- Excellent energy efficiency using natural materials.

Introduction

A single dwelling on the outskirts of the Stibb village in Killampton, consisting of 2 bedrooms, a kitchen, 2 living rooms, 2 bathrooms, and a plant room. Site overlooks farmland with five acres of woodland.

Planning

The house replaces a barn and required a change of land use. Initial objections were made because the construction did not fit with the local planning guidance, however, after discussions with planners the benefits of an eco-house were accepted.

Passive Performance

The building is designed to be as highly energy efficient as possible while maximizing the use of natural materials and avoiding the need for high tech solutions such as MVHR. The internal temperature is maintained with appropriate shading and a 450mm thick concrete slab to absorb and release excess heat, while the humidity is regulated by the extensive use of breathable materials.

Low Impact Materials

The building frame is made from local oak. Hemcrete walls provide insulation and breathability; local larch timber is used for cladding. The roof is made from reclaimed slates and insulated with Woodwool insulation panels. Traditional techniques were used with lime and clay plastering and the building is finished with low VOC paints throughout.

Energy

Low energy lighting is used to minimize electricity consumption. A wood fired boiler is linked to a thermal store to provide hot water and heat energy for winter cooking. In summer solar thermal panels provide hot water. Another wood burner is used for additional winter heating or when hot water production is not required. Most of the wood is supplied by the woodland, meaning that the majority of the dwelling's energy requirements are provided on-site.