



Scale of development

Small

Type of development

Single Dwelling

Sustainability features



Design



Energy



Water Conservation



Health & Wellbeing



Materials



Maintenance



Waste

Features

- ❖ *Hemcrete* construction proven to be practical and cost effective
- ❖ Extensive use of local materials and trades, supporting local building industry
- ❖ Energy efficient design reduces demand for electricity

Introduction

This 6000 square foot family home is built using *Hemcrete*, which acts as a structural element as well as insulation. Because *Hemcrete* contains natural hemp fibres it locks carbon into the structure of the building, reducing the environmental impact of construction.

Construction and Materials

The hemp fibre and lime mortar mix is filled into shuttering around a simple wood frame to produce the shape of the walls. It is then finished with lime plaster and render to produce a breathing wall with good insulating properties.

The frame of this building is made from local Douglas Fir, with local Chestnut floorboards and staircase. Local granite waste off-cuts are used for facing, and materials from the demolished previous building re-used on site or recycled locally.

Energy Efficient Design and Technology

To maximise natural heating, the majority of the glazing faces southeast and southwest and the walls to the northeast and northwest are thicker to prevent heat loss. The ventilation system transfers air from warm areas to cooler areas; bathroom and kitchen air is extracted via a heat exchange system.

Underfloor heating and hot water is supplied from a heat storage tank heated by solar thermal panels and an electric immersion heater. Although the house is relatively large, the maximum demand for space heating is only 4 kW.

Energy efficient lighting is used throughout the building and PIR motion sensing switches are used in hallways to minimise electricity use.

Community Benefits

Local materials were used wherever possible. A local builder and their team were trained in *Hemcrete* construction techniques, and a traditional builder was kept in business through the order for the timber frame.