













Victorian Coach House starting a retrofit journey. Pitched roof insulation and low-cost wins



Overview

Age/Period:	Circa 1850 main house, 2000 extension.
Type:	Detached Coach House converted in 1980s.
Years in residence:	2.5
No. Bedrooms:	3
Wall type:	Ashlar stone/clap board Solid & cavity walls
Area:	Combe Down
Status:	Conservation Area

Key Features

-  Pitched roof insulation
-  Draught-proofing
-  Window solutions and experiments
-  Layout change to include vestibule
-  Infrared heater
-  Laundry drying cupboard
-  Energy efficient lighting
-  Solar tunnel
-  Condensation prevention
-  Plastic reduction
-  Electric bike
-  Ecoflex grant application experience

Introduction

Sally, Dan and their two children moved to Combe Down 2 years ago attracted by the fresh air and beautiful countryside. Their converted Victorian coach house was rated D on the EPC but when building work started to create a third bedroom internally for their youngest daughter they discovered the insulation behind the pitched ceiling was poor and the house was subsequently downgraded to an F rating. *“It was so cold in the winter and boiling hot in the summer”* says Sally.

Motivated by the climate crisis, energy security, comfort and fuel bills, they became determined to reduce their energy consumption and end Coach House’s reliance on fossil fuels.

Features

Pitched roof insulation

Being a coach house (in Edwardian times it was the garage of the writer of Danny Boy and owner of the first motor car in Combe Down!) there is a very long pitched ceiling. Various insulation materials have been considered. Part of the improved roof now utilises PIR (Celotex) combined with foil quilt (YBS) while the plan for the remainder is to use the expensive but brilliant aerogel and, where space allows, wood fibre boards. Wood fibre boards are not only a natural breathable material, but they also provide relatively more thermal mass than other



insulation types which helps prevent summer overheating by providing a time delay i.e. they gradually soak up the heat during the day and release it at night when its cooler.

Windows

The windows are now a mix of triple and double glazed with the addition of acrylic magnetic secondary glazing. Sally is experimenting with different energy efficient blinds and awnings to help improve both winter heat loss and summer overheating. It is hoped to insulate window reveals and dormer window cheeks with aerogel insulation. Aerogel is used by NASA and is one of the highest insulating materials currently available, with the additional benefit of being breathable. It can therefore be used in areas where space is a premium.

Condensation prevention

Sally explains that, because Coach House would be very difficult and costly to change back to its traditional totally breathable state, they are starting to make the house as airtight as possible and plan to install a heat recovery ventilation system – this might be a cheaper single unit in the kitchen at first. They are also experimenting using a laundry drying cupboard with dehumidifier and are fitting window reveal insulation and secondary glazing themselves to lessen the cold bridges where condensation and mould can occur.

Draughtproofing

A thermal imaging camera borrowed from Transition Bath showed just how badly the front door was leaking heat. The glazing on the door has been cost effectively secondary glazed with acrylic and draught proofing added. A vestibule has been created so heat isn't lost every time the front door is opened.

Heating

Northerner Dan has a rule that the heating doesn't come on until at least the start of November so that the family acclimatise to the colder weather. It does actually work says Sally and I now find anything over 18-19 C too hot. Merino wool base layers are also fantastic!

Lighting

The most unusual feature amongst the recent additions is the solar tunnel, used to keep the windowless bathroom light rather than having to switch lights on. Sally and Dan chose the most energy efficient tunnel they could find ([Solatube](#)) and are adding extra insulation to it but admit that as much energy might be lost through heat losses than would be used by using electric lighting.

Reuse

Dan is a big fan of local auction houses and also scours Gumtree, Marketplace and Freecycle for their furniture, rugs, and radiators etc.

Lifestyle

One of Sally's proudest possessions is her electric bike which she can fit her two children on the back. It was one of my requirements when we moved to Combe Down, explains Sally, that I trade my push bike for an electric bike to get up the hills easily – it's a pleasure to go into town now.

Plastic has been reduced by having a Milk and More and veg-box delivery and buying organic food wholesale from Essential Trading. This has meant their family has been able to eat organic for the same weekly price as going to the supermarket. Making 5-minute bread in a second hand breadmaker found on eBay has saved over 1,300 plastic bread bags in the last 5 years.

Future changes

Sally and Dan are planning to install heat recovery ventilation, solar PV, and an air source heat pump in the future.

Contacts

Acrylic sheets: [Plastic People](#) & [Cut My Plastic](#)

Honeycomb blinds: [Blinds to Go](#)

Aerogel: [Passivhaus Store](#)

Grants in B&NES: <https://www.cse.org.uk/my-home/grants-and-funding/>

[Essential Trading](#): www.essential-trading.coop