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PERSONAL PANORAMA

A package log home complementing its stunning Scottish surroundings

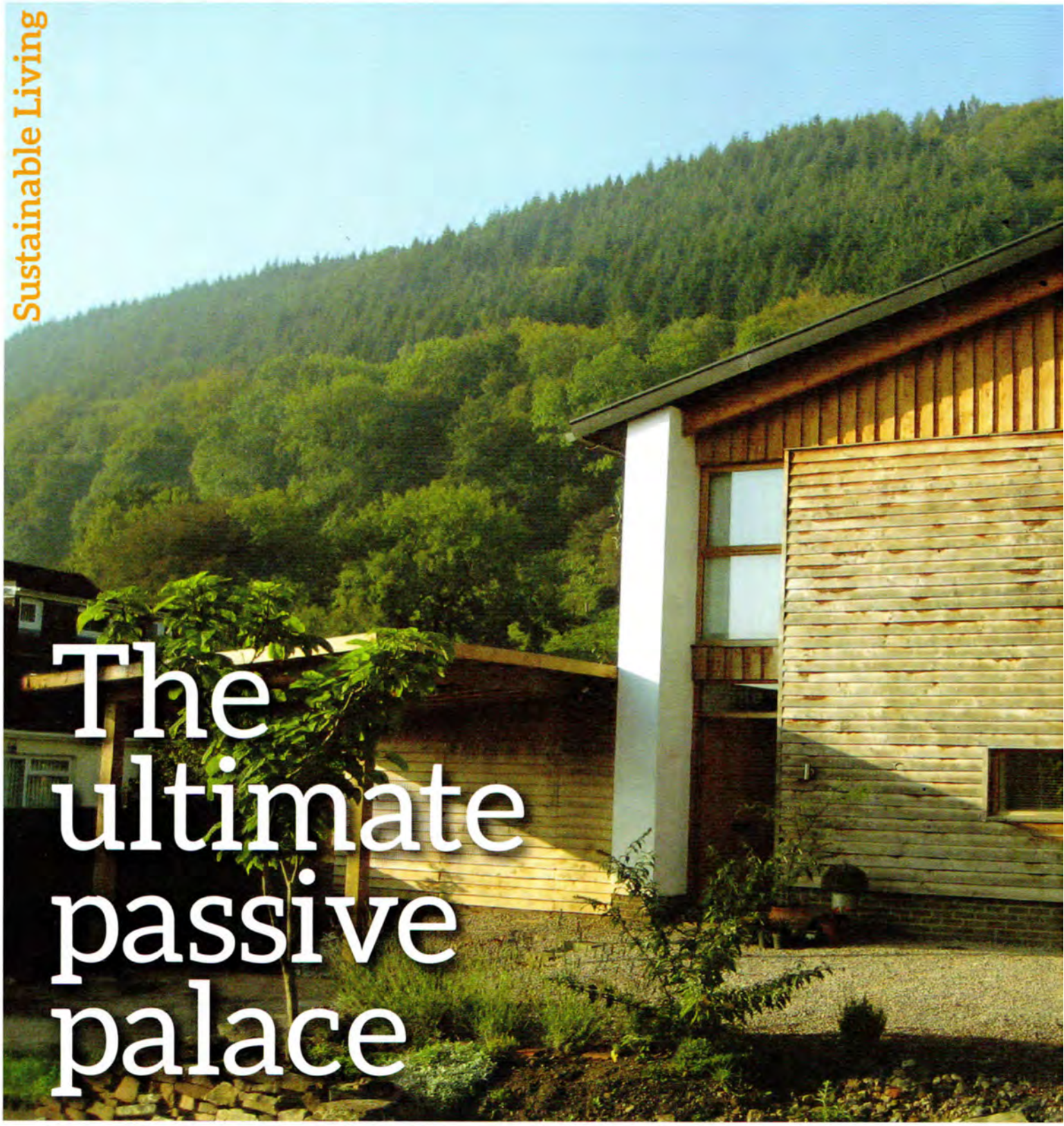
GREAT EXPECTATIONS

Complications in creating the ultimate passive paradise

DERELICT TO DREAM HOME

Transforming a dated hovel into a luxury London dwelling

TRADE SECRETS: • FINANCIAL • LEGAL • PRACTICAL • PRODUCT INSPIRATION

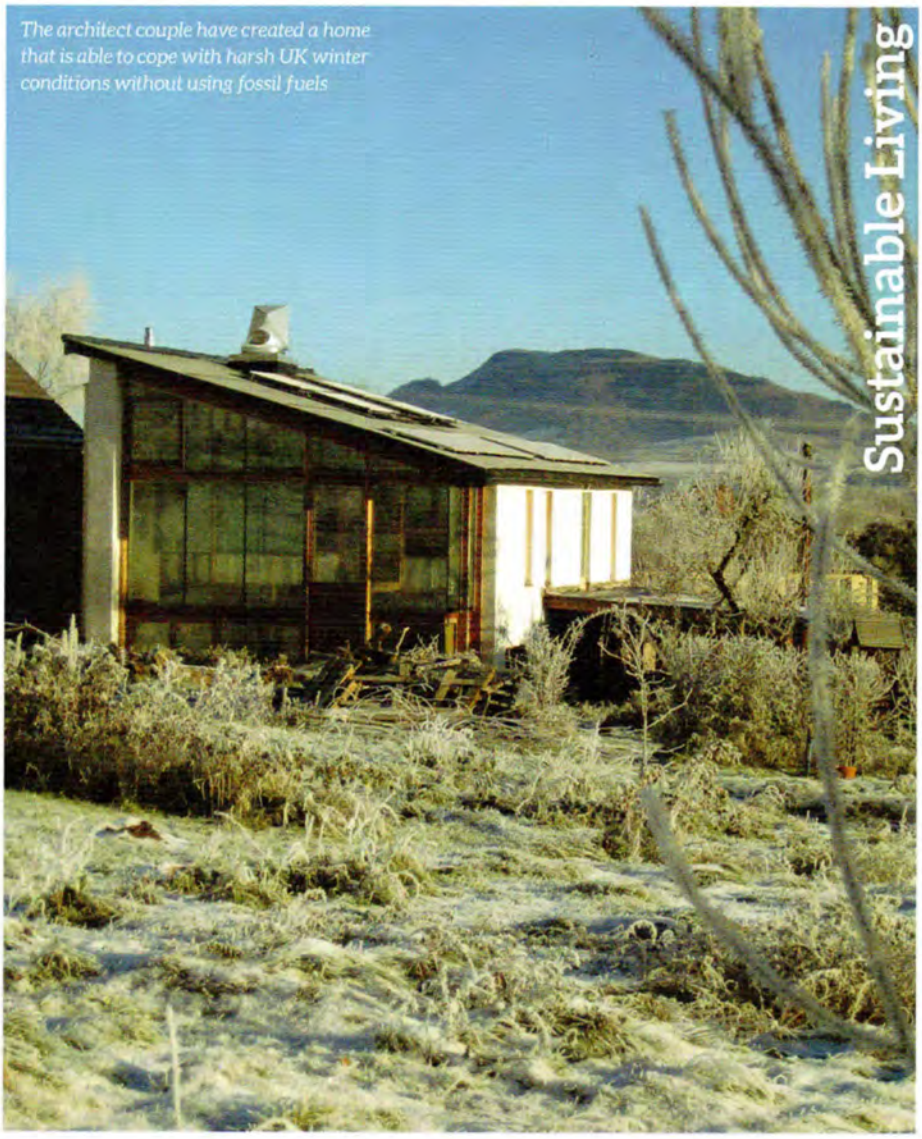


The ultimate passive palace

Architects Catherine Roberts and Steven Harris had always wanted to put their professional ideas into practice and build their own dream home. Their brief was simple: ample space and high energy efficiency. For them, self-building was an opportunity for experimentation; allowing inspiration and imaginative ideas to evolve as they designed.

"We wanted to build a zero fossil fuel family home that fitted how we lived and was affordable to build," explains Steven. "Our vision was to design a house that combined slick modernist design principles with ethical eco considerations."

By embarking on this self-build, the couple decided to leave the hustle and bustle of London life to return to their Welsh roots. They chose the village of Llanfoist,



The architect couple have created a home that is able to cope with harsh UK winter conditions without using fossil fuels

The south wall incorporates oak weather board with a 25mm air gap and breather membrane

South East Wales, which is just south of Abergavenny. "We chose our plot as it was suitable for a house that could harvest sunlight from renewables, was within easy walking access of a town and had beautiful views of the mountains." And what a beautiful vista is has! The plot is on the edge of the villiage and borders the stunning Brecon Beacons National Park and the Blaenavon World Heritage Site.

The plot turned out to be challenging to the build, as it has two very large water pipes running across

it that provide water from a reservoir in the Brecon Beacons to a nearby city, but that wasn't the only constraint. "We knew that our budget would not cover a quick build with a main contractor and all trades brought in, so we wanted to carry out as much work as possible ourselves," continues Steven. Consequently, the couple acted as both the architects and project managers for their dream build, although this meant a lengthier project duration as this approach required a flexible timeframe – more than six years to be precise!

Above: Solar panels contribute to the self-build's eco-credentials

With a view to creating a home with high levels of comfort and amenity, with little or no compromise to achieve energy goals, affordable future-proofed warmth and power, as well as embodying a zero fossil rule, the couple certainly had their work cut out! However, the Harris's realistic planning resulted in a new home that remained within the original budget.

The aim was to use natural, local materials with excellent energy performance as well as recycled materials where appropriate. All bulk materials were locally sourced, including Low Cement Pulverised Fly Ash and Ground Granulated Blast Slag concrete blocks. It also required lime render and plaster from a local supplier. The intelligent design dictated that high performance construction details could be achieved by local trades and self-build skill levels.

Below: The home has super insulated thermally massive construction, a large south facing sunspace and a monopitch south east facing roof

The end result is 'One The Orchard' – a home that is super insulated, has large south facing glazing and lots of thermal mass to store solar gain. The solar thermal heating system provides space heating as well as hot water. It has a very large thermal array, PV and a log boiler stove. The self-build is fully heat and power monitored and has achieved actual performance of double what is required for a passive house!

"The ground floor is one large open-plan space with kitchen, dining and living areas that fits our family life very well," beams Steven. "We run our practice from home and have designed a studio at the front of the house that connects with the main space by a large sliding door. We wanted direct access to the garden, so chose to have the living and sunspace on the ground floor at the rear of the house."

Sets of sliding doors open the whole south elevation when the weather is warm. The central stair in a triple height hallway leads to the four bedrooms. Curved walls internally exaggerate flow of natural light, and echo the form of the rear garden retaining wall and the curved straw bale wall to the workshop.

Using local resources

"The shape of the house comes from both our desire to maximise our harvest of renewable energy and be complementary to the local landscape," Steven continues. "The roof slope matches the slope of the iconic Skirrid mountain across the valley and fits well with the slope of our site. The solid masonry sidewalls follow the local tradition for white lime render and the oak weather boarding and slot windows were influenced by local barns. We designed all the construction to achieve very high energy performance standards yet be achievable by local trades and our own self-build labour."

Nestled among a villiage of more traditional house designs, One The Orchard brings something unique to Llanfoist at the same time as complementing the incredible mountain backdrop. "We have had a very positive response from the local community," explains Steven. "We received no objections from neighbours for our planning application, an extremely positive planning officer's report and have received many complimentary comments when we have had the house open for an Eco Open Doors event.

"The house works extremely well for our growing family and working life. Connection out to our garden and field with its productive vegetable beds, chickens and willow for log fuel is really good and gave great pleasure in the summer when we had the sliding doors open. In the winter the house is very cosy due to the super insulation, under floor heating and log burner.

"The favourite aspect of our self-build thing has to be the sun space. It's great to have the light, sunshine, views, height and drama of the space.

The Welsh self-build looks onto the stunning Brecon Beacons National Park

Facts & Figures

Location: Llanfoist near Abergavenny, Wales

Building cost: £170,000

Renewable energy sources: £10,700

Funding support: Ecology Building Society

Awards: Shortlisted for the Eisteddfod Gold Medal for Architecture

From planning to completion: 6 years

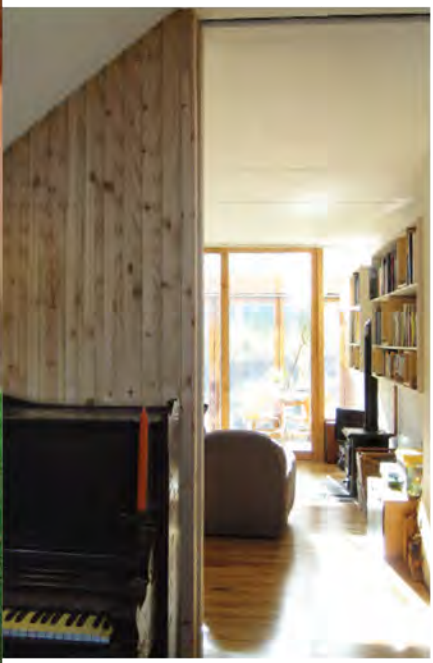
Space: Net floor area of 155m²

Renewable energy coverage: 100% heat and 90% of primary electricity

Heat from solar thermal: 2965kWh

Heat from biomass log boiler stove: 2156kWh

Electricity harvest from solar PV: 1753kWh



And it harvests energy!"

The only retrospective frustration for the Harris' is that since designing the self-build six years ago, new technology and research has become available which may have changed some minor technical decisions. However, the couple were keen to say that these are very minor and the living experience and energy monitoring prove the house to work extremely well just as it is.

"Perhaps we will do it again, but not until we retire and our needs change," concludes Steven. "Self-building allows you to be creative with your Architect and have a home that is far more than you can find from a normal house builder. I urge others to make the most of the opportunity to do something out of the ordinary that completely suits the individual. Be clear about what self-building involves at the outset and accept that it could dominate a good period of your life. Plan for a house that suits you in the long-term rather than as you are when you start the process." ■

www.crsharchitects.co.uk
www.ecology.co.uk

Above: The woodburning stove keeps the self-build warm through the winter months

Left: The first floor mezzanine looks through the glass facade onto the landscape

Below left: The open plan interior and glass fronting makes the most of natural light as it flows throughout the self-build

Below: The two-storey new home has four bedrooms and two bathrooms on the first floor