



# RACE AGAINST THE CLOCK

Lee Manning and Mark Ellis built the shell of their contemporary oak-framed house in record time in order to qualify for the solar energy feed-in tariff.

STORY: Eleanor Wilde PICTURES: Steve Taylor



Larch cladding emphasises the entrance porch of the new oak-framed house, contrasting with the rendered walls and oak columns. Deep, overhanging eaves protect the windows from rain and shade them from the summer sun. Two Velux solar panels look exactly like the Velux windows.



**“Building this house has totally changed our outlook and the way we live.”**



When Lee Manning and his partner, Mike Ellis, decided to build their own home they hoped for a relaxed, stress-free project. A fixed completion date was far from their minds – until some unexpected news changed their plans.

“Our original budget was based around the government’s solar energy feed-in tariff, so when we discovered that the cut-off date for the scheme was going to be brought forward to December 12, 2011 it sent our project into turmoil,” says Lee.

With a fixed date to aim for, the couple were forced to try to speed up their build. “It seemed impossible to be able to build the house, complete the roof and fix the PV panels in just five weeks,” continues Lee, who works as the financial director for oak-framing company Carpenter Oak.

The project had come about when Lee’s compulsion for checking the Rightmove website finally paid off. After years of trawling through potential plots and derelict houses he found a sloping quarter-acre site in the Devon village of Kingskerswell, which had once been an orchard to the neighbouring house.

“After several offers had fallen through the vendor dropped the price, and suddenly we could afford it,” explains Lee, who immediately secured an agreement in principle for a self build mortgage. Two days later a non-refundable deposit had been placed, with an agreed three-month completion.

Planning permission had already been granted for a dormer bungalow to be built on the site but the design didn’t appeal to Lee and Mike, who approached architect Mike Hope of Roderick James Architects to draw up alternative plans.

“I’d sketched an idea for a traditional three-bay barn house, but Mike Hope made us realise that we would be missing an opportunity to build something far more contemporary which would be economical to both build and heat,” explains Lee.

The plans were designed so that the detached house would take full advantage of the sun, with the roof positioned at a 35 degree



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#### **Grooved granite**

Granite window sills and worktops have been fitted, with drainage grooves running into the sink.



#### **Practical kitchen**

Sleek grey Ikea cabinets were chosen for the practical kitchen, which has an instant boiling water tap, a steam oven and an induction wok. “To make the space feel larger, we chose not to have wall units,” explains Mike.

angle – ideal for mounting solar panels. “We had to wade through a mountain of information to decide which eco products to invest in,” says Mike Ellis, co-founder and director of an organisation offering solutions for health and social care.

He and Lee were keen to create a modern home which would be relatively open-plan, with clean lines and a flexible layout. The one-and-a-half storey house measures 13 metres by seven metres, giving a floor area of 182 sq m, and the couple hoped to build for around £1,400/m<sup>2</sup>.

The existing plans for a dormer bungalow had proved unpopular with immediate neighbours, so Lee and Mike decided to visit them with their own suggestions for a modern timber-framed house and listen to any concerns they had about the build. This meant removing dormers from the west elevation and pushing the building back towards the east side of the plot.



With dogs Alfie and Jake to consider the choice of carpet for the first floor was an important one. US company Mohawk produces carpets made out of either corn from sustainable farms or recycled plastic bottles, and claims to be 100 per cent stainproof. The wood-burning stove provides a heat source for the whole house, thanks to the ventilation system which redistributes heat to every room.

“I believe that because we actually engaged with neighbours we were able to raise the ridge height, and our application went through with no objections and the support of the local parish,” says Lee.

With planning permission in place and the foundations laid in September 2011, Lee and Mike were blissfully unaware that their plans would need to be rushed through in order to meet the feed-in tariff deadline. “Thankfully Carpenter Oak sent four extra carpenters to our site, which meant that despite awkward access for the crane the oak frame went up in just two days, bringing us three weeks ahead of schedule,” says Lee, who worked alongside the carpenters to help make the deadline.

The contemporary oak frame is expressed within the house, and is made from straight timbers, with stainless steel connectors which were sandblasted along with the frame. “There are no curved timbers at all in our house,



which is unusual for a Carpenter Oak project,” says Mike.

Externally the house is built from structural insulated panels (SIPs) – highly insulated prefabricated panels – which have been finished in render. “There was a delay delivering the SIPs, which put us behind schedule, but the company managed to turn it around, and the last section of our roof was completed just over a week before the PV deadline,” recalls Lee.

With only days to go, Mike and Lee were hit with another unexpected problem. Sungift Solar arrived on December 6 to install the 4Kw PV system – only to discover that it was too big for the roof. Replacement panels arrived with only a few hours to spare, but by now stress levels were high.

“When we started the build we told ourselves that it would be as relaxed and stress-free as possible, because we were able to continue living in our previous bungalow





during the project,” says Mike. “It meant there was no real rush, so it was annoying to find ourselves having to aim for such a specific deadline.”

All of the stress experienced trying to get the solar panels in place proved to be for nothing when the government ultimately extended the cut-off date for the feed-in tariff, but the couple’s generation of electricity far exceeds the original estimate and they have already received a quarterly cheque for £448. Lee and Mike have even purchased an electric car with a 120 mile range, which costs less than 2p per mile to run when plugged into their own personally generated electricity.

Once the solar panels were finally in place it was possible for local building company Palm Construction to complete the external rendering and finish the interiors. Cracks appeared in the render which generated some concern for the structural integrity of the SIPs, but later proved to have been brought about by a spell of warm weather which meant that the render had dried out too quickly.

Some minor cracks and blemishes also appeared in the internal plaster, caused by the oak frame settling and shrinking, despite the fact that the frame itself isn’t in direct contact with the plaster.

“We were watching TV one evening when we heard an almighty bang, caused by a big shake opening up in one of the beams directly below the lounge,” says Mike. “Even though we were expecting some movement it came as a bit of a shock, but the cracks in the oak look great and we’ve only found a few pops in the plaster.”

In addition to PV solar panels the couple have also fitted two solar thermal panels to heat their hot water. Triple glazing and the highly insulated SIPs mean that the building is extremely well sealed, and a micro air-source heat pump operates the heat recovery system – ensuring that a constant temperature is maintained inside the house without the need for additional heating. Visible pipework



has been custom-made with a matt finish, and an airtight seal was created with the help of expanding foam tape around doors, windows and rooflights.

“We both love technology and gadgets, so we have a central vacuum system and Lee installed the cables for our audio visual system, which saved a bit of money,” says Mike. “The company that designed the system kindly cut and labelled the cables and terminated all connections, enabling 700 metres of cabling to be laid in just one day.”

Lighting was an important consideration, and the couple contacted Lightmaster about their project after seeing work

### **Sculptured oak beams**

Laminate flooring has been laid on the ground floor to emphasise the colour of the large oak timbers, which have a sculptural quality. The dining area is overlooked by the living room above.



*Lee's top tip*

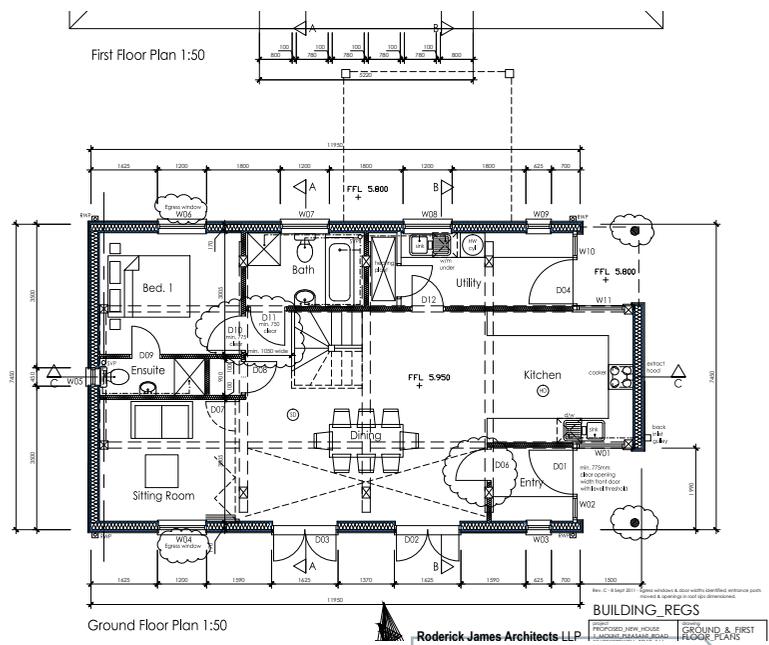
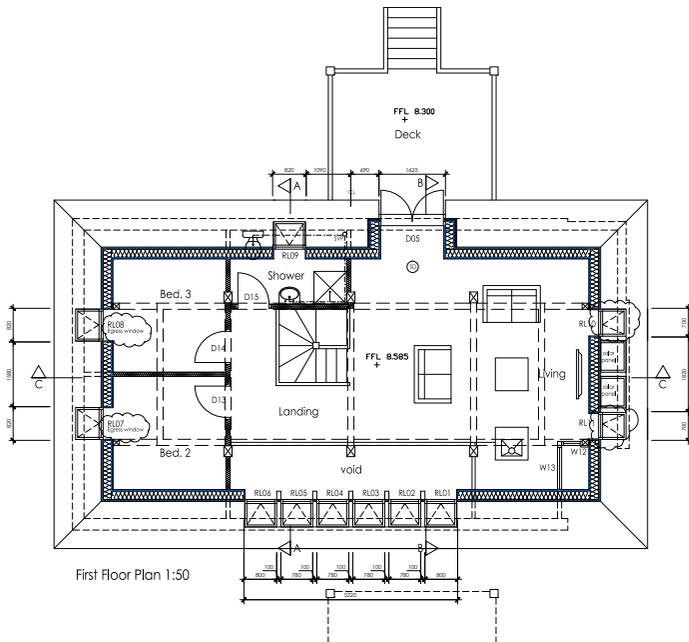
Use an architect, trust the professionals on costs and set a realistic budget.

they had completed in another self-build house. "We told them we wanted to light our house as efficiently as possible without losing any warmth and texture in the rooms," says Lee. The company offered to provide a tailor-made lighting design as part of the project price, rather than simply supplying the LED fittings, and all of the lighting uses less than 300w of electricity in total.

"Building this house has totally changed our outlook and the way we live," says Mike. "Now we're attempting to grow our own vegetables in the garden, which is watered using harvested rainwater, and we spend much more time cooking from scratch because the kitchen is so



## New build



user-friendly. It really is a pleasure to live in such a well-designed home, and generating our own energy has been the icing on the cake.”

### The bottom line

Lee and Mike paid £110,000 for their plot and spent £265,000 building the 180 sq m detached house, which is valued at in excess of £450,000.

### Build costs

Groundworks	£26,680
SIPs	£38,000
Oak Frame	£32,000
Heating & boiler	£18,327
Connections	£2,600
Solar panels	£14,088
Hire	£4,042
Internal works	£32,010
Windows	£16,325
Electrics	£5,757
Kitchen	£7,124
Balcony	£3,071
Bathroom	£5,325
Stairs	£14,000
Lights	£5,000
Carpets	£4,613
Home automation	£6,156
Landscaping	£8,210
Gates	£1,268
Roof	£20,314
<b>TOTAL</b>	<b>£264,910</b>

### Floorplan

The detached two-storey house has an open-plan kitchen/dining/living space on the ground floor in addition to the utility, a bathroom and an en suite bedroom. Upstairs, there is the main bedroom (which could be divided into two rooms at a later date), a shower room and an open-plan living room opening out onto a deck. The layout is flexible and may be adapted to suit the needs of future occupants.

### Contacts

#### PROJECT

**Architect** Roderick James Architects LLP: [www.rjarchitects.co.uk](http://www.rjarchitects.co.uk)  
**Building contractor** Palm Construction: 01803 328814  
**Lighting design** Lightmaster Direct: [www.lightmasterdirect.co.uk](http://www.lightmasterdirect.co.uk)

#### STRUCTURE

**Oak frame** Carpenter Oak: [www.carpenteroak.com](http://www.carpenteroak.com)  
**SIPs panels** Sips Industries Ltd: [www.sipsindustries.com](http://www.sipsindustries.com)  
**Timber doors and windows** Rationel Windows and Doors UK: [www.rationel.co.uk](http://www.rationel.co.uk)  
**Window supplier** Devonshire Windows: [www.devonshirewindows.co.uk](http://www.devonshirewindows.co.uk)  
**Roof battening and slating** Roofworks Plus: 01803 223270

#### FIXTURES AND FITTINGS

**Solar thermal panels and rooflights** Velux: [www.velux.co.uk](http://www.velux.co.uk)  
**Heating and water system installation** Total Home Environment: [www.totalhome.co.uk](http://www.totalhome.co.uk)  
**Audio visual system** Clever Home Automation: [www.cleverhomeautomation.co.uk](http://www.cleverhomeautomation.co.uk)  
**PV panels** Sungift Solar: [www.sungiftsolar.co.uk](http://www.sungiftsolar.co.uk)  
**Kitchen** Ikea: [www.ikea.com](http://www.ikea.com)  
**Granite worktops** RGB Building Supplies: [www.rgbtld.co.uk](http://www.rgbtld.co.uk)  
**Smartstrand carpet** Mowhawk Flooring: [www.mohawkflooring.com/carpeting](http://www.mohawkflooring.com/carpeting)  
**Tiles** Topps Tiles: [www.toppstiles.co.uk](http://www.toppstiles.co.uk)  
**Heat recovery system** Genvex: [www.genvex.co.uk](http://www.genvex.co.uk)  
**Light fittings** Lightmaster Direct: [www.lightmaster-direct.co.uk](http://www.lightmaster-direct.co.uk)

### Final thoughts

**What was the high point of the project?**  
 Watching the oak frame go up was a real high point.

**...and the low point?**  
 The stress of having to fit our PV panels by a certain date was a big headache – especially as the deadline was then extended. We also needed to spend £4,000 on a retaining wall that we hadn't budgeted for.

**Is there anything you would change?**  
 We wouldn't bother with underfloor heating in the bathrooms because we never need to use it. We have a Genvex GE Premium 2 heat recovery system with a micro heat pump, and a Vanvex 285 water heat pump with a connection to solar thermal panels on the south elevation of the house.

**What was your best buy?**  
 Our Ikea kitchen cost just £3,300, including the hob, oven, dishwasher, microwave, hood, fridge and freezer – all of which are A-rated.

**...and your biggest extravagance?**  
 The home entertainment system was an extravagance, but gives us a great deal of pleasure.