

# Lifetime achievement

The McClungs steely determination meant they didn't let planning problems stand in the way of their sustainable build

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“We absolutely love living here, but it’s all thanks to our design, construction and finance teams. Without them, this would have simply been a lovely idea that never got off the ground”

**S**heer determination was the key to Sue and Ian McClung’s self build, without it, they may not have the stunning home they now live in. “When I enquired about building a new home, a lifetime property specifically designed for us to live in forever, the planning department said it would be an over development,” says Sue. “We were amazed at their response as it didn’t seem logical when we felt our request was so reasonable.”

Sue and Ian’s idea to build in their one-third acre back garden started back in the early 1990s when Sue was working for the International Centre for Conservation Education. One part of her job was to run tours round places of interest. On a trip to Leicester – which was promoting itself as an eco city – she saw an old house that had been converted into an eco home. “The property really interested me,” says Sue. “It made me realise that building green is where we all have to go, and I would love to build something similar myself. The seed was sown, although at the time I didn’t know if it would be possible for us.”

It wasn’t until late 2007 that Sue’s seed of an idea grew into something more substantial. The couple had been

thinking about where they may live in the future for some time, but they were aware if they wanted to take on a self build they would need to get on with it while they were both still working. “We had no mortgage on our five-bedroom home so we were asset rich and cash poor,” says Sue. “My mum lives with us so we didn’t want to sell-up and rent, which meant we’d need a mortgage to pay for the build.”

#### Proposals and practicalities

Sue was disappointed with the planners’ negative reaction when she went to discuss her initial ideas. “I was expecting more support. I work for a disability organisation, so know the merit of building a house that we could live in forever. I see so many people forced to leave their homes because of disability, and Ian and I didn’t want that to happen as we got older,” says Sue. “I thought the council would welcome our plans and give us advice – but instead all they did was try and stop us.”

Sue pressed on regardless, made some enquiries and found an architect who like her ethos, Chris Davies, in nearby Stroud. In January 2008 he began working

**The rugby ball shape of the bungalow was influenced by the shape and alignment of the plot. The sun streams through the bedrooms in the morning, moves to the front of the bungalow at midday and sets through the back living-dining room windows in the evening**





up a design. Much of the McClungs brief to him was about function – a separate sitting room for Sue's mum, bathrooms big enough for a wheelchair, wide doorways, flat thresholds and a single storey. However they also wanted to maximise natural sunlight, so Sue took photos of the site at 6am, midday and the evening so see where the light fell throughout the day.

The couple took advice from Chris about natural materials and renewable technologies. In the end they concluded that solar thermal panels, a green roof, rainwater harvesting and hempcrete walls were what they wanted. "We debated between hempcrete and straw bale but we felt the bales could make the walls too thick," says

**The house was built using eco-friendly hempcrete. The couple watched an online video of the product being poured and built into walls. They also visited a site using the material, which helped them decide to use it. The overhang protects the rooms from the bright summer sunshine and provides a shady spot to sit in the garden**

## The eco design

**Hempcrete walls** A structurally sound building system providing thermal mass that releases stored heat from the sun into the home. Hempcrete is a lightweight and breathable material with thermal and acoustic insulation. Hempcrete is produced by mixing hemp shiv with a lime-based binder and water together on site. The mixture is cast around a timber frame within a temporary formwork, left to set and then lime mortar is rendered over the top. Inside lime plasterboards are fixed to the walls, which are then skimmed

**Solar water panels** Used to provide warm water for the underfloor heating and showers, topped up by a combi boiler on cloudy days

**1000L rainwater harvesting tank** Used for flushing toilets, washing clothes and watering the garden

**Heat exchange system** The bungalow is airtight so the heat exchange system can draw out stale air from the rooms, which warms the cool incoming fresh air

**Living green roof** The whole roof (apart from the overhang, which is pebbled) is a blanket of sedum which provides insulation, absorbs rainwater and attracts beneficial insects

**Roof insulation** Single ply membrane on 120mm Kingspan TR27 rigid board insulation, on 18mm ply, and 50mm Celotex to underside (fitted between the 600mm centres of the roof joists)

**Floor insulation** 80mm Celotex rigid board insulation on slab substrate

**Windows** Double-glazed argon-filled panes held with a structural sealant in the curved windows; the same panes in aluminium frames for the rest of the bungalow

**Recycling** Cupboards from the couple's old utility room were reused, as was their Belfast sink. Timbers from the same roof became the framework for the garden shed that Ian has built. Also the couple obtained reclaimed pavers and railway sleepers for use in the garden



Sue. "The plot is only 600m<sup>2</sup> so we wanted the inside of the bungalow to be as large as possible."

Chris came up with an unusual rugby ball shaped design that reflects the shape and alignment of the plot, as well as its orientation to the sun. The single storey is a split-level, so the living-dining room drops down from the kitchen and bedrooms. This has less impact on the couple's neighbours, and the cantilever provides shelter from the wind, while an overhang shades the rooms when the sun is high in the sky.

The plans for the bungalow were submitted in July and unfortunately they were rejected. There was a long list of objections concerning everything from more turning space for cars, lack of access, light pollution from a skylight, and the adverse effect the planners thought the bungalow would have on the neighbours' amenities. ☉

### Favourite feature

"We love the large expanse of curved glass in the living/dining room – it's unique," says Sue. "All that sunlight makes us feel so alive and energised."





### Battle begins

The McClungs made some tweaks to the original application – such as moving the boundary line to make a bigger turning space – but they felt most of the objections were disputable. They boldly submitted their plans again, with no expectations other than to have to go to appeal.

“We were given excuse after excuse about why we couldn’t build the bungalow and it felt like they were hoping we’d just give up, sell the house and move somewhere else,” says Sue. “But Ian and I felt so strongly that what we were asking for was reasonable, so I just doggedly pursued our case.” The couple employed planning consultant, Evan Jones, to take their case to appeal – even though it was another £2,500 on top of the £20,000 they had already spent on architect fees and planning applications.

But the money was well spent. The planning consultants found local case law showing houses nearby had been built in back gardens, and that there was reasonable access. The McClungs existing house had once

been a petrol station and shop back in the 1960s, so there were still two lowered kerbs for entry in and out.

Another point in their favour was a development up the road. One house had been knocked down, and five more built in its place. This was a major reason why the couple’s neighbours had been in support of their project all along. “Both our neighbours told us they were anxious for us to go ahead with our project in case we sold our house to a developer,” says Sue. “There was never any question about this.”

The appeal process took many months, but the day of glory came in July 2009. A representative from the Planning Inspectorate – the body responsible for processing appeals – arrived on site for the hearing but the local planning officer failed to turn up. While the representative waited, he walked up the road, looked at the new development of five houses and returned to Sue to immediately say yes to their plans.

With planning permission finally secured, Sue was ready to apply for funding. Initially she was going to use

**Above: The McClungs found a marble countertop at the bottom of the garden, which was probably last used forty years ago when their existing house was a shop. The builders cleaned the piece and made it into the new kitchen worktop**



## Sue & Ian's top tips

- ⊕ Remember to factor utilities connection into your budget. We paid £6,000 to join the cables and pipes from the edge of the pavement into the road
- ⊕ Look into funding well in advance of starting. I thought we were a good risk, but found it really hard to find a lender
- ⊕ Visit the Centre for Alternative Technology in Wales ([www.cat.org](http://www.cat.org)) for ideas on eco building and renewable technologies
- ⊕ Avoid making changes after the build has started. It will bump up the cost and cause some unnecessary delays
- ⊕ If your budget is small, put in as much insulation as you can afford, then opt for rainwater harvesting or solar water panels

their existing house as collateral and her wage would pay the mortgage for the build costs, until the house was sold. However, as a part-time worker aged 60 plus – in economic times of strife – she struggled, only finding lenders who were charging extortionate interest rates. “I thought I would be a good risk because we were mortgage free with a house worth £390,000. Furthermore, we only wanted a £175,000 loan,” says Sue.

Then Gordon Bacon, the couple's structural engineer, suggested they try Ecology Building Society (EBS). Sue says their application was dealt with quickly and easily – even when she and Ian realised their build costs were going to be £75,000 more than initially expected.

The increase was down to the rising cost of materials in the year they had waited for funding; extra footings because of a holly tree with deep roots; and the planners' demands for extra hard standing to allow for disabled access. “I can't say enough good things about Ecology Building Society,” says Sue. “They revalued our home, and agreed the additional funding. They said we could rent our house out for two years until property prices rose again, which was a great idea.”

### Frosty finish

Construction of the bungalow started in September 2010. By that time, Sue and Ian had found builder, John Ramsden, through Chris. Although John and his team

hadn't built an eco house of this nature before, they were extremely enthusiastic about it. One labourer even brought his girlfriend along to show off the project, and another brought his parents.

The curved external perimeter wall of the bungalow might have been tricky to build, but the hempcrete made light work of it. It was the ideal material as the mixture is poured into formwork that can be made into any shape. John and the team built the ring beam themselves, which was a £1,000 cheaper than having it made off site, and didn't need craning in over the existing house.

The build was running to schedule until early December when freezing snowy conditions delayed the roof being finished. The order for the lime plaster was also put on hold because it couldn't be used in temperatures below minus five – and it was certainly colder than that.

The windows were fitted in January 2011 with the panes for the bank of curved windows fitted together with a special structural sealant (see box overleaf). In February the bungalow was watertight and the remainder of the build continued smoothly.

Sue met with John and Chris every month to discuss progress and agree a date to draw down the funding. Sue was impressed how quickly the cheque arrived from EBS, which she says helped her relationship with the team.

The McClung's lifetime eco home was finished at the end of May 2011 – just in time for Sue, Ian and her mum to

**Above:** The planners originally told Sue and Ian they couldn't have a woodburner because the plot is in a smoke-controlled zone. But Sue found a Stovax 5 woodburner that complies with the Clean Air Act

enjoy a sunny summer in their carefully orientated bungalow. The curved windows are a stunning centerpiece to their home, folding around a spacious living/dining room with doors opening out onto the garden.

There is no doubt that Sue and Ian were right to pursue their dream, and have proven that gritty persistence can pay off as they now have the home they have always wanted. "We absolutely love living here but it is all thanks to Chris's fantastic design, John's workmanship and Ecology Building Society," says Sue. "Without them this would have simply been a lovely idea that never got off the ground." ●

The entrance hallway leads into the kitchen where a large roof window floods the area with light

### Useful contacts

**ARCHITECT** Chris Davies Architect  
01453 834520 [www.chrisdaviesarchitect.co.uk](http://www.chrisdaviesarchitect.co.uk)  
**BUILDER** JR Building Ltd 01452 741881  
[www.jrbuilding.co.uk](http://www.jrbuilding.co.uk) **HEMPCRETE** Lime  
**Technology** 0845 603 1143 [www.limetechnology.co.uk](http://www.limetechnology.co.uk)  
**STRUCTURAL ENGINEER** Gordon Bacon of Finite Structures  
01453 827567 **FLOORING** Rothwell Tiles & Bathrooms 01536  
711 029 [www.rothwelltiles.co.uk](http://www.rothwelltiles.co.uk) **FINANCE** Ecology Building  
**Society** 0845 674 5566 [www.ecology.co.uk](http://www.ecology.co.uk)

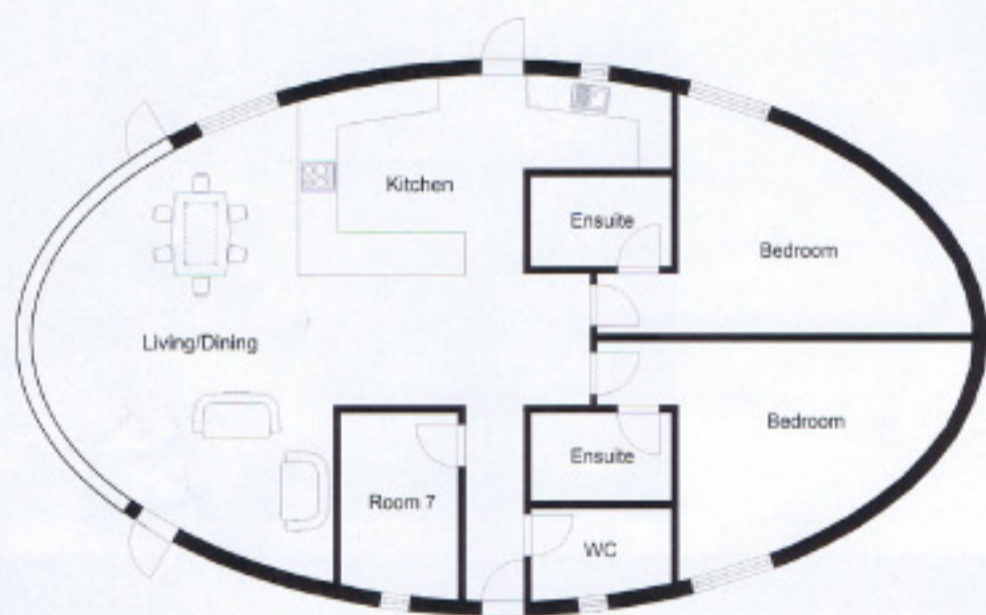


### Design detail windows

Sue and Ian were going to install oak-framed windows but they were expensive and quite bulky. Instead, the windows are held together with a special structural sealant just half an inch thick so the couple could achieve the curve without obscuring their view. The units are supported by a virtually invisible aluminium powder coated frame. The glazing is beeded on specialist foam tapes and the joints are sealed with a structural grade silicone. The vertical joints are pointed in silicone, too, which ensures the visible line is at its absolute minimum.



## Floor plans



Plans re-created using ARCON 2D to 3D Visualisation Software for Self-builds, Extensions, Loft & Garage Conversions, Outdoor & Indoor Living including Kitchens & Bathrooms. [www.3darchitect.co.uk](http://www.3darchitect.co.uk), call 01252 339132 or email [arconsales@eleco.com](mailto:arconsales@eleco.com)

## Build timetable

The couple applied for planning permission in July 2008, which was refused the following month, and again after resubmission in September. The planning Inspectorate granted permission in July 2009 and work started the following year.

Schedule of the build 2010-2011	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Preliminaries							10	10	10			
Foundations									10	10	10	
External walls & windows		11								10	10	
Roof structure & covering	11											10
Internal walls & doors	11	11										
Floors, walls & ceiling finishes	11	11										
Joinery & fittings		11	11									
Plumbing & heating		11	11									
Electrics			11	11								
Decorating				11	11							

10 Work in progress by year and month



## The McClung file

<b>Owners</b> Sue & Ian McClung	<b>Land cost</b> Already owned
<b>Occupations</b> Sue works for a disabilities organisation and Ian is a carpenter	<b>Build cost</b> £264,000
<b>Location</b> Gloucester, Gloucestershire	<b>Cost per m<sup>2</sup></b> £2,112 (£196 per ft <sup>2</sup> )
<b>Type of build</b> Self build bungalow	<b>Total cost</b> £264,000
<b>Style</b> Contemporary	<b>Date work commenced</b> July 2010
<b>Method of construction</b> Hempcrete	<b>Construction time</b> 9 months
<b>House size</b> 125m <sup>2</sup> (1,345ft <sup>2</sup> )	<b>Current value</b> £300,000
<b>Plot size</b> 600m <sup>2</sup>	

## Build cost breakdown

Elements of the build	Cost m <sup>2</sup>	Cost %	Total cost*
Foundations	£280	13%	£35,000
Hempcrete walls & windows	£480	23%	£60,000
Roof structure & covering	£368	17%	£46,000
Internal walls	£160	8%	£20,000
Joinery and fittings	£160	8%	£20,000
Plumbing and Heating (includes bathrooms & kitchen)	£160	8%	£20,000
Electrics	£120	6%	£15,000
Decorating	£48	2%	£6,000
External Works	£192	9%	£24,000
Hard Landscaping	£144	6%	£18,000
<b>Grand total</b>			<b>£264,000</b>

## OUR VERDICT

Never has gaining planning permission for an eco-friendly, lifetime home been so difficult. The McClungs had a real battle to prove that the designs - and ethos - behind their home was beneficial to the local community.

Thankfully, they stuck to their guns. The outcome is a unique home that showcases natural materials and renewable technologies, which will hopefully inspire other prospective self builders to go down the eco-route.