

Made to ORDER



When Sue Dewhirst set up a company offering a bespoke design and build service, timber frame was a natural choice of building method. Keren Fallwell reports

AFTER MORE THAN 25 years in the construction industry, many of them dealing with large housebuilders, Sue Dewhirst decided she wanted to take a more personal – and greener – approach to providing housing.

At the same time, she recognised that self-builders and smaller developers may not have the same access to modern methods of construction as their larger counterparts – and that they may also appreciate a helping hand through the mire of changing Building Regulations and numerous options of reducing the environmental impact of buildings.

“I have always been interested in ecological and environmental issues in the building industry and I saw a niche in the market for offering design and build solutions to smaller developers and self-builders who wanted to build homes that are environmentally-friendly, sustainable and have a zero carbon footprint,” she said.

The result was Evolved Design. Established in Oswestry two years ago, the company offers three levels of service – design, build, and design and build. Dewhirst, an architectural technician and a Code for Sustainable Homes assessor, runs the company with a colleague, and other people are brought in when they're needed.

She has years of experience in timber frame and, although Evolved Design uses other systems, such as clay blocks, timber construction, using Forest Stewardship Council-certified timber, features heavily. Common to the range of designs are breathing wall systems.

“We advocate a range of breathing wall systems which mean that we don't have membranes and we don't have plastic insulation,” said Dewhirst. “We have really gone back to how historically you would use timber frame, which is allowing the wall to breathe. If you have vapour build up inside, it automatically works its way through to the outside.”



Above left: glulam feature beams

Above: open panel timber frame

Below: the timber frame is filled with Thermo-fleece sheep's wool insulation



The company strictly adheres to its environmental policy of not using foam plastic insulation, so vapour permeable natural insulation such as Thermo-fleece, hemp and cellulose fibre completes the breathing wall system.

Evolved Design does not have a standard timber frame or favour one particular timber frame method, having used open and closed panels, and an I-beam and twin wall construction.

“We ask what they want to achieve – is it the Code for Sustainable Homes, or do they have a U-value they want the walls to achieve – rather than saying 'we do 140mm timber frame, take it or leave it',” said Dewhirst.

The choice of construction covers every component, right down to floor joists. “It doesn't have to be one size fits all,” she said.

This is at the other end of the spectrum from the economies of scale with which large housebuilders operate, and it could be a procurement nightmare, >

TIMBER FRAME



↳ but Evolved Design has nurtured good supply chain partnerships.

"We have formed good partnering arrangements with companies who are quite happy for me to take on the design and engineering of the frame and go to them just for manufacture. It takes something out of their critical area because it can be the design and engineering of the timber frame that can hold them up," said Dewhirst. "If I can go to them with a complete package they can go straight to saw."

With its three services, Evolved Design offers flexibility for clients to "dib in and dib out" as they want. Most, especially if they are 'true' self-builders, choose to have their house designed and built to the point of being weather-tight. However, the company can also manage a project to internal finishes, electrical supply and road finishes.

The design of the house depends very much on what the client wants and Dewhirst's starting point is the scrap-book of ideas that she asks the client to put together.

"Obviously it has to fit in with the vernacular of where they want to build. You get people wanting to build a castle when they're surrounded by bungalows, and it's not going to happen, but all in all, what people want at the moment are houses that are economical to live in and run," she said.

And because of this, clients are now a lot more environmentally savvy.

"They're considering solar panels and looking at ground source heat pumps. Whereas a few years ago that was thought of as being very wacky, now it's standard," said Dewhirst.

Clients are also more conscious of the environmental footprint of building components, evidenced by the move from PVCu windows back to timber.

Evolved Design's houses boast low U-values. One recent completion, was a family home whose timber frame and hemp and lime Hemcrete render (*TB Summer 2007*) resulted in 400mm-thick walls and a U-value of 0.17W/m²K.



Above: Sue Dewhirst: "it doesn't have to be one size fits all"

Above left and right: all timber used is Forest Stewardship Council certified

"These houses require only minimal heating," said Dewhirst. "Many of them have only a wood-burning stove and that's sufficient for the whole house – and they're getting their hot water from it too."

The company's houses are at the upper end of the market but Dewhirst said there is no reason why housing associations could not also use the service.

"All the specifications are there and they tick all the housing association boxes. The technical specifications and code assessments are services we can provide for everyone," she said.

A small company launched two years ago in the heat of the housing market boom could be suffering in the current climate but Dewhirst said, touching wood (naturally), it has not felt the impact of cooling demand.

"A lot of our clients are self-builders who see it as quite a good time to build because the other trades they're employing can be a lot more competitive because they're looking for work. And they're building for their own use; they are not trying to sell 50 of the same." ▮

Four-bedroom farmhouse, Allensmore, Hereford

The client wanted to use environmentally proven products and systems and recycle materials where possible.

Construction: open panel timber frame using 140mm CLS studs with Panelvent racking board for vapour permeability.

Insulation: timber frame filled with 140mm Thermafleecce sheep's wool insulation and vapour permeable racking board to internal face; 60mm woodfibre insulation fitted as external insulation.

Service zone: formed internally and finished with woodwool slab and internal lime plaster.

External finish: lime render applied

to give a totally 'breathing wall' construction.

Total wall U-value: 0.20W/m²K

Conservatory: designed and constructed as above with an insulated roof using glulam feature beams; 200mm Thermafleecce insulation fitted between the rafters with additional 60mm woodfibre insulation board.

External joinery: double glazed, FSC certified, supplied and installed.

Heating: two wood-burning stoves.

Garage: Zeigel Smartwall system and rendered externally to match house.