
# A model barn conversion

BY CLIVE FEWINS

MODEL BARN CONVERSION

Caption?

The 18th century timber-framed barn was in a dilapidated state, with a sagging roof, largely covered with corrugated iron. It was full of junk, used as a repository for the equipment of several village organisations and populated only by a large population of vermin and old farm implements.

However Graham and Heather Richards could see immediately that it would make a wonderful family home. In fact it was just what they were looking for.

The barn was part of a group of historic farm buildings in the Oxfordshire village where it is sited, and presented an ideal project for the Richards as the adjoining historic property was about to be bought by Richard's sister.

It was a perfect arrangement. They would buy the barn, which they did four years ago, while Graham's sister and her family moved in and worked on their hew home. Then, when the time was ripe, they would renovate the barn to suit their timescale.

They were blessed, therefore, with good support: not only from their neighbours but also from Graham's parents, John and Coral, who also live in the village.

With a background of computing and building, father John was able to come up with the drawings from Graham and Heather's original concept of the form the conversion should take.

"The key thing to us was that most of the timber structure of the building - especially the huge roof and its many rafters - should remain visible," said Graham. We wanted to ensure the house would contain living spaces from which one could see and appreciate the magnificent structure."

The approach was also to use sustainable materials as far as possible. Graham had been influenced by his father, the founder of the village environment group and an enthusiast for using sustainable building materials.

Having decided all this, the Richards put the project into the hands of building surveyor Richard Cain. Richard prepared the detailed drawings and specifications and agreed to become project manager.

A Buckingham-based builder with experience of historic buildings and especially working with old-oak framed buildings was chosen. However, the firm had not before worked with the Richards' chosen material for the infilling between the timber frame - a hemp/lime mix called Hemcrete.

Richard arranged for the contractors to visit a project where Hemcrete had been used, after which they attended a day course at nearby Lime Technology, the suppliers of Hemcrete.

In the last issue (no 71) Listed Heritage featured the use of this material in a historic timber-framed cottage (my own) The article stated that in the next issue we planned to feature the use of this material in a listed barn conversion.

Captions?

The Richards chose Hemcrete because of its environmental and aesthetic appeal, and also because of its thermal qualities - it is an excellent insulator. It was also acceptable by the planners as in infill material behind the exterior weatherboarding that clad the frame because it can be gently packed

Captions?

round existing timbers leaving the historic fabric intact. Indeed, the lime content may indeed act as a measure of protection. In the case of a structure like a historic barn it also helps to strengthen and bond together the existing structure.

Hemcrete is relatively new in this country. As I explained in my article in the last issue it is vapour permeable, comprises entirely natural materials and, when complete acts as a 'carbon sink' because hemp absorbs CO2 during its growth. It is also considered to be reversible - an inportant factor when it is being used in the renovation of historic buildings.

"It is undoubtedly a material for the future because it is green - and highly effective," said Richard Cain.

Other possibilities considered for infill included wattle and daub. However this was not really a serious contender. Watts Barn was not a like-with-like situation that was required by planners to be emulated. Further, it was decided that the installation of wattle and daub panels would cause damage to the historic structure because stave holes and grooves would be needed to take the inner framing of oak or hazel.

An alternative that many builders might have preferred would have been lightweight block as infill - a common choice for barn conversions in the past.

"However blockwork is not really compatible with a breathing structure, and it has the potential to distort the frame," said Richard. "In addition shaping the panels to fit round the vertical timbers (studs, most of which we retained, would have been tremendously difficult. It would have involved an enormous amount of cutting the blocks."

The first task was to underpin the entire structure and make the frame of barn structurally sound. The approach was 'gently gently' in accordance with the principles of The Society for the Protection of Ancient Buildings (SPAB), of which Richard is a keen member. Whole timbers were replaced only when absolutely necessary.

When it is set hard Hemcrete looks rather like the inside of an unplastered cob wall. It is raw in appearance, and tactile. Once set it can easily be cut. If you want to shape it you just wait for it to harden off and then carve it with a knife.

There is one word of warning here. Much of the work on the Richards' barn walls took place in November - traditionally one of the dullest and dankest months of the year. Although you can cast Hemcrete walls in light rain it then takes longer to dry. Therefore try to avoid winter months if at all possible when attempting work of this sort.

The Hemcrete at Watts Barn took far longer to dry than the material from the same company that I used when I undertook the job at my own cottage in Oxfordshire.

This is something I know about, as I completed my small Hemcrete project in April and May this year. Within a month the scratch coat of lime plaster had been applied and the wall was skimmed and ready for an application of casein paint.

However there is a lot to be said about applying Hemcrete to very large areas, as in the case of Watts Barn.

When applying it to large areas it is much easier to fix the shuttering that is needed to give the material its shape. Hemcrete always needs to be cast into a mould.

With large areas there is also no need to use polythene sheeting, as my wife and I did. We did it as an insurance policy in case of falling away. On larger areas of wall it is generally not needed. And an overriding advantage of it in a barn like the Richards' is that it can just be clad on the outside with the specified material - in their case larch boarding to replace the original elm - and plastered on the inside.

It gives a lovely finish if lime plaster is correctly applied. At Watts Barn Richard specified an NHL 3.5 (moderately hydraulic) hydraulic lime for the scratch coat, which was haired. It was all applied by hand. The skim used the same lime, and the technique involved bringing the aggregate to the surface rather than leaving it smooth. "I consider this an ideal interior finish for a converted historic barn like this," said Richard.

At first the skim was to be applied directly to the hardened cast Hemcrete, but this was rejected by Graham and Heather after they had seen a specimen. The Richards were keen that the rest of the finish on the project should be to an equally high standard. They managed to achieve this throughout. "Now it is all finished we are absolutely delighted," said Heather, a teacher. "Our three children aged 8, 5 and 4 love it. "We were very lucky to have Richard as project manager," said Graham. "His speciality is historic buildings, about which he is very enthusiastic.

"We are delighted with the layout, but realise that the amount of open space we have left is a great luxury. We have underfloor gas heating, and this winter will be the test of how efficient Hemcrete is at providing a well-insulated structure.

"Not everybody would want to have so much unused space, but it is our view that it is the only way of doing justice to such a wonderful building, and in this case the best possible form of conversion. We sacrificed a couple of bedrooms and some storage space, but this sympathetic approach was well worth it. We believe the result does the building justice and has produced a home with a real 'wow factor'.

Captions?

*Hemcrete can be obtained from Lime Technology Ltd., Unit 126, Milton Park, Abingdon, Oxfordshire OX14 4SA. 0845 634 1560 www.limetechnology.co.uk*

*Richard Cain is on 01235 787539 or 07939 046360*