Cottage comfort – eco-style

BY CLIVE FEWINS

Above:
On my own...

The polite young man at Lime Technology was a trifle sceptical when I first visited the company to enquire about using their prime product, Hemcrete. It's a mixture of hemp and lime, and my intention was to use it for insulating a downstairs wall on the ground floor of our 17th century listed timber framed cottage.

When I showed him a photograph of our wall - it curves, or it used to curve, like the lower deck of a galleon in from top to bottom - he immediately uttered the percipient words that still bring a smile to my lips every time I recall them

"It looks like a non standard application Sir."

What is a standard application in an old cottage like ours that has been a builder's nightmare (but not ours) in the 33 years we have lived there and brought up two children? When can a cottage, with a curvy thatched roof supported by scantlings, and walls that splay out in all directions with not a right angle in sight be a 'standard application'?

That's why cottages are so charming!

Ours is particularly so. But we don't always hold that view on a windy day in mid-winter, when we sometimes wonder whether the wind is stronger in the garden or in our dining room.

To try to counter some of these draughts was one of our objects in our hemp and lime experiment.

My wife, Ann, and I had decided we had reached the stage where we had the time and (still?) energy to install some Hemcrete insulation.

We had heard that is it is carbon neutral as hemp absorbs CO^2 during its growth. It is also vapour permeable and highly thermally efficient.

All our friends at Limetech seemed to want to say was that this amazing material is not meant to be

Above: **Fixing some of the vertical shuttering**

made to fit old bulging or curvy walls, but to form straight, barrack block-looking sides to buildings, just like the one were stand in - his company headquarters at Milton Park, Oxfordshire, six miles from our home.

That was not the story I had heard from our conservation officer, who, when apprised of our plan - to cover the inside of one of our oak-framed wattle and daub walls with a layer of 10-15 cm of this stuff said he'd like to see the result. Oh - and make sure that it merely covered and in no way damaged the historic fabric of the house. In other words, he accepted that insulating and old interior wall in this way is a completely reversible process.

For several years I had known it full well. Insulation comprising hemp and a lime mix is an excellent method of adding interior insulation to draughty old cottages. It is also fully reversible - it can be removed with no damage to the timber frame of the building should a later occupant wish to do so. In our case the posts and beams it would cover were but a small proportion of those in the room. Our beamed ceiling would remain wholly intact, and in the meantime we were making a small attempt to reduce our carbon footprint by adding insulation to a very leaky north-facing wall.

So why was the earnest young man at Lime Technology so reluctant to make his £142 sale?

It was obvious really. A young, progressive company in a relatively new area of the conservation game is not going to stay in business for long selling paltry amounts to the likes of myself. So their main market is -- quite understandably - high performance new-build.

Another factor that appealed to us was that we knew about the delicious shapes you can carve out of hemcrete once it has set. If you want to shape it you just wait for it to harden off for a few days, then carve it with a knife. This school craft room approach appealed to us.

Originally a process that originated across the Channel, hemp and lime can be 'wrapped around' timber frame with no harm to the timber. In other words, it won't make the timber collapse so the wall eventually implodes.

This was important because, although our plan was to cast our new layer of wall behind wooden shuttering. The means by which we were to achieve this initially was by oak batttens fixed to the posts in the wall, which would remain encased in the new structure.

You buy the hemp in 200 litre bales tightly packed in polythene. The lime-based binder comes in 22 kg bags. All you do then is mix the two together in the proportion of three buckets of hemp to one of the lime, add water as per the instructions, and hey presto - away you go.

It's quite light to mix - not at all like mixing a cement mortar. I shunned an electric mixer and did the job by hand.

Undeterred, we employed the only carpenter we could find that had any experience of the system to show us how to go about it and get us started.

Carpenter Dan Barton did the

clever bit at the beginning - carefully attaching the long oak laths to the horizontal beams so that the mixture could be poured into shuttering attached by means of tubular plastic spacers to the room side of the laths. He also fixed the first section of plywood shuttering into which we would pour and the mix and ram it hard.

We had calculated that because of the inward lean of the wall we would end up with about 10cm of insulation, tapering off to virtually nothing between the beams at the top. Tricky.

"I am extremely busy, with several major jobs in hand, so after I have completed the initial shuttering at the bottom I shall leave the rest of the shuttering to you," Dan said cheerily. "Quite how you'll fix it beneath the beams formed by the ceiling joists I don't quite know. Give me a ring if you get stuck. Bye."

Dan returned as promised in a few days to fix the shuttering round the new oak window he had installed to provide a deep (and very attractive) reveal. Casting the Hemcrete into this proved easily the most difficult part of the exercise.

Suffice it to say that after three-and-a-half backbreaking days of ferocious carpentry, ably assisted by my drill-holding, spectacle - finding, fodder-providing wife I really have no idea of how I got all the shuttering in place. It was largely intuition, but also the result of many years of using an electric drill and a set of screwdrivers in a variety of uncomfortable positions.

At times the shuttering we used any old piece of timber we could find - looked like a cross between a Roland Emett creation and the scaffold on which Marie Antoinette was guillotined. Any respectable carpenter would have either dropped his hammer with laughter or suffered a seizure.

However, it worked. And, toiling away in sections, I rammed the mix

Top left:
Applying hemcrete into shuttering round the ceiling beams proved really tricky

Bottom left:
The finished wall before the lime plaster coats were attached

Middle right:
Mixed Hemcrete about to be applied to a job (image courtesy Lime Technology Ltd.)

Above:
Nearly finished. The casein paint has been applied and all that remains is to finish the rest of the room!

tightly into the mould created by the shuttering using as rammers a variety of pieces of timber, old wooden hammer handles, and sometimes the hammers themselves. Anything in sight in fact.

It was nerve-wracking when we removed the shuttering in sections to find out what we achieved.

It was also all to easy to forget the clear plastic sheeting that must be installed between the shuttering and the mix if you wish to achieve a surface that will not adhere to the timber shuttering and possibly cause the hardening mix to fall away.

Carrying out the process in the sort of confined space provided by an old cottage can make the skin dry and raw. Lime may be my favourite four-letter word, but the process is not for the fainthearted. If you decide to install insulation of this sort you will probably, like us, end up doing most of the work yourself because it is very difficult to find a builder with experience of using this relatively new technique.

We had no problems in finding a local plasterer with the skills needed to apply a lime scratch coat and skim. After that, once it was dry (best to allow two weeks) we applied countless coats of wonderful-smelling limewash as a breathable sealer, then a breathable casein distember to provide the coloured finish.

It was very satisfying when Limetech's helpful managing director, Ian Pritchett, who lives nearby, accepted our invitation to view the final painted result. He professed himself highly impressed – and we believed him.

Would we do it again in another room? Yes – well, perhaps. We are certainly delighted with the appearance of our new inner wall. But first we'll see if all our hard work yields a greater level of winter comfort.

The one thing that strikes me a few weeks later is that you need confidence with your tool kit and either a bit of carpentry experience or innate ability if you are to succeed, A certain fitness level also helps.

Once you get to ceiling level you have to work hard and fast and there is a constant danger of getting coated from head to foot if you are not applying the material quickly enough behind the shuttering. Nightly baths and a daily supply of well-worn work clothes are de rigeur.

You also need a good supply of expendable old tools. I know for a fact that I managed to bury two hammers and much loved old screwdriver beneath the many layers that went into our new wall.

And, many weeks later, I am *still* looking for the glasses I was wearing. I fear the worst…

- If you are considering adding hemp/lime insulation to the walls of a listed house you should always consult your local listed buildings officer. In our case we were advised that no listed building permission was needed because there was no disturbance of the historic fabric and the process was considered reversible.

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Next issue we are hoping to include a feature by Clive on the installation of Hemcrete walls in a barn conversion.