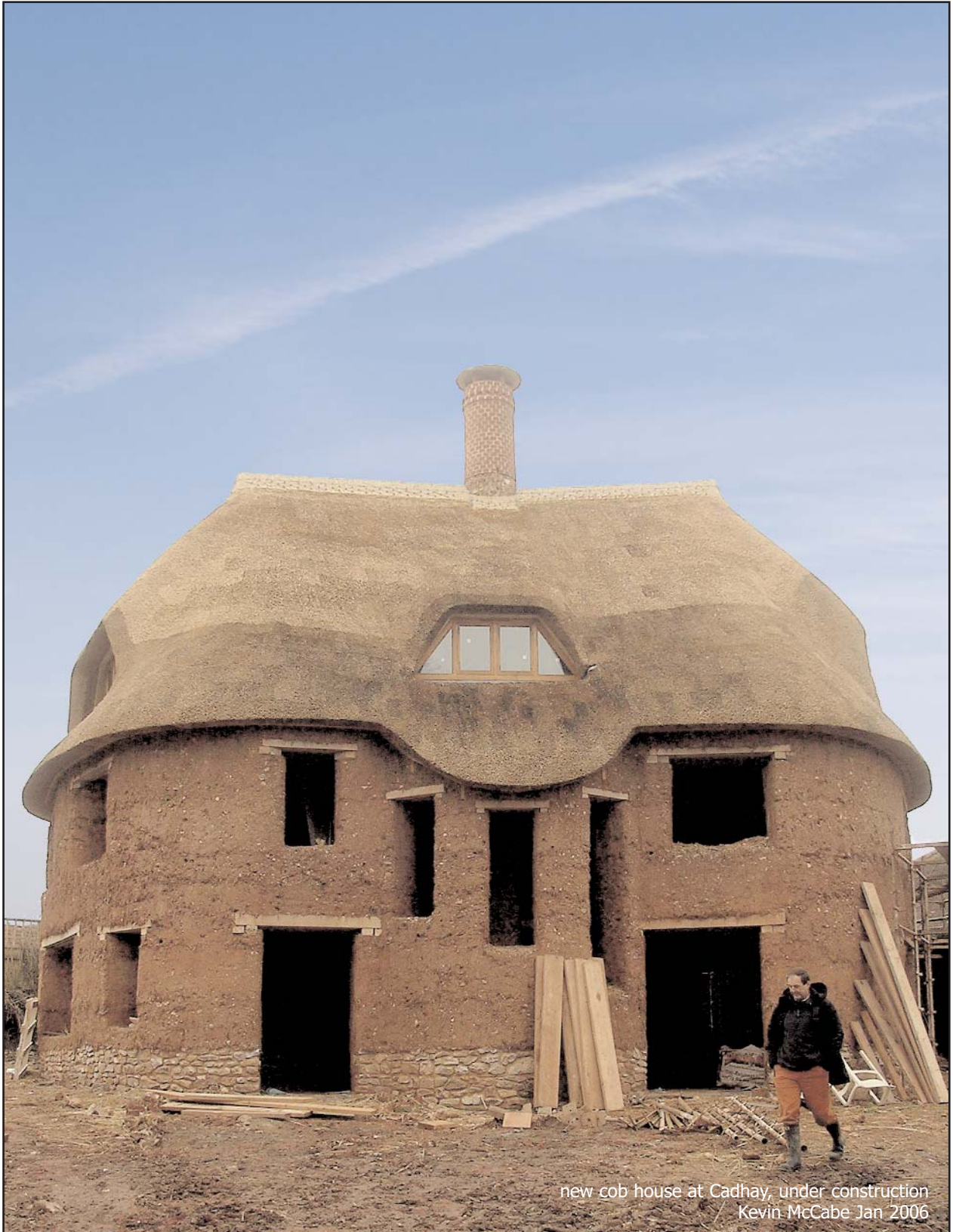


DE
BA

DEVON EARTH
BUILDING
ASSOCIATION

summer
2006



new cob house at Cadhay, under construction
Kevin McCabe Jan 2006



Seived earth and Hemp exterior plaster

Earth/Lime interior plaster finished with beeswax



NEWSFLASH

Working Group meeting at Kevin McCabe's house.

The group met in Kevin's new cob conservatory at Kepplegate on Friday 13th January. Kevin gave us a guided tour of his own house and outbuildings.

Kevin then took us to his latest project which is a new cob house at Cadhay.



The working group admiring Kevin's bread oven.



Cadhay roof structure



Back to Earth

Chris Brookman of Back to Earth has recently built a 150square metre extension in New Buildings, a Barn conversion in Culmstock (pictures website - www.backtoearth.co.uk), SCAT and built a cob block extension to a house in Stoke Canon- pictures below.



Cob extension - Stoke Canon



Abey Smallcombe

The Eden Project continues to support the use of earth for building and commissioned a Coach Visitor Facility centre in 2005. It is constructed with cob blocks provided by The Cob Block Company (see Barry Honeysett's article for the design details) and finished by Jill Smallcombe and Jackie Abey with an earth/hemp exterior render and an earth/lime interior plaster.

A shelter and seat were designed and built by Jill and Jackie en route to the Biomes. It has a living roof and an interior earth/lime/cowdung plaster.

The biggest challenge for Jill and Jackie was an eighteen month project to produce 400 handprint cob tiles made by visitors, school children and staff at the Eden Project, plus a few extra from their visit to Glastonbury Festival (see above). These tiles, using a variety of subsoils, have created a 10m long, 3m high wall which weighs approx. 6 tonnes! It is situated in the new education building at the Eden Project.

The Genesis Project at Somerset College of Arts and Technology has an earth pavilion constructed with a rammed earth wall (Tim Stirrup), a cob block wall finished with a beeswaxed earth/lime plaster and a cob wall (Chris Brookman, Back to Earth). Jill and Jackie had to buy a long level in order to achieve the straight cob wall required when paring back; certainly another challenge with a beautiful result.

During the winter of 2004/2005 Sustrans Cycle Routes commissioned Jill and Jackie to build five shelters along their three new Clay Pit Trails in Cornwall. They designed these shelters in timber with living roofs which were built by Jasper Emanuel and during the summer they infilled with cob.

Their latest project, which has just been completed, is a 12m wall in the children's garden outside the new education building at the Eden Project. It is constructed using recycled materials including cob blocks, copper, cedar shingles, chestnut fencing, decking, bottles, cans etc.

All these projects can be viewed on their website www.abeysmallcombe.com

Mixing and laying an earthen floor

by Jan and Jerry Sharpe - www.jjsharpe.co.uk



We laid an earthen floor for our kitchen in a new build cob house. We were inspired to do this after working with and seeing earthen floors Bill & Athena Steen of The Canelo Project make in Arizona. We also felt this type of floor would be in keeping with a cob house. The materials used such as sub soil (with clay content), chopped straw, sand and lime are all sustainable.

There are some problems with using earth or sieved cob for flooring in this country, the climate is not dry, hot and sunny as in SW United States therefore the drying time can take weeks. However this can be overcome with the use of

dehumidifiers and slow drying of earth will not crack too much. Nevertheless one must accept that there will be a certain amount of cracking and shrinking.

The floor laid for the cob house was approximately 40 sq. m so it was important to have as much mechanisation as possible. We estimated that approximately 4 tonnes of sieved sub soil would be required therefore we arranged for the sub soil to be screened at a local quarry.

The soil, with the other ingredients, was mixed dry in a cement mixer. Adding water to the mixture in a cement mixer tends to make the material stick to the sides and not blend together very well. The dry mix was tipped onto a concrete slab and mixed with a rotavating type mortar mixer.



To acquire the right mix for an earthen floor it is important to make test panels using various ratios of sub soil, chopped straw, coarse sand and possibly a small amount of lime. After making several small panels, about 400mm x 600mm, we made a large test panel of about 2m x 1m to ascertain how strong the floor would be and how



is possible to float the floor with a flexible hand trowel. As the floor dries cracks appear these should be floated either with a power float or by hand. We used a garden water sprayer to damp the floor while floating. A small quantity is needed in order to bring the 'fat' to the surface.

A large floor area takes about 6 weeks to dry out, if weather conditions are good, that is dry, bright and breezy, considerably longer if cool damp conditions prevail. It took four people 7 working days to mix and lay the floor. Laying an earthen floor is slow and labour intensive. When the floor dried out it had to be sealed with linseed oil and turpentine.

much it would crack.

To lay the floor we divided it into four sections to make manageable areas. The mix is tamped down and compacted. This was at 50mm depth, checking all the time that the finished floor level was the correct height to the datum line. To ensure the levels were correct throughout we used a large length of timber placed on wooden 'rails' pulling it over the earth mix to create a level floor finish. To check the floor is perfectly level it is important to use spirit levels at regular intervals.

When the whole floor was laid a power float was used to achieve a smooth finish. For a small area it

The first coat was pure linseed oil then subsequent coats of oil and turpentine, increasing the amount of turpentine for each coat was applied. This ensures the oil mix penetrates into the floor rather than creating a crust on the top. We used about 12 coats, until the floor reached saturation point. The easiest way to apply the coats was to use a soft bristle broom with a plastic storage box as the container for the oil and turpentine. The final floor finish is a natural hard resin oil.

The finished colour will always become much darker than the colour of the earth used. We used a red soil from the Crediton area but the finished colour is a deep red/brown shade.



Genesis – Bringing earth to a wider audience

by Tim Simmons

Genesis is a regional sustainable construction resource centre designed to promote and deliver education and training through its buildings, the courses delivered from them and its various out-reach programmes. The Genesis Centre is a building designed to demonstrate various sustainable construction materials and processes.

The main body of the building is encased in a glass curtain walling system, through which four discrete pavilions protrude. The outer two-thirds of each pavilion has finished weather-tight surfaces, with the inner third exposed to reveal the construction technique and materials. The four basic construction types used are: straw bale, fired clay block, timber frame and earth. Each pavilion is a fully operational building with functions appropriate to the material used.

The earth pavilion, the centre's shop, is constructed using three methods of earth building: rammed earth, mass cob, and cob block. Rammed earth and cob block provide the two load-bearing walls. The cob block wall is covered with an earth plaster that leaves a small section exposed to reveal the construction material beneath. The pavilion benefits from underfloor heating, a brown (rubble) roof and a mixture of recycled cotton (roof) and warmcell (floor) insulation.

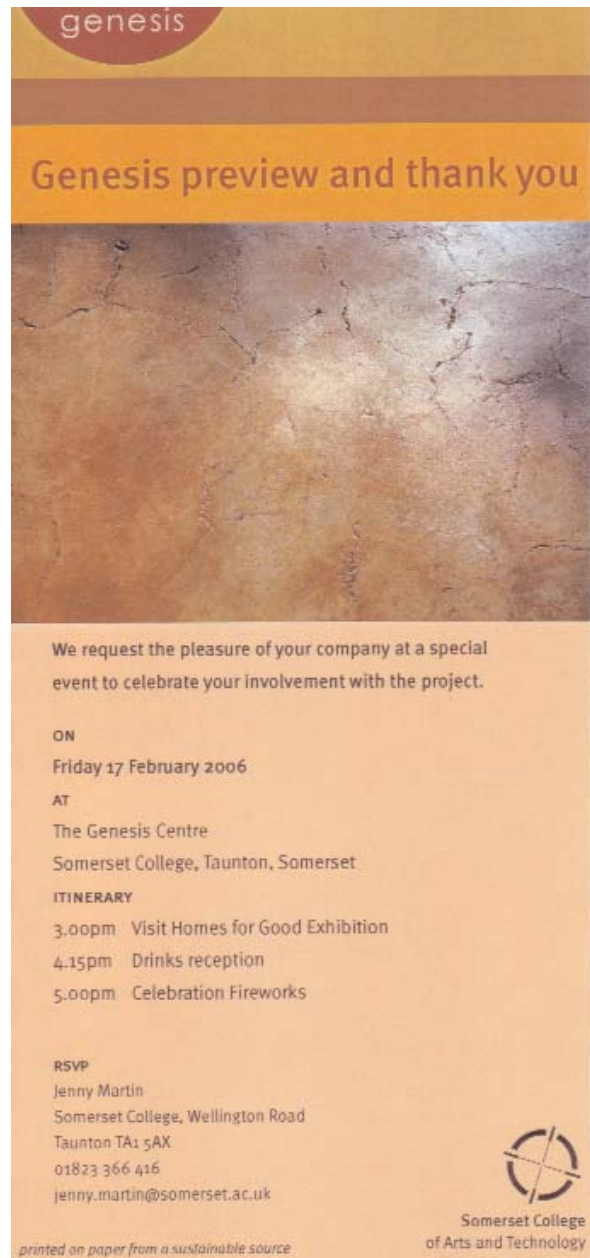
The purpose of the earth pavilion is to demonstrate the use of vernacular materials in a contemporary mainstream setting with the hope of inspiring their greater use in the broader construction industry. This will require us to be able to provide standardised technical data on the properties of the material used for earth walls. The test programme currently being undertaken (including sheer, flexural and compressive strength) is working towards an industry standard that will allow earth to be compared with more commonly used building materials.

Probably the most unusual element of this building is the use of an external insulation material on the outer walls of the pavilion. The walls are clad with two layers (100 and 200mm) of Pavatex - Diffutherm -a wooden fibreboard that does not contain any glue or wood preservers. These are then finished with a continental lime render system compatible with these materials. Both the insulation and the render system were

supplied by Natural Building Technologies.

The decision to clad the earth wall exterior with an insulation material was made in order to show how compliance with the new Part L Building Regulations might be achieved using a material that would not impair the ability of earth walls to breathe.

The Genesis Centre will open to the public from spring 2006 for tours, conferences and other events. For further information, contact Sam McIntyre on 01823 366743.



genesis

Genesis preview and thank you

We request the pleasure of your company at a special event to celebrate your involvement with the project.

ON
Friday 17 February 2006

AT
The Genesis Centre
Somerset College, Taunton, Somerset

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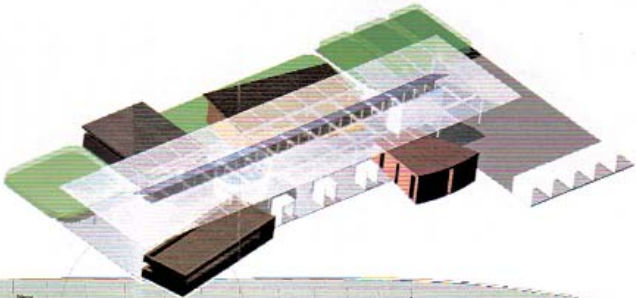
- 3.00pm Visit Homes for Good Exhibition
- 4.15pm Drinks reception
- 5.00pm Celebration Fireworks

RSVP
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Somerset College
of Arts and Technology

An exemplar building and learning environment that promotes and delivers sustainable construction education and training.



Plans and drawings by Architype

Architype's design was chosen from six entries submitted and presented to a student panel. The Project is located at the Somerset College of Arts and Technology, Wellington Road, Taunton, Somerset. Please call Construction's Divisional Administration team on 01823 366 344 if you would like further details.



Hot tubs in Oregon

an interview with Becky Bee

The following is an edited transcript of an interview that I conducted in early December 2005 with cob pioneer, instructor, and author Becky Bee, at her new home in southern Oregon.

In part two of the interview, Becky spoke about transformative experience that is learning and teaching cob, and the discovery and invention of the first cob hot tub

BECKY BEE: "And of course, the wonderful people that it attracts just expanded my life, and my experience of learning to get along with people, and gathering, which I think is really the only hope for the world, is learning to get along, and gathering, working together. And so it ended up being this much bigger thing than I pictured in the first place, which was just, Oh, this is so beautiful! This is so cool! I want everybody to do it! And then slowly, it just became that I don't even care that much about the cob itself, it's the process of the people getting together, sharing, realizing that they can do what they dream, or they can be freer of the expectations that have been put on them.

And cob kind of tells people that in a real cellular way. And you can watch how it affects the people. How at first they're kind of skeptical, and asking technical questions, and frowning. And then, by about day three, they're just laughing, and they're covered in dirt, and they're having conversations, deep conversations about what they, maybe, could do in their life, or about their mothers, and personal healing. It seems to be a standard thing, that evolution process that humans go through when they're cobbing and working together, and giving up that, Okay, we have to look good and clean, and I'm doing what I'm doing, and you're doing what you're doing. Where you just eat together, and you work together and create together and make decisions together. And I try to be — yes, I'm the Queen Bee, but I also like to stand back and let people come up with their own creations, because really, that's how they learn, and how they feel their

own power.

And cob is so forgiving. It really lets people try whatever they want, and if it doesn't work, it doesn't hurt anybody or anything, you just recycle it, and try something else. And all these things that cob shows you have correlations in real life, of how one can live their own lives. Like, for example, just try it! If it doesn't work, pick it up! It didn't break you! Pick it up, try something else!

Like in Ecuador. Okay, first day, they're all there with their notebooks, sitting properly. As properly as they could with no chairs. [Sits up awkwardly straight]. And they're waiting for me to explain to them how to do cob. And of course, I'm like, well here's the tarp, I imported this plastic tarp from America because it's my most precious tool! And they're like, Oh, tarps, oh, wow! And they see a roof, you know? And here I'm taking this precious roof and throwing dirt on it, smashing it up... Next thing you know, the notebooks are lost. It took a couple days, they're really indoctrinated to, This is what learning is [Sits up straight, stares attentively, jots in notebook]. And after a few days, they were just freed of that, this-is-how-you-learn thing. And they were just mixing it... And they were like, How do you want this wall? Okay, we want it like that. Well, you can do a little decoration.

By the end of the week, they figured out that you could decorate, and they could make their own little thing. Well, this poor house just had sculptures all over it! I'm like, STOP! Stop, PLEASE! This is too wild. You know, one witch running into another gargoyle, into a creature, into columns. It was really ugly, but the people were having so much fun! I couldn't stop them. And that was what really mattered, that these people were going into another understanding of what learning is, and what working with each other is. And what teaching is, they ended up teaching all the new people that came in. And it was so thrilling. Anyway, I hope they're still cobbing.

Cob, what can we say about cob. It attracts inter-

esting people, you know, the people that have a vision, a little ability to see outside the box. So you're attracting, or you're inviting, an interesting crowd to get together. And then the cob catalyzes those interesting people, and it also brings out the best in one. It's just such a quiet, simple, calming work, and it seems to bring out the best in people. So you've got a great bunch of people, at their best. That's what cobbing's all about. You know, we're talking about how wonderful it is, and how it inspires people, and stuff.

But on a really real level, for me, it's a very selfish thing. I do it because I like to do it. And I do it because it's fun! And I do it because it's good for me! And I do it because it interests me, and it keeps me alive, in a way. It's just selfish. I don't do it because I want to save the world, you know? I do it because I want to save myself.

Okay, so the hot tub. You HAVE to make one. So what I suggest to people, when they're going to build their cob house, is that they make a hot tub first. So that they get to test their soil, and they get to have a hot tub to relax in while they're cobbing. And there's something about those hot tubs that just really brings all the elements together. It encourages you to be outside bathing, which is very expansive for the mind, and the design process. And you really get to know the wind where you are, because you've got the smoke going up.

So you're learning, it's a great first step on site. It attracts you to the site, it helps you go there when it's cold and wet, when you need to go there and see what it's like, to help you design it, and makes you happy and contented when it's cold and wet. And then, the other good thing about it is, you can start cobbing earlier, because you have hot water to make your mix with. You have hot water to stick your hands and feet in and/or you at least have a bath, if you're camping. It makes it easier to stay longer, work earlier, and then work later into the season. So it's a great, wonderful, magical, multi-faceted thing to have, one of these hot tubs.

And it really isn't a cob tub. It's a metal tub with a cob firebox and a chimney, which can be cob or metal or whatever. And the way it got invented was... in these protest camps that I used to do in New Zealand, when I was young and wild - now

I'm old and wild! - anyway, we'd have a tub that somebody'd donate, and then we'd build a fire under it, and you'd just get smoked out, and the smoke would be terrible, and you'd sit in the tub, and you'd just be like, God, I need a long snorkel! You know? It was wonderful to have the hot water, but it was so smoky. So that was the first seed of, 'Gee, it's be nice to have one of these, out in nature, somewhere, without having to get so smoked out.' And then, when I left the tropics, I started learning about fires and heating places and stuff, and then I had that workshop on cob stoves.

So I got it that you can use cob to create stoves, and that that makes it more efficient, so you're not wasting wood. You're not wasting as much of your wood, by focusing the heat underneath the tub, instead of just spewing it out everywhere. And then the other problem with the original tub was you'd burn yourself on the edges! So all these things conspired to help me in the eventual need, where I was cobbing up at Lost Valley, [Oregon]. So we were working on that, and I was staying there for a couple of months, and they didn't have any baths. And, of course, we were covered in mud, and they didn't really want all our mud in their plumbing system. And so then it left us a cold hose to rinse off with. You know? And we were camping out, and we just needed the luxury of a bath. So we thought, Well, let's put up a tub. They had all this junk laying around, you know. So we got the tub, and just kind of made it so the smoke wouldn't come out, wouldn't get in us, and wouldn't burn us on the edges. And it was just a practical thing. And yet once we had it done, we got it, that it was just this revolution! I mean, if everyone had a cob tub, in this country, it would be a different world.

Truly! It is such a powerful thing! It's such a simple, kind of weird, thing. And yet, it is so right. And I've had cob building, tub building workshops and parties. I mean, everybody gives up their fear of being naked, at least in the night, and takes turns in the water, and the candles are going, and the conversations are just so expansive and beautiful. Anyway, we had this tub, and we obviously had a lot of fun. And it just had to be a book. It had to be shared with other people."----

for more information, contact David Sheen: david-sheen@davidsheen.com

A Cob Stair

By Alison Bunning - Architect

In converting some outbuildings into a holiday cottage, the design of a new staircase became something of an issue. The cottage is of stone and cob, with lime plaster used throughout. The plaster has been allowed to follow the natural contours of the walls, undulating along the wall tops and dipping into the hollows where cows had licked away at the cob over the years. The corners are all rounded, window reveals splayed to give a gradation of light across the reveal, thickenings at the wall bases have been kept and the lime plaster taken right down to a new slate floor. The consequently uneven footprint of the wall bases where they meet the floor has meant that skirtings have not been an option – even if they were wanted. The joinery is otherwise plain chamfered oak. A desire to build in a responsible and sustainable manner has prompted the use of sheep's wool insulation and reclaimed timber and roofing slate. The only cement is in the floor slabs and the guttering and downpipes are galvanised steel. Almost nil waste has been produced, all materials being recycled in the building or elsewhere on the farm.

So how to insert a new staircase into this very special building? It soon became obvious that the only real option was to build a massive cob staircase in the sitting room, incorporating alcoves for a woodburning stove and log storage and to curve it into the corner of the room and up to the first floor bedroom. In planning the new stair, three winders seem to fit naturally into a splayed corner of the room, the winders radiating from a mass cob newel post that would form something of a focal point at the base of the stair. The treads then followed the wall line up, but were allowed to swell outwards in width to give the whole construction body and mass. A quarter landing just below the top step formed a natural viewpoint over the whole room, sitting under the central line of the space, beneath the ridge beam, with the sloping ceilings falling away on either side.

Starting from the ground upwards, the first course of cob blocks was bedded on lime mortar and the curved plan shape of the stair set out. A small plinth was formed that would become part of the hearth for the stove, following the contour of the rounded base. As the huge mass of the

construction would require immense drying out, cob blocks were mostly used, laid in lime mortar, with mass cob rammed into the small and awkward areas. The alcoves were built using formers, the arched tops moulded over sand, and cob blocks set on edge as voussoirs. The blocks also lent themselves to forming the risers as the stair proceeded upwards.

The question of how to deal with a balustrade and handrail for the stair was then addressed. It seemed natural to form it in cob, but how to give it the stability and strength to resist outward lateral loadings of perhaps someone falling against it, required by the Building Regulations? Our structural engineer came to the rescue with an ingenious design using upright timber battens within the thickness of the balustrade, strengthened with willow rods woven between them and the cob daubed over the whole. The uprights were given lateral restraint by fixings into two treads at the base of each, the treads having further battens set into them and these in turn fixed down by driving helifix bars down into the cob. This allowed the balustrade to follow the curve of the staircase, with a slight waisting and swelling to the side of the whole. The battens set in the treads will also provide fixing points for oak treads. The newel post at the bottom was formed by weaving willow into a tall thin basket of reinforcement, which was filled with cob, and then further cob moulded and sculpted over the outside to the desired shape.

Much of the success of the stair is due to the sculptural quality of the whole. We were helped in this by one of our team being a potter, well versed in the sculptural qualities of clay and bringing an artist's eye to the form. She was able to bring out the shape where required by applying more cob, or cutting it away. Two more alcoves were added by hollowing out the recesses – these will form natural shelves for books or candles.

The finishing of the stair is now being addressed, dubbing out in lime mortar has allowed further refinement of the shaping of the stair, including thickenings around the rims of the alcove arches, and a lime base coat has been applied. We are now experimenting with an earth plaster top

coat. With a lime plaster finish on all the other walls in the cottage, finished with a fibre float and limewashed, we wanted to give the staircase an identity of its own. The local earth is the rich Devon red colour, and a self-colour finish of this would contrast with the surrounding walls and set off the whole structure within the space.

Two dumpy bags of subsoil were collected from a friend's farm up the valley (being on the flood plain, our own subsoil is a very local sandy ochre colour – which although lovely in its own right, is not of the intensity or richness we are looking for). The clayey subsoil was then crushed dry in a roller pan mixer, sieved through a 10 mm mesh and then mixed with water and 25% coarse-graded sharp sand and 10% lime putty. The roller pan mixer was hired especially for the job, providing a very different action to a cement mixer, churning and crushing the plaster mix. We are now experimenting with different mixes to give a reasonable topcoat. Unfortunately the clay content is quite high and the plaster tends to craze and crack too readily. Different mixes are being tried with varying proportions of fine sand, lime or chopped hemp in an attempt to find the ideal mix. We are looking for a fairly fine finish, either smoothed or polished with a steel trowel or perhaps burnished and beeswaxed to bring out the natural colour and sheen of the red earth. Having got the stair this far, we are all determined that the finish should offset the whole, underlining our desire for a sculptural object, using natural local materials and with a



self finish.

Building team: D Tyler, G Tyler, G Kemsley, I Merrick, S Pinn
Architect: A Bunning
Structural Engineer: B Honeysett



Cob Making with Dexters

Can anyone let us know who wrote this interesting article?

We might have discovered the ideal way to mix cob.....

Or at least re-discovered – as everyone knows cows were used – but not just any old cows – Dexters! The Dexter is the smallest breed in this country and its origins go back to South West Ireland. They are descended from the predominately black cattle of the early Celts. A Mr Dexter who lived in County Tipperary in the 1750's selected the best of the hardy mountain cattle of the area and developed the breed. They were introduced to England in 1882 and were well established by the late 19th century. However, the 20th century saw a decline in the Dexter to such an extent that it was listed as a rare breed. Recent years have seen a turn around in the success of this little cow. Perhaps with the rise in popularity of small-holding, together with increased recognition of the value of all our rare and traditional breeds, the Dexter is now enjoying unparalleled success.

Dexters are the closest surviving breed to the Romano-British and Celtic type cattle - and so have been recently used in several archaeological re-construction sites for milk, beef and harnessed for ploughing and other work. The average weight of a cow is some 300kg and they stand 92 – 107cm at the shoulder. Being a mountain breed, they are extremely hardy and can live outdoors all year round

So, last year, faced with having to re-build a section of seriously outward-leaning cob wall, we set our cows to work. Our small herd of five cows and heifers had been loafing around far too long and it was time they earned their keep.

The old cob was spread out on a concrete yard, inter-layered with sprinklings of straw and wetted down. We surrounded the yard with hurdles and introduced the Dexters to their new job. At first they just stood there, faintly surprised but settled down to munching away at the hay provided for them. This of course soon meant we had some additional material in the mix in the form of cow dung – but that was all right as dung was often found in old cob mixes. We soon found that the mixture was too dry; they simply walked on the surface, compacting it, and even lay down for a contemplative snooze on the top of it.

The next day was more successful, we wetted down the cob mixture and the cows were soon walking around in it, their small hooves churning it up quite effectively. (No Dexter keeper I'm sure will be surprised at this, after all, what do most yard areas resemble after a wet winter but a mass of churned up mud). We left the cows in the cob yard for three or four hours each day for about a week, at the end of which we now have a lovely mass of well mixed cob. I don't think they minded their work, they were quite happy to go back into the yard each day and munch away at the hay, and their feet don't seem to have suffered at all.

The recycled cob has proved very workable, with a good degree of plasticity it has been successfully incorporated into the re-built wall. I think the smallness of the cattle, together with their extremely neat hooves worked the mixture well, kneading and treading it. We did have to carry out a bit of turning ourselves, but by and large the little cows did a good job and returned to the fields well satisfied with their weeks work.

Book Reviews

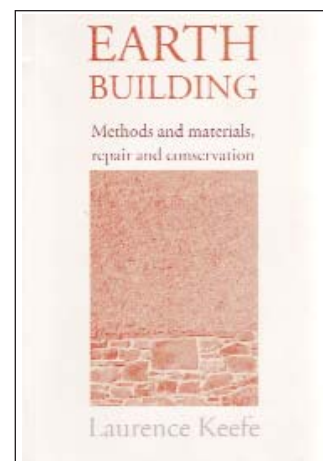
EARTH BUILDING Methods and materials, repair and conservation

By Laurence Keefe

Taylor & Francis 2005

ISBN0-415-32322-3

Those of us who build with earth, have eagerly awaited the publication of Larry Keefe's 'Earth Building'. This 196 page book goes beyond the simple guide describing in straightforward language, not just the practicalities of building with earth but also the sci-



ence behind how earth works as a fundamental building material here in the UK and worldwide. Larry's experience in the field of earth building gives this work depth and breadth. The illustrations are beautifully drawn, clearly annotated and informative throughout this book.

It is not the kind of guide you hold in one hand whilst repairing a cob wall with the other. This book requires your full concentration but the information within is indispensable. At last we have a book that deals with the more complex issues relating to building standards and regulations and since its publication I have found myself constantly referring to it for information and advice.

I would like to see this book on every cob homeowner's bookshelf and in all university libraries.

Larry Keefe is a founder member of The Devon Earth Building Association.

Jill Smallcombe

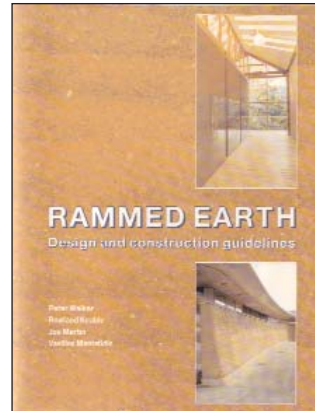
RAMMED EARTH Design and Construction Guidelines

By Peter Walker, Rowland Keeble, Joe Martin and Vasilios Maniatidis

BRE Bookshop 2005
ISBN1 86081 734 3

This is a very readable and comprehensive review of the current state of knowledge relating to 'rammed earth' in the UK. Each chapter clearly describes various aspects of 'rammed earth' and this is supported by good quality photographs and annotated diagrams. More detailed information, which raises its profile from a 'book' to a 'guideline' is presented in Appendix A to D, with some additional engineering results being presented for the first time. It has a good balance of up to date practical and theoretical considerations, although the historical background of the material is only briefly introduced.

Chapter 1 provides a well illustrated introduction to rammed earth and gives some of its advantages and limitations. Chapter 2 on 'Preliminary design considerations' gives useful practical tips on constructing walls and floors and the requirements to satisfy the building regulations. Chapter 3 deals with the complex subject of 'Materials for rammed earth construction'. It clearly describes aspects of soil characteristics, compaction and selection and effectively deals with physical properties. The compliance tests given in Appendix A (Table A1) are helpful, although, for soil composition, they don't guide the beginner in a systematic way towards the most relevant tests.



Chapter 4 clearly describes the practical aspects of rammed earth construction such as formwork, mixing and placing, ramming and finishing. For beginners, it would have been helpful to have drawn detailed long-sections and cross-sections of a simplified wooden formwork giving minimum dimensions. This would have improved its 'guideline' value. Chapter 5 gives details of rammed earth construction and is supported by excellent annotated diagrams and cross-sections. Chapter 6 deals with the 'engineering design of rammed earth walls' and with Appendix C it presents new research information. The simple structural design approach is very helpful for non-engineers. Chapter 7 deals with maintenance and repair and the excellent photographs illustrate well the sorts of defects that could arise. At the end there is a comprehensive and up to date bibliography.

Overall, this is a well written and skilfully produced book, with many good photographs of recent rammed earth buildings in the UK and elsewhere in the World. It provides a very credible 'state-of the art' account of rammed earth for the would-be competent self-builder and potential contractor. More detail on the importance of soil evaluation and the rationale behind the testing of natural and engineered soils would be useful. A critical review of the performance of recent UK rammed earth projects UK would be a helpful addition in future editions. Priced at around £39.00 it is rather an expensive buy.

Rex Harries & David Clark

RECENTLY PUBLISHED

BUILDING WITH COB a step-by-step guide
by Adam Weismann and Katy Bryce

ISBN 1 903998 72 7



DEVON EARTH
BUILDING
ASSOCIATION

decorative earth tiles by Abey Smallcombe