DEVON EARTH BUILDING ASSOCIATION

spring 2005

cob bread oven at 2004
Glastonbuty Festival

Crash Course in Earth Plaster - Vernon Adams

This article is a short description of the repairs to the earth plasters I have undertaken in my house in Bideford, North Devon. When I bought the house I knew almost nothing about these earth plasters, so DEBA have been vital in helping me get to grips with them and successfully repair them.

The building is a 3-storey, grade II listed town dwelling house. In the mid C18 the house appears to have had 2-storeys with the additional third storey added presumably in the late C18 or early C19. The external walls are made of uncoursed rubble stone with an earth based mortar used for the ground and first floors and a lime mortar for the top floor. Internal walls and ceilings are rendered with a 2 coat earth plaster, lime top coat and lime-wash. First and second floor partitions are of stud and riven lath. Ground floor partitions are stud frames, infilled with uncoursed rubble, the rubble being broken clay bricks, broken lime (an old floor?), broken clay tiles, and some stone. These rubble infills are held together by an earth mortar, heavily daubed out, then rendered with 2 coats of the same earth mortar/plaster and a lime top coat, plus limewash. The earth renders are in places very thick, especially on the ground floor and on the stone walls. Scratch and float coats can be between 1 and 2 inches thick each, in places the plaster being daubed out with broken roof tiles. The plasters applied to lath are around 1/2" - 3/4“. Historically, repairs to the internal plasters had been made with lime, although from the middle C20 further repairs have been made with various cements and gypsums. By the 1980's a few rooms had been plasterboarded, particularly the kitchen which had been partitioned to provide a ground floor bath/toilet for the 'unofficial' conversion of the house to flats. A first floor room had also been converted to a kitchen. Thankfully the conversion of the property to flats had been done in a fairly makeshift way, so although some damage had been caused to parts of the house, the alterations were basically reversible. I have removed all these partitions and reversed the unauthorised conversion. My aim was to repair the house and return it to a single dwelling.

One of the main priorities was the repair of the earth plasters. These had survived in various states, some had been damaged by alterations to walls, the insertion of doorways and the addition of plasterboard. Some plasters had been damaged due to water and damp, and large areas had lost their key from the lath or scratch coat, being held only by layers of wallpaper. I worked out early that the earth plaster must be re-usable - theoretically it could be removed from a wall where it had lost it's key, remixed with water, and re-plastered onto the wall. I tried, and it worked, so that was step one. It was important to re-use as much of the damaged plaster as possible, as limited access to the house makes the delivery of large amounts of materials difficult. Then I received an article through DEBA by Larry Keefe (DEBA newsletter 6) on loam plasters. The article was a huge help. The first thing I realised was that the earth plasters in my house were probably not of the best quality. Most obviously they lacked good amounts of hair - hair when it does turn up is in small unimpressive clumps of fine clippings. The plaster also seemed lean on clay content. I presume that the subsoil used for the plasters must have contained a fairly high clay content, so perhaps for some reason the plasters were mixed with more sand than was ideal; they do seem too sandy.

Having decided to re-use as much of the old plaster as possible it was obvious that I could improve the mix by adding a good amount of cow & horse hair. To add more clay content I initially added amounts of Claytec to the mix. The additional clay and hair greatly improved the quality of the plaster. One aspect of Larry Keefes article that struck me was the mention of an earth plaster containing equal volumes of dry earth to hair - massively more hair than was present in my plasters. Experimenting with larger amounts of cow/horse hair, it was obvious that there was a 'threshold' of hair volume past which the plaster took on a very different textural feel. This threshold was around equal volumes of hair and earth. The effect of this larger amount of hair was obvious; the mix was a completely different material to use, and when dry had a greatly improved flexible strength. It is striking what a sophisticated, 'technological' material this plaster is; the 3-dimensional, random mesh of the hair mass dispersed throughout the mix of clays, sands and other matter probably could not be matched by any other mix of materials. It seems a bit pointless to replace this material with any 'modern' version. Feeling that I had a better understanding of these plasters, I decided to use chopped hay & straw in place of hair. Hay and straw was far more convenient too add to a mix and it was far cheaper to buy in the large amounts I needed. I also actually prefer using a straw/earth mix to a hair/earth one. The straw and hay also provided a good mesh content to the mix and seems to give a fatter, more plastic plaster. The need to add more clay to the plaster meant that I needed to find a readily available source of clay subsoil. Presumably earth was used in the original

construction of the house because it was easily available, certainly being taken from the foundation diggings. A few exploratory holes in the garden showed that about 4-5 foot down was a good clay subsoil, so I have dug a couple of 'clay pits'. Cheap, but hard work and in the process have uncovered some old wall structures! This subsoil is rich enough in clay to need the addition of sand to produce an easily workable plaster, so the obvious solution was to use a 50/50 mix of subsoil and reconstituted plaster. This solution has given good results and put the reconstituted plaster to its best use. To make a mix, the old plaster is crushed by treading. Then subsoil and straw is added whilst treading the mix, with only enough water being added to give a fatty mud consistence. The volume of straw is approximately equal to that of the earth. The mix is then thoroughly trodden and beaten and mixed with a simple triangular garden 'hoe'. I have applied the plaster with a steel trowel from the floor upwards. Once areas are applied the plaster can be further forced and worked onto the wall, this seems to ensure a better key. On stone, the plaster firms up fairly quickly (within an hour) as the stone quickly draws a good quantity of moisture from the plaster. At this stage i work the plaster with a wooden float. Plaster applied to lath takes longer to firm up. Drying time obviously depends on environmental conditions, but i have generally applied the float layer when the scratch coat is hard to the touch but not dry. Earth plasters shrink as they dry, but good proportions of clay/aggregate/straw ensures that the natural shrinkage of the clay is dispersed evenly throughout the mix. Instead of localised severe cracking a meshwork of minute cracking occurs throughout the render. Theoretically this structure of fine cracks should provide more efficient tensile strength and permeability than a solid render.

From the outset it was decided to carry out the repairs to the house as low in impact as possible. Because of this approach there has been constant decision making over whether renders were in a state where they should be removed or not - the simple rule adopted was that if a render could be removed by bare hand then it needed repair and was removed. Any render that would need tools to be removed, didn't need repair and stayed put. I am still undecided whether this is the best approach to have adopted, I only know it's the approach I feel most comfortable with in this house. It is at times very tempting to strip whole walls and replaster. Doing so would in the long run require less work, but I have resisted this temptation as much as possible, instead preferring to keep as much of the original fabric in place. This results in patching walls with areas of old render removed and areas left. Repairing earth plasters in this way has its pros and cons. One disadvantage is that the shrinkage of the clay as it dries tends to pull new repairs away from the neighbouring old plaster, leaving unsatisfactory 'joins' of old and new plastered areas. An advantage of earth plaster though is that these areas of new and old render can be worked into each other using a water spray, a wooden float and very gentle work with a club hammer. This is done throughout the drying period of the new plaster, each significant occurrence of shrinkage being reworked into the old plaster. The result is a fusing together of old and new areas of plaster. This method has been especially successful when repairing renders to a stone wall. Carrying out these repairs onto the skimpy lathwork in the house has been at times problematic, so imperfect joins have been repaired with a haired lime mortar, before the lime skim is applied. Where lath and plaster had been replaced by plasterboard I am removing the boarding and returning to lath and plaster, using 2 coats of 50/50 subsoil and reconstituted plaster with chopped straw and hay, topped by a lime skim and limewash. Freshly plastering new lath is certainly quicker and more straightforward than making repairs to the old plasters.

There are other variations of the original earth plaster in the house. One room in particular is partly rendered with a plaster that has a more substantial and better quality hair content, and seems to have been gauged with a small amount of lime. Some of the renders on the ground floor also show signs that the plaster contains lime. For the repairs of these walls I am using an earth/straw/lime mix. Having been making hot lime mortars for a few months, I decided to customise the process to make an earth and lime plaster. Basically this involves mixing earth directly with quicklime. The ratio of earth to quicklime is about 12:1, which is more lime rich than the original mixes. A circle of trodden and damp earth is made on a large mixing board. The quicklime is placed onto the centre of the earth and enough water is added onto the quicklime to start a good thermic reaction. The boiling and steaming lime is then completely covered with the earth as quickly as possible using a hoe and left to steam for an hour or so. Finally this hot mix is beaten, chopped and straw added. Additional water is added if necessary. Having read that historically hot lime mortars were sometimes used straight away, I have actually used this plaster immediately after mixing. Results have so far been good. Would the original mixes have used lime putty for the earth plaster in the house? I doubt that. There is such a sense that the house was built using the most local and readily available

materials in the most economic ways. Lime burning happened at many sites nearby in the C18 as one major import into Bideford was limestone and coal shipped from south Wales. There is the site of one of these kilns a few hundred yards away from the house, so it is tempting to think that quicklime was brought up the hill, and mixed up as earth plasters and mortars on the spot. I can't imagine that the workmen would have gone to the trouble and time of long term slaking for such rough and ready plasters.

After nine months of slowly carrying out these repairs, I feel as though I am through the initial experimental stage and have worked out which mixes are suitable to use and how to best mix and apply them. Ironically, in the period I have been repairing the earth plasters to my home, I have seen two listed buildings nearby having their earth plasters and lath systematically removed, not because they were in a particularly bad state or were problematic in any way, but simply because their removal was deemed as necessary to enable efficient plasterboarding and cement/gypsum plastering. Historically earth plasters must have been very commonly used in the town over hundreds of years but their loss must have become fairly significant by now. Perhaps because they are made of such 'low end' materials their removal is likely seen as a sensible measure in using historic buildings for modern standards of living and therefore their protection is overlooked. My experience of these plasters has brought me to an opposite conclusion. The introduction of plasterboard and cement to my house in the 1980's had not surprisingly caused extraordinary damp problems. Not only must living conditions have been badly effected, but also the problem had started to threaten the building itself. One of the best examples of this is the ground floor kitchen/bath/WC conversion. The original kitchen floor is 'lime-ash' laid directly onto earth. In the conversion of the kitchen, concrete was laid on this floor and the rest of the room was plasterboarded (walls and ceiling) and cemented. When we bought the house (April 2001) the plasterboard in the kitchen had been reduced to almost putty for a metre above the floor and rot was widespread in stud work and lintels. Removal of the boarding showed that the earth and lime plasters were also extremely damp for a metre from floor level. Nine months after removing all cement, boarding and the concrete floor, the kitchen is now dry, achieved even without any heating through the winter. A good example of why old buildings need to breathe. Also perhaps a good argument for the reuse and new use of earth plasters.

NEWSFLASH

Kevin McCabe and his family have been living in **Keppel Gate** for over two years now. There have been numerous articles in the press about this innovative Cob house. You can find out more about **Keppel Gate** and Kevin's other Cob work on his website :-
www.buildsomethingbeautiful.com.
We look forward to hearing more about his projects in our next newsletter.

Jan and Jerry Sharpe are in the process of building their Cob house and will be talking about the project at the wider group meeting.
Find out more by going to :-
www.jjsharpe.co.uk

Chris Brookman (Back to Earth) has recently constructed a Cob extension at New Buildings, using shuttered Cob. He is now working on a major reconstruction near Culmstock.
To find out more visit :-
www.zedland.co.uk/backearth

We welcome any information about ongoing Cob projects that members are involved in. Contact Jill or Jackie on 01647 281282 or email jackie@abeysmallcombe.com

COB BUS SHELTER AT THE EDEN PROJECT

Abey Smallcombe

In November 2001, Jill and I, as artists, were asked by Eden to design a low impact, energy efficient, ecologically sound bus shelter for the overflow car parks with waiting area for 100 people and toilets.

We wanted to design an organic, curved, contemporary building which was user friendly, light and airy, low tech and low maintenance. The building is based on the female form with the toilets in the head and the breasts (mens, ladies and disabled), and the waiting area in the body. The curved ridge is the key to the design, creating a strong back bone to the building and the low pitched roof allows it to sit comfortably within the landscape without being too dominating.

We presented Eden with our ideas in January and no one was more surprised than we were when they approved the design. We now had to put our idea into practice! Barry Honeysett took on the task of converting our whacky idea into clear structural drawings. He devised a way of creating the curved ridge and the practicalities of assembling the roof structures.

Jill and I spent two days drawing our design on to the site. By establishing the roof ridge first with pegs and string, we drew out the shapes of the walls by using a grid system and measuring from the ridge. Once drawn, McAlpines built the foundations. Roger Clemence was contracted to build the stone plinth using local stone and a lime mortar.

The job of building the cob walls was given to Chris Brookman of Back to Earth. In his specification he wrote:

“Originally it was proposed to manufacture a cob mix entirely from china clay to keep it as local as possible. During testing of this material it became evident that the durability of such a mixture was extremely poor and given the exposed location of the site, a guarantee of longevity could not be given. The china clay was extremely friable and offered little resistance to the passage of moisture making it simply wash away during a weathering test.

Therefore it was decided to manufacture a blend of the local china clay and red Devon clay that was known to be far more durable. The cob consisted of a mixture of china clay and Devon red in the ratio of 40%: 60%. The china clay was waste from the Imerys pit at Melbur, which was brought in by lorry to the site. The red Devon clay was dug out of a landfill site just outside Crediton. All of the clay dumped in this landfill was from one large excava tion nearby. The two combined from a product made entirely from the waste materials of other industries.

The two clays were wetted and mixed together by wheel digger on a tarmac surface to form a very plastic mixture. To this mixture approximately 2.1% by weight of barley straw was added. This resulting cob had a density of 1890 kgm-3 and in the testing was found to consist of approximately 15% water by weight.

The cob contained a high proportion of clay,

around 21 %, which would normally give rise to excessive amounts of shrinkage. However, due to the high amounts of aggregate contained in the red clay this was drastically reduced to 4.1% overall giving a cob with density of around 1615 kgm-3.

The finished building contains approximately 91 cubic meters of cob, giving the walls a wet mass of 171,500kg drying to a mass of 146,500kg. New cob is generally regarded as having a maximum load bearing capacity of around 1000 kNm-2 at the highest point of the wall the base has a loading of 52kNm-2 due to its weight and can therefore take a considerable imposed load from a roof or other structure".

The task of mixing all the cob was given to a local lad, who spent a week having great fun with all the mud. The buses to collect all the visitors still squeezed by and there were many looks of disbelief from the waiting public.

To construct the walls, Chris worked with his two employees and the digger driver who enjoyed the chance to get out of his cab and spend all day pitch forking wet mud up onto the walls. It took them fourteen working days to reach roof height. Jill and I followed behind frantically paring.

Round windows in the toilets were made by placing two galvanised buckets back to back on the wall, then building over them. When the cob was semi-dry they were pulled out creating a beautiful round shape. The buckets then had their bottoms cut off and were replaced in the wall emphasising and protecting the windows. The glass in the

round holes between the men's WC and the waiting area were fitted with washing machine doors from the local recycling centre. The slit windows were created by placing blocks on the wall, building round them and then pushing them out when the walls were dry. Jill and I then shaped them with mattocks. The large v-shaped openings on the road side were sculpted freehand and did not have a mould.
The slit window in the toilets was created using recycled wine bottles.

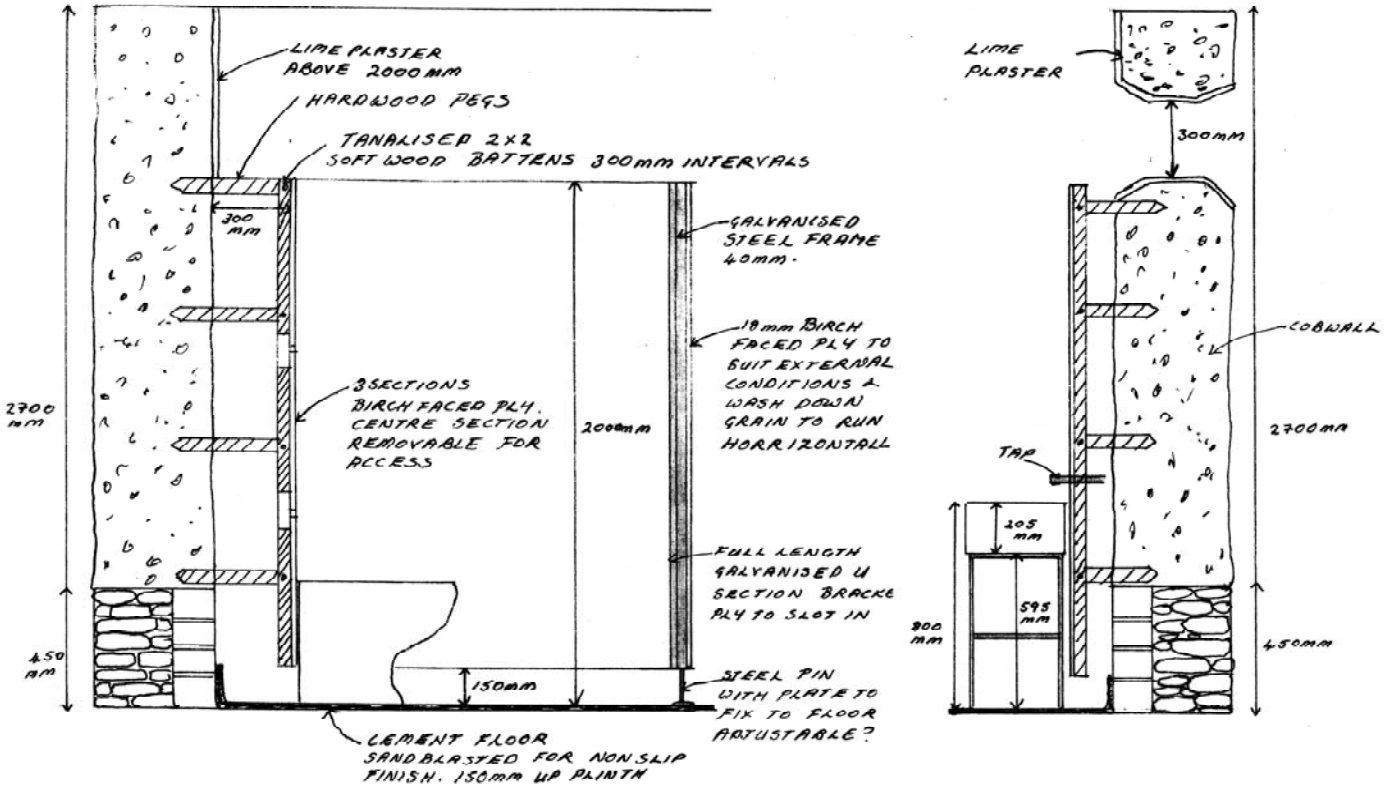
To obtain a contemporary feel and maximum light, we decided to use a mixture of galvanised and polycarbonate corrugated sheets. These were laid over rafters made with larch thinnings from the local Dutchy woods. This allowed the roof to be at a ten degree pitch which helped the building blend into the landscape. To accommodate the curved ridge, the larch rafters and corrugated were laid on the parallel, to achieve a gentle wave to the roof, giving the impression of a giant leaf.

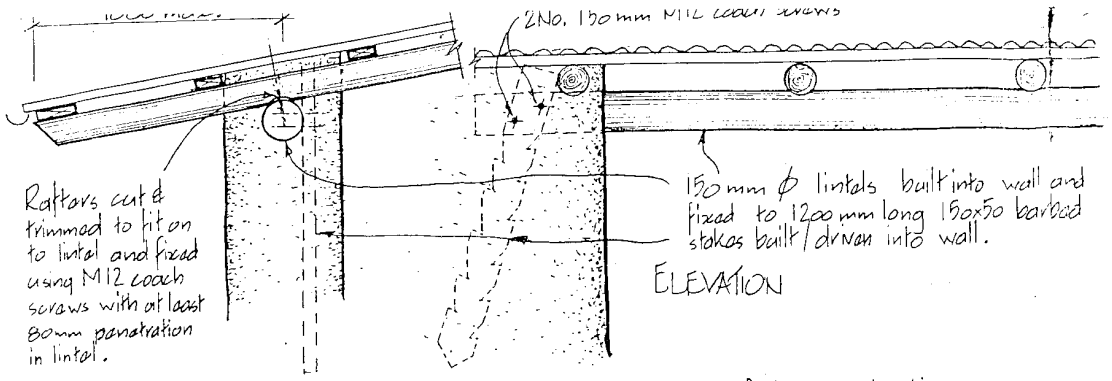
We used reclaimed tiles from the Eden Visitors centre for the waiting area. The floor in the toilets is white cement ground to expose the local aggregate, covering an underfloor heating system, powered by wind and solar energy.

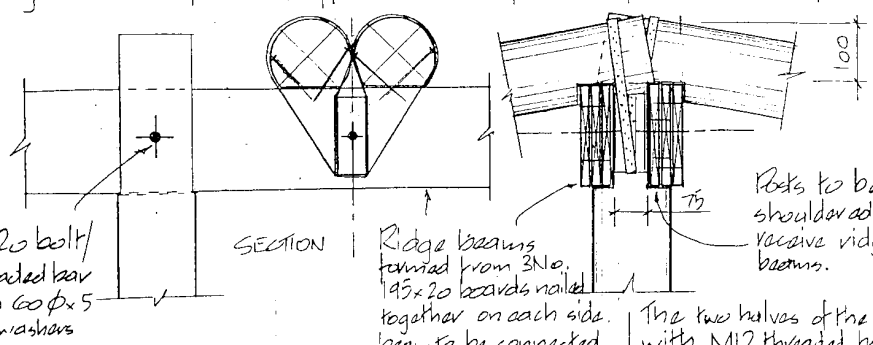
The interior of the toilets have a double skin of ply which are fixed 200cm from the wall onto oak pegs. This ply skin is 125cms off the floor and 2m high, allowing the air to circulate while at the same time concealing all the plumbing. Above the ply skin on the exposed cob wall, Chris applied a beautiful earth plaster.

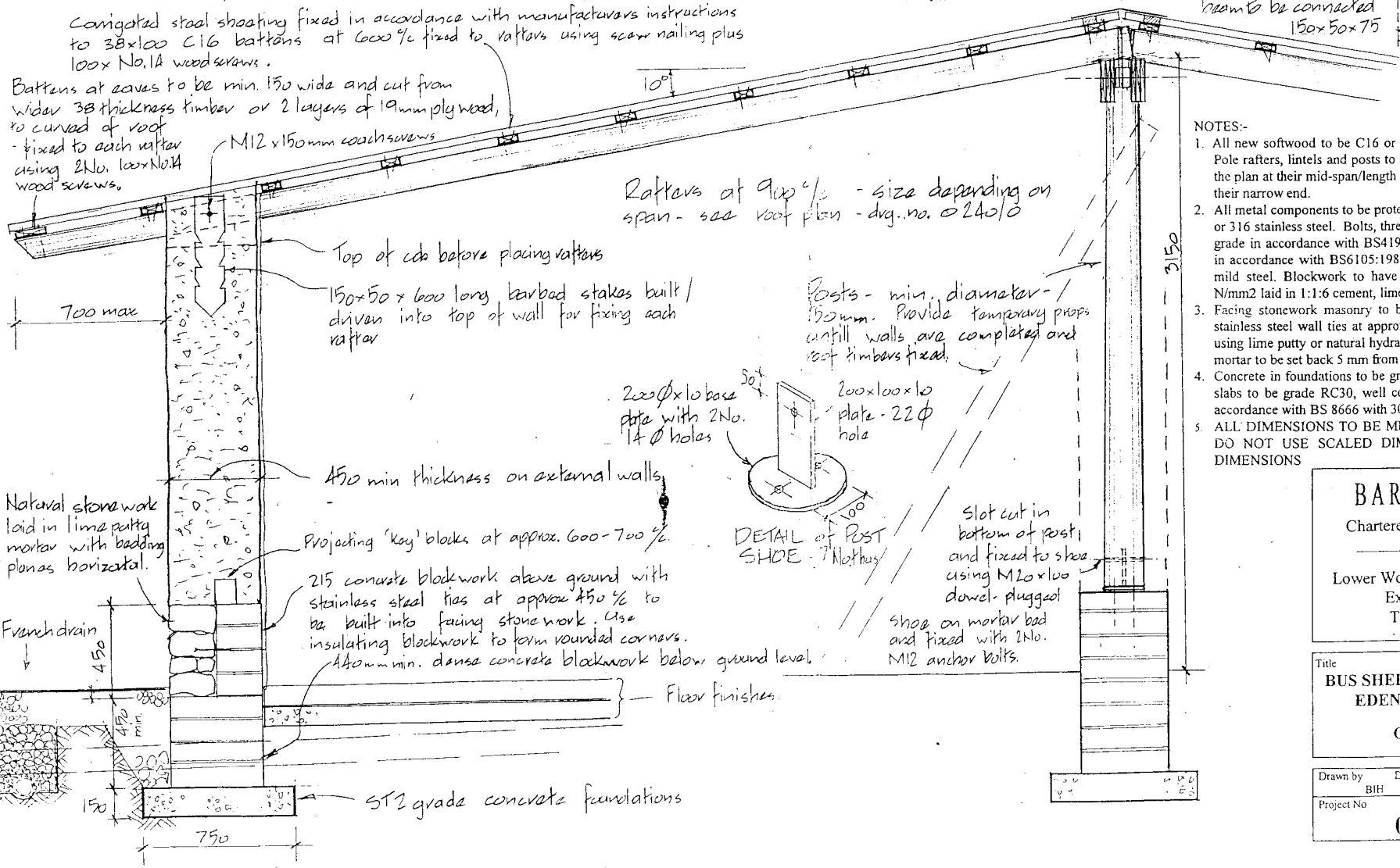
There is a service hut containing solar and photo-voltaic panels with a windmill beyond. These power the warm water, lighting and under-floor heating in the toilets. The whole project was extremely enjoyable and very hard work. The building has wheel chair access, a disabled toilet and raised pavements for wheel chair access onto the buses. It was very strange seeing the building in use during the October half-term rush while at the same time it gave us a feeling of a job done.

Jackie Abey









NOTES:-

1. All new softwood to be C16 or C24 grade in accordance with BS 4978. Pole rafters, lintels and posts to have the minimum diameter indicated on the plan at their mid-span/length and to be not more than 25 mm smaller at their narrow end.
2. All metal components to be protected against corrosion or to be grade 304 or 316 stainless steel. Bolts, threaded bar & coach screws to be 4.6 or 8.8 grade in accordance with BS4190, BS3692/3693 or A2/70 stainless steel in accordance with BS6105:1981. Stainless steel must be isolated from mild steel. Blockwork to have a compressive strength of at least 2.8 N/mm2 laid in 1:1:6 cement, lime, sand mortar mix.
3. Facing stonework masonry to be attached to blockwork backing using stainless steel wall ties at approximately 450 mm c/c and laid in mortar using lime putty or natural hydraulic lime based material. Surface of new mortar to be set back 5 mm from face of masonry.
4. Concrete in foundations to be grade ST2. Reinforced concrete and floor slabs to be grade RC30, well compacted. Mesh reinforcement to be in accordance with BS 8666 with 300mm laps and 35 mm cover.
5. ALL DIMENSIONS TO BE MEASURED AND CHECKED ON SITE. DO NOT USE SCALED DIMENSIONS. USE ONLY FIGURED DIMENSIONS

BARRY HONEYSETT
Chartered Structural & Civil Engineer
Lower Woodbeare, Kennerleigh, Crediton
Exeter, Devon, EX17 4RS
Tel/Fax (01363) 866230

Title
BUS SHELTER at MELON CAR PARK, EDEN PROJECT, CORNWALL

GENERAL DETAILS

Drawn by	Date	Checked by	Scale
BIH	May 2002		1:50, 1/20 & 1/10
Project No		Drawing No	Rev
0240		03	

Technical Bit

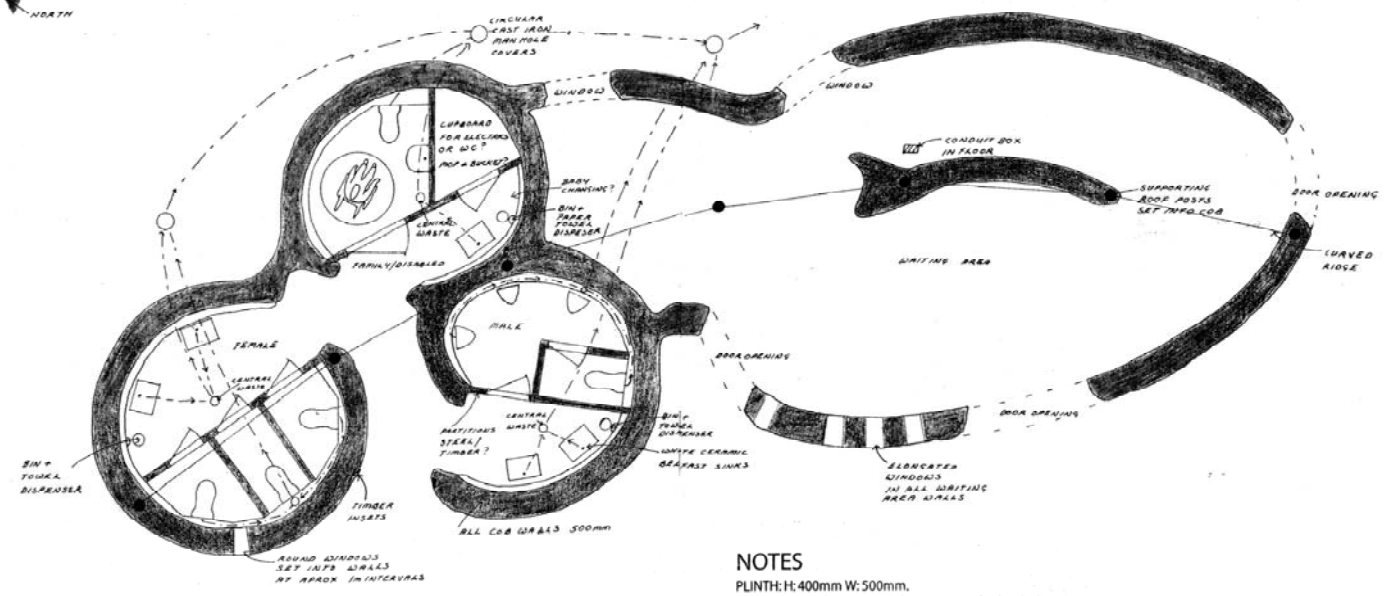
Barry Honeysett

As this is only a single storey building, the vertical loading on the walls is relatively low and did not require any special consideration. The cob walls were constructed on a masonry plinth of blockwork faced with stonework on its outer face laid on conventional strip footings. The building is situated on the brow of a hill just before it drops down into the former china clay quarry within which the Eden Project is situated. The close proximity to the coastline and the rapid rise in the altitude due to the escarpment of the quarry face means that the site is potentially subject to high wind loading. The main loading consideration for the walls was therefore overturning due to the wind loading. The walls were checked as free standing vertical cantilevers with the dead weight of the wall counteracting the over turning moment due to the wind. The curved shape of the walls also added to their strength and there will also be some transfer of the wind loads between the walls through the roof structure.

The degree of wind loading also presented problems with both the roof which was lightweight corrugated steel and transluted sheeting carried on battens and pole rafters. With wide over hangs at the eaves and a large proportion of openings, together with a relatively shallow pitch the strong winds could potentially lift the roof off unless it was tied to the walls. The curved nature of the ridge line and the varying height of the walls as it met the roof meant that it was not going to be possible to lay a conventional wall plate for the rafters to sit on. A system was therefore was devised whereby timber stakes were built into the thickness at the positions that the rafters would meet the wall. This had the advantage of allowing the rafters to be fixed to the side of the stakes at what ever height they need to be at. The stakes were also barbed and long enough to attach to sufficient height of the cob wall to act as a counter weight to the uplift from the wind.

The unique properties of cob have provided both and ecologically sound and economic provision of shelter for this building while also allowing the artistic sculptural form of the building to be realised.

COB BUS SHELTER
EDEN PROJECT



PLAN
SCALE: 1:50

DATE: 14.5.02

DRAWN BY: Jill Smallcombe

JACKIE ABEY and JILL SMALLCOMBE
TEL: 01647 24145/281282

WC.s

FEMALE: 3 x Cubicals
3 x Free standing Belfast sinks

MALE: 3 x Urinals
2 x Free standing Belfast sinks

FAMILY / DISABLED: 1 x Disabled cubical
1 x Basin
1 x Free standing Belfast sink

NOTES

PLINTH: H: 400mm W: 500mm.
Local stone set in lime putty or hydraulic lime mortar

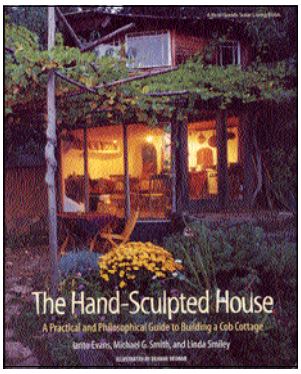
WALLS: Cob construction using local sub-soil. Minimum wall height 2440mm - max 3300mm. Exterior walls to be left unrendered. Interior walls to be lime plastered and limewashed.

OPENINGS: Round windows: 300mm diameter.
Elongated windows w:300mm x h:800mm-1800mm

ROOF: Curved ridge - softwood. Rafters all at 10degree pitch. Covering: Galvanised corrugated tin sheet. Clear corrugated panels at intervals

TOTAL MEASUREMENTS OF SHELTER: L: 21000mm x W: 8000mm x H: 3400mm

BOOK REVIEW



The Hand-Sculpted House :
A practical and philosophical guide to building a cob cottage
Evans, Ianto, Smith, Micheal, G & Linda Smiley, June (2002) 384pp
Current Amazon price £19.56

It sounds outrageous in this era of high technology building, lawyers and specialists that people would be able to build their own house. Even more outrageous when you consider that the material to be used is cob, a composite of earth, straw and water. However people have been building in this way for thousands of years and in principle cob building is perfectly acceptable, aside from various ingrained cultural preferences that I need not go into here.

Written in an accessible style this book intends to be the quintessential guide to building with cob. On first appearance it is philosophically rooted in deep ecology and permaculture which is explored at great length. It also can be used as a manual for practical cob building techniques. A very attractive book, it clearly has had a very large amount of time and effort lavished on it. There are numerous colour photos and hand drawn pictures showing cob's flexibility and creative potential. As a source book of ideas and inspiration it is outstanding; some of the creations illustrated are truly amazing. For example check out p.125 or p.275 or try to imagine (p.54-59!) the way you are spinning on the face of the earth, very cosmic.

Whilst the idea of a dwelling reflecting the four elements in balance is very attractive, unfortunately this book shows no such balance. In the authors' own terms this book suffers from an overdose of air and a lack of earth. I regret that it is failing on a number of counts.

For an audience living in the British Isles any reference to planning should be ripped out immediately as the advice is framed for North American readers. For example (p.67)

" Don't involve the government - steer clear of officials with their permits and paperwork, if you possibly can. They are expensive and are not usually helpful."

Whilst this may be viable in the Big Country (it's safe now all the indigenous peoples are dead or in reserves), to apply this to Britain would be naive and reckless. Although low impact developments are something of a grey area here they are unlikely to go unnoticed. Therefore it follows that if advocating such a radical action some consideration needs to be made of the possible consequences. This kind of advice makes one question the more practical parts of the book.

Whilst this book goes to great pains to take a deep ecology/ permaculture stance I cannot help get the sense that it exhibits a schism underlying the authors Western heritage. In truth what the authors are pursuing is irreconcilable (incommensurable even) with contemporary Western culture. On the one hand and with a seeping sentimentality that would nauseate even the most ardent romantic (p.143);

"think about the life you will take, from the unhatched songbirds whose parents will have no thicket to nest in to all the tiny earthworms and mites and sowbugs and bacteria..."

Whilst a few pages later (p.147) plans are being made to build for fire engine access. Surely as 'knots in the biospherical net', fire engine access to possibly save a few human lives is not worth the sacrifices to landscape and non-human life. I get a strong impression that the authors are attempting to defer responsibility by invoking a sentimental moment and then proceeding in any way that suits them. Discussing alternative energy, then giving details of how to link up to a centralised and probably nuclear power source, discussing water collection then suggesting mains supply et cetera. For unintended humour check out the drawings on p.223 or p.144.

As an interesting coffee table book it is excellent. For anyone who is seriously looking to commit themselves to this kind of lifestyle I would be a little reluctant to trust this book without extensive cross-referencing. It does not go far enough, although conversely this could make it attractive to an audience who may just want to get high on the idea of cob building without really dealing with any of the more intractable issues.

- Eric Fisher

Eric Fisher is in the final few months of an environmental degree at the University of Plymouth. He was born in North Yorkshire and is an environmentalist with Buddhist and animist leanings.

BOOK REVIEW

Clay and Cob Buildings

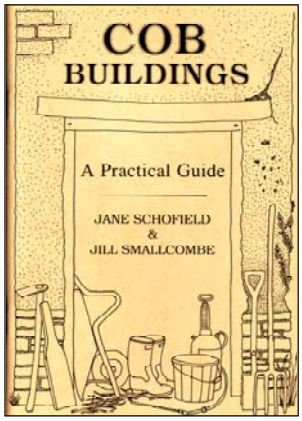
John McCann, 2004.
Shire Books, 48 pages, 76 colour and 18 black & white illustrations.
£4.99

Many DEBA members will already have John McCann's first edition of this Shire Book, originally published in 1983. John is a member of DEBA, now living in Devon. He is a professional photographer and this is reflected in the quality of the photographs in his book. The majority of these are now in colour and most are new to this edition which is significantly larger than the original one. Indeed the three processes of earth building originally described [cob, clay lump and pisé] have been increased to four by the addition of a section on shuttered earth. This new edition follows the format of the first, in that after this first section on the processes, there are following sections on the history of these processes and on their distribution in this country. The book concludes with an updated section on modern revivals of earth building with illustrations of Devon buildings which will be familiar to many members of DEBA.

There have been many changes and additions to the text and the book concludes with a useful bibliography. John is to be congratulated on this admirable work which ably and accessibly summarises the current state of knowledge about earth building in this country today. The photographs and illustrations are excellent. It can be recommended unreservedly to anyone interested in earth building. Even if you have the first edition already, you need go out and buy a copy of the new version too!

Peter Child

BOOK REVIEW



Cob Buildings: A Practical Guide,

Jane Schofield and Jill Smallcombe, 2004
Black Dog Press - Tel 01884 861181
ISBN 0 9524341 5 6 **£6**

This forty-eight page, A5 format booklet, copiously illustrated with line drawings by the authors, is, as its introduction suggests, a basic guide for cob house owners and aspiring self-builders. In this, it succeeds admirably. Avoiding the use of technical and scientific jargon, it deals, in a lucid and comprehensible way, with the basics of traditional cob building and the principles of conservative repair as seen from the practitioner's viewpoint.

Although clearly not aimed at a professional readership (for example, the issue of compliance with Building Regulations is mentioned briefly but not discussed in detail) the book nevertheless contains a great deal of information that could also prove useful for building industry professionals with little or no knowledge of earth construction. Written by enthusiasts with extensive practical 'hands-on' experience, this modest volume is essential reading for self-builders and undoubtedly represents a valuable addition to the ever-growing corpus of literature on the subject of 'green', sustainable building.

L. Keefe

“24 HOUR HOUSE” built at Plymouth University for Home Wasn’t Built in a Day TV programme.2003

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