A family affair

Stabilised mud meets the Big Wet

By Sharyn Munro

One of the great benefits of owner building is that the house becomes tailored to its owners as it progresses. The close involvement means that small variations can suggest themselves as the plans slowly become reality, and an intimacy develops between the structure and the owner builders for whom it will become home.

It is really a form of bonding, except in this context the connotations of mud or cement make that term less appropriate! However, the process is almost as tangible, and when the whole family is involved, it is even stronger.

I found the Richardson family all working on their new house in rural Taree Shire, NSW. Extra impetus was evident because they were on the home run. Son Glen, sixteen, was already "camping" in his bedroom, and daughter, Elizabeth, thirteen, was only about a day's work away from moving into her domain. Cheeky the cockatiel, on Elizabeth's shoulder, was the only one bludging.

Eighteen-year old Laura, away at her first year of Uni, had already won claim to her bedroom from her prior participation, including drawing of the varied early plans. Parents Garry and Wilhelmina were still in the caravan and most of the furniture was in the shed, but they had given up their rented house and moved onto the site only one week before. Their OB final reward was very close.

The Richardson house was in the 2000 Manning Valley Non-Conventional Homes Tour as a virtually completed project, whereas last year it was the bare bones of foundations and framing on show. Their carpenter and building consultant, Gavin Scott, had suggested they open it for inspection as a work in progress. They did, but were sceptical that anyone would come.

In fact about 300 prospective owner builders turned up. They were everywhere: crawling about under the timber floor section, fascinated with the planned wet composting/reed bed waste system… Garry reckons they had no time to eat and he could barely speak by the end of it for explaining their plans and reasons.

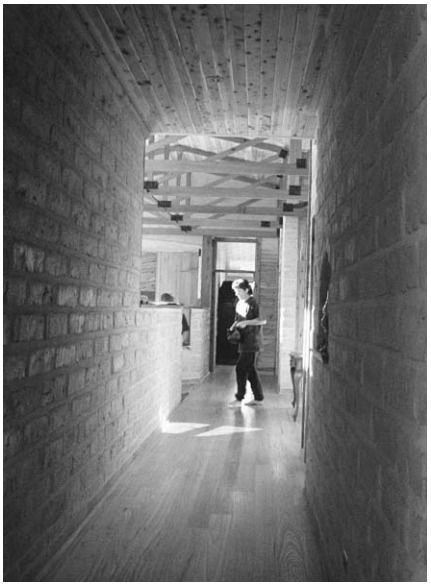
Many were keen to return this year and see how it worked out. They won't have been disappointed: it looks great and the Richardsons have lots of salutary tales to pass on. Listening to these, I could deduce a couple of general principles.

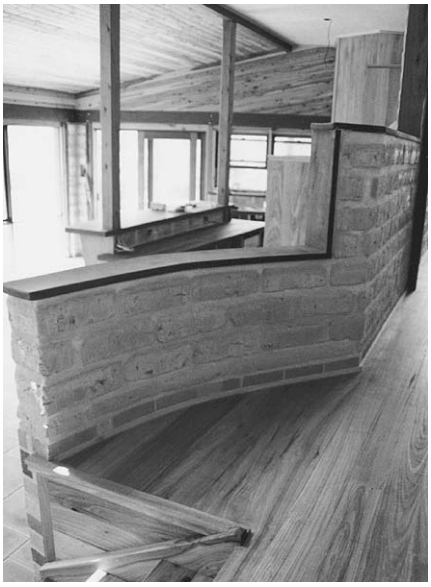
1. Do your homework first: read about and see as many different building materials, methods and designs as possible before you decide; go to a Homes Tour, talk to the owner builders.

2. Don't expect it to be easy to get a loan for your OB rural project.

3. Don't expect stages to happen on schedule or goods to arrive as ordered.

Having owned the 4.95 ha. block of land for some years, and living about 5 hours away, family holidays began to seem all eaten up by work on the block, camping in the onsite caravan, trying to complete the preliminary stage, a large poured earth shed. Then the extended





families all pitched in one holiday and got it finished.

This slab-floored shed has been invaluable, having stored all their secondhand building materials as they found them, and then all their furniture. It also housed a shower for the builders and then, temporarily, themselves. Garry and Willie chose poured earth for its apparent speed: suitably coarse material is mixed with 10% cement, and water added to a runny consistency. However, while the mixing and pouring were quick, and the formwork could be removed the same day, the cleaning, oiling and setting up of formwork were time consuming. Because they used ordinary builder's cement instead of off-white cement, it looks more like concrete than earth, and will eventually be rendered.

The family moved to the area two years ago, expecting to be renting for about a year. They had virtually decided on rammed earth as the quickest method. However, on the 1998 Homes Tour they visited Chris and Jean Scott's house (OB 94), where Elizabeth fell in love with Tinker, their cockatiel, and her parents with a lot of the house's features. They met Gavin Scott, an advocate of the softer lines of mud brick, who came up with a design they loved, based on their ideas.

It took almost a year to discover Gavin, reach final plan stage and Council approval and find an institution to give them a loan as owner builders. The latter was not easy: every one had different reasons for refusing, like being no further from a major centre than 10kms – unfortunately they are 14kms. In the end the NAB came to the rescue, where the manager is genuinely interested in their progress.

The Richardsons had read up on passive solar design and were particularly taken with an article in OB 48 on David Holmgren's house. From that they have used the features of a north facing multiglazed wall and clearstorey roof, a heat sink of tiled concrete slab, with raised timber floor beyond, a half height wall at the junction of floor levels and ventilated cupboards drawing air from the underfloor and out through the roof.

Despite friends' warnings to stick to straight lines, the Richardsons were swayed by the curves Gavin had incorporated at the central front bay and side entry. The front curve, which frames their lovely rural view to the far mountains, is echoed internally by the curving half wall. As much as they love the look, the curves did add to the time required, especially in final stages like fitting eaves and verandah linings, and as they were paying a carpenter, more was added to the cost than expected. Still, they'll have the pleasure of them for a long time: Willie's adamant she's not moving or building again!

Wet weather woes

The house is pole framed: although load bearing mudbrick was common in their previous inland area, they did not choose it here because of the higher rainfall. They began building last March and that rainfall proved almost continuous for eight months, with the wettest autumn for years!

Everything was delayed by wet weather: the drains filled up before they could be filled in, the carpenters could not use their power tools to get the framing finished for the roof, so the bricklayers couldn't start; the cement stabilised mud bricks had not been able to be properly dried before delivery, and really needed to be laid out one-by-one in the sun, but there wasn't any.

Garry and Willie had originally planned to make their own bricks but realised they would never be finished if they did. So they'd ordered their bricks well in advance, from Bellingen Bricks, and having seen owner Steve Dodds' house, decided they too wanted to leave theirs unbagged.

But for this to be successful the bricks must not shrink like a mud brick but behave like a fired brick once laid, so the bricks would have had to be bone dry. They weren't, so there was much shrinking and cracking in the earlier laid walls. It also meant a lot more care and time in laying, mortaring and cutting to achieve a clean finish, and the Richardsons ran out of the allotted money for the bricklaying team before it was half completed.

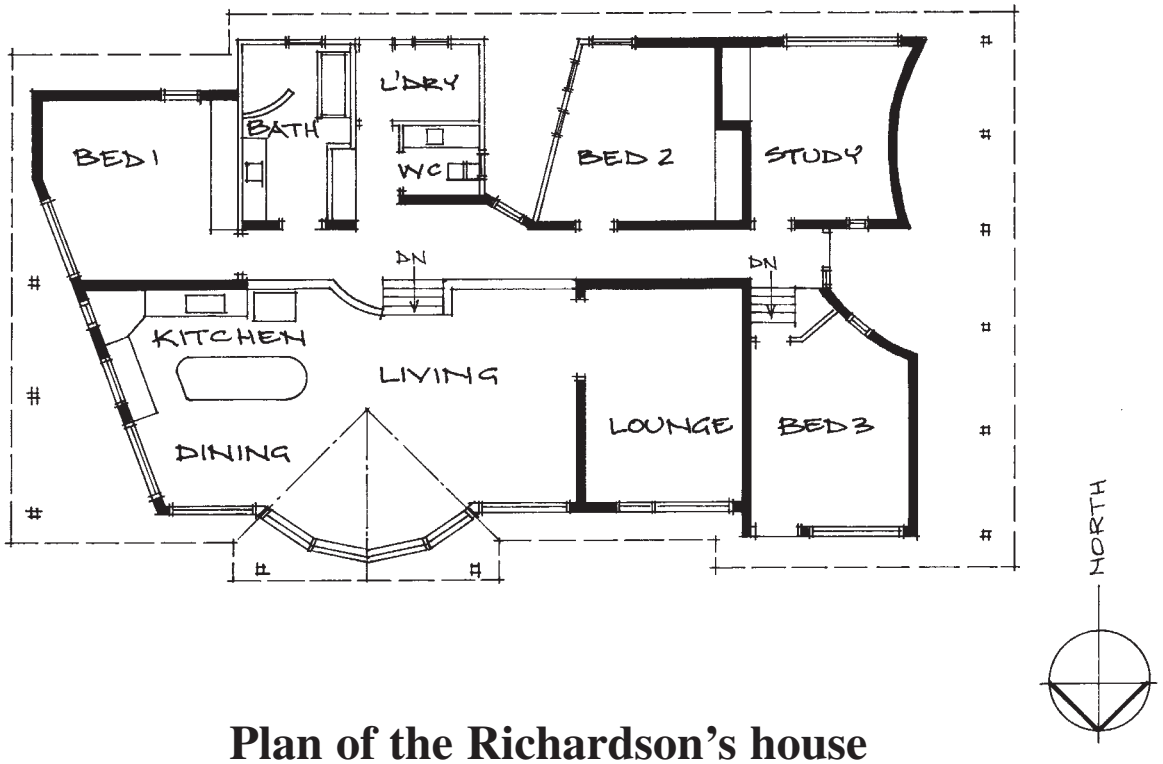
The family had to finish the job so the carpenters could proceed. They did all the internal walls, and became pretty expert bricklayers: you can't see where they took over. For example, the curved

front walls and half walls inside were totally laid by Glen and Elizabeth. Glen was just at the right age and size (and obviously the right attitude) to be a major help, becoming the main bricklayer as well as operator of the borrowed bobcat.

Another disadvantage of cement stabilised bricks is the slowness in cutting: they have to be cut with a bricksaw, a nerve-wracking and messy process. With the various angles to be met and the posts being set into the bricks, there were many to be cut, taking Garry about two precious weeks.

The cracking has meant that all external walls, and some others, have had to be bagged after all. Bricks were sealed first with sprayed-on diluted Bondcryl and then those that needed it bagged with a mix of yellow sand, crushed mud bricks and Bondcryl. The undeniable attraction of the unbagged walls is in the variation of the bricks' warm tones.

The house is intentionally mostly very light, as, apart from its clearstorey roof and northern windows, it incorporates wall panels of glass blocks, internal transom windows over doors, some of rippled "washboard" glass, and insert



Plan of the Richardson's house

Curving half walls enhance the change in levels from heat slab to timber floored rear.

panels of blue stained glass. Mostly secondhand, these have been cleverly placed to work with one another and look as if designed for the house. This sort of fine tuning is possible in an owner built house.

The 750mm eaves at the front allow the sun to reach the half wall in winter and warm the tiled slab. It works: when I revisited at the end of May, it was bare feet on warm tiles and sun on T-shirted backs inside, while outside it was long johns and beanies, bitingly cold and blustery. The southern wall of the house, with eaves of about 1m. for weather protection, is broken by a glazed courtyard to brighten the adjoining rooms: this will be planted with shadeloving greenery.

Garry had wanted to avoid as much site disturbance as possible, but the block sloped downhill to the north, and to gain his passive solar features and satisfy council timber floor clearance requirements, some excavation was necessary.

All the poles are cypress, as are framing timbers and lining boards in main living rooms, while bedrooms are lined with hoop pine, partly because it was about a third the price of cypress, but also because it gives a lighter overall effect. Everyone shared in sealing the large expanses of timber with Organoil. In some cases external Organoil was used internally because its colour (pinkish, for UV, as opposed to clear) helped blend in various secondhand doors and windows. The timbers used far more oil than the budget anticipated: with at least two coats needed, and the western posts now needing a third, that alone has amounted to thousands of dollars.

Apart from what they'd collected, Gavin came across a houseful of large western red cedar hopper/fixed combination windows, almost new, and blessedly unpainted, in a quite modern Sydney mansion, about to be demolished at its owner's whim. He estimates these saved at least $3000.

Flooring is Tasmanian Oak. Blue gum has been used to top the halfwall and the kitchen cupboards, which Gavin has made, mostly from their leftover floorboards. They had not decided whether to use a kitchen manufacturer, but coming up with a more appropriate on-the-spot option is a Gavin's specialty. The pantry has a large poly pipe vent at the back base wall, leading to the timber underfloor: this will be screened, and sealable when needed.

The roof trusses are of blackbutt, and therein lies a cautionary tale. The local truss manufacturers came to site and measured up, but somehow got it wrong: they didn't meet up! It took the carpenters much extra time to correct them, and although the Richardsons were finally reimbursed, it was more delay.

Walls in the wet areas are clad externally in colourbond and internally with lamipanel, while ripple iron has been used for the ceilings, as well as for facing the main kitchen workbench. A nice touch in the bathroom is the curved shower recess of glass blocks, built by Garry and Glen to an idea seen at local craftsman Walter Duber's house, on another Homes Tour.

The bathroom holds another sad story: the lamipanel had been ready on site for some time, and come the day to fix it, just before the plumber was due, and unfortunately just before Christmas, it was unwrapped to reveal two panels of the wrong colour. Of course the manufacturers were closed till the end of January, but the ordered replacement sheets didn't turn up in early February as promised either: more delays, so the plumbing still wasn't finished when they moved in.

Wet composting waste system

Although the toilet looks just like a flushing loo, this one doesn't run out to sea or into the septic, but to their own wet composting system. The toilet waste pipe runs downhill to the tank, which looks like a septic, but works quite differently. It has a large opening on top, through which they add their compost scraps. Eventually they will build an outdoor loo over this, when a fan may be added to keep air rising and avoid smells accumulating. Grey and black water from the house also feed into the tank.

Compost is removed from the tank via an angled auger tube. The auger, with a 'D' handle like a shovel, and about 600m long and 150mm diameter, is inserted into the tube and draws out any completely composted material. The breakdown system is so efficient, however, that the first of these processes should not be required for two years and then only about once a year. The tank's inlet is at the top, and liquids are filtered through the solids to the bottom, where the outlet takes it down over a 11/2m. fall to the filtration pond.

The 10m x 2m pond, lined with Geotech and a double layer of builders' plastic, is split into two to make sure the waste water passes over the lot. The water enters at the bottom and percolates up through the rocks and reeds to the top outlet, from whence it flows to a pond and then on to a woodland. The pond will be stocked with native rainbow fish, and a tree belt planted above the whole system to trap any smells that might waft towards the house on the NE summer breezes. Their block is already an oasis in the predominantly cleared paddocks around them, as they have planted many natives and fruit trees.

Garry had wanted to recycle the water from the pond for flushing the loo, but this was the only sticking point with Council, and permission was refused. He is hopeful that with ongoing water testing he may be able to demonstrate it safe to do so. Council also requested that he use a different native reed, as they already had a trial underway with the proposed *Phragmites australis*. He tried *Baumea articulata,* but found that the local *Cumbungi* survives better amongst the rocks as it shoots from the stems rather than from the bottom.

When the family moved onto the site, the floor sander wasn't finished, so Garry, an electrician, couldn't complete the electrical work, nor the family the many odd finishing touches. The floor tiler had just finished, and both Elizabeth and Glen were busy sealing the groutings with a small paintbrush and extra Bondcryl, for ease of future cleaning: it looked rather like cutting the lawn with nail scissors to me, but they weren't complaining.

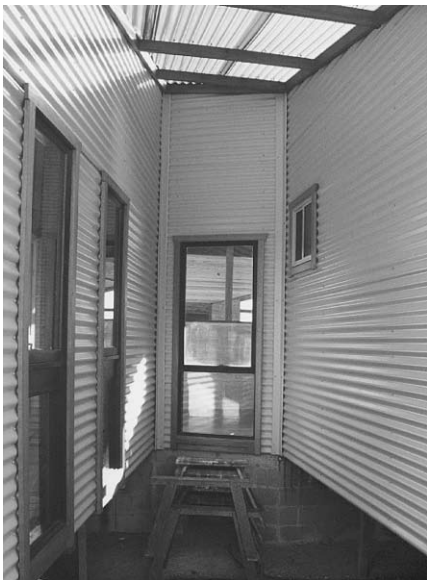
Gavin estimates the family saved themselves at least $50,000 on his part of the job alone with all their hands-on input. Since they took some of the load of the other trades too, apart from Garry doing all the electrical work, the monetary value of their owner building role would be much higher. The house, app. 200sq.m under cover, cost about $200,000, including all the outdoor items, like the solar hotwater system, the 3 x 1500 gall. tanks and the waste system.

With hindsight, Gavin feels that load bearing unstabilised mud bricks would have been better, as they could have been laid in the frequent drizzle when power tools couldn't be used, and the cost of the poles is far greater than the extra labour involved.

As for Garry and Willie? They had intended to build for no more than $150,000, and keep it simple and smaller, around 180sq.m. However, for a growing family of teenagers the living area is not oversize, and with their determination to have decent sized bedrooms of 4m x 4m, with built-ins, their own being slightly bigger, they find it hard to see now where they could have reduced space.

Nor would they wish to remove the additional features like the curves that give it a special character. It is their house now, and loved like a family member, having grown together and shared all the ups and downs, tolerant of its faults and proud of its successes.

Gavin Scott can be contacted on 0417 592093.



Top: Corrugated iron courtyard/light well on southern wall.

Centre: Winter sun streams in from the clearstorey windows.

Bottom: Practical and pretty water symphony: glass bricks, pale blue lamipanel, deep blue tiles and tin ceilings.