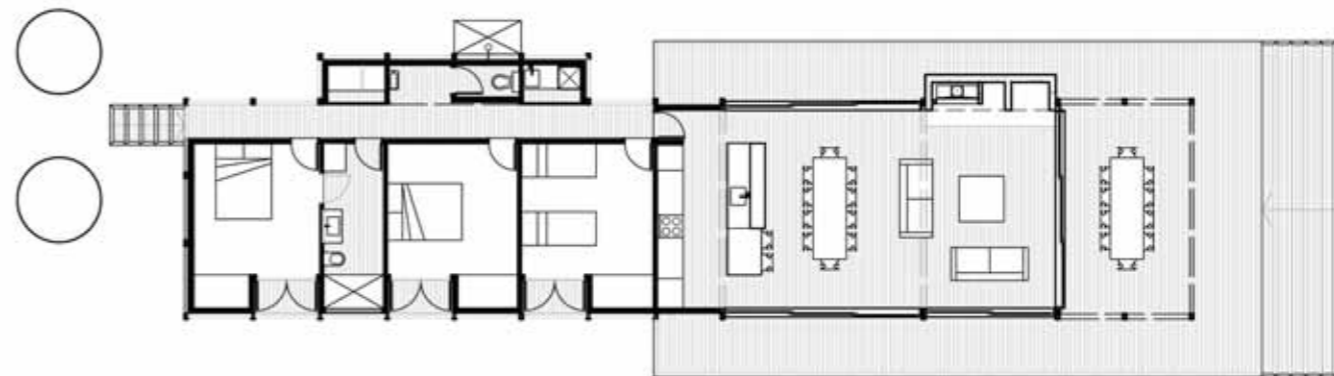




Winner Residential Architecture
2009 Timber Design Awards



in harmony

“The house, with the help of sun and rain, hums along in a perfect synergy with no assistance from the outside world.” With this short succinct statement owners Kim Bannister and Frances McClure capture the essence of their recently built Award winning bach situated inland from Medlands Beach on Great Barrier Island. Set in a ten acre bush setting lined with long established native Puriri on the south side, the straight line roof of the linear design rises to the north facing open deck with a ‘grandstand’ of stairs, as architect Paul Clarke from Crosson Clarke Carnachan describes it, leading to the surrounding lawn.

Although architect Paul Clarke had pretty much free reign to come up with a suitable design Kim and Frances had a firm notion that the house was to be environmentally sensitive. “This place, indeed all of Great Barrier Island is a very special place. We wanted to ensure what we did helped keep it that way.” A comment endorsed by both Kim and Frances.

The brief given to the architect specified it had to use sustainably harvested timber and eco friendly product as well as be as energy efficient as possible. Clarke in consultation with Kim and Frances, has come up with a package that meets this notion whilst satisfying Clarke’s concept of maintaining a strong connection with the outdoors.

This feature looks at the products and materials used in the construction and detailing of the house to demonstrate just how successful using sustainability principles can really be, especially given the location has no mains power, water supplies or sewage treatment. It won’t be covering everything in the house but it may help others to achieve the same outcome as happened for Kim and Frances: realize your dream, be ‘transformed’ when you are there, but be at peace knowing you have done all you can to be in harmony with your surroundings. This house is a good example of just that.

Timbers

The building of the bach in what Kim and Frances call ‘the magic place’ commenced in early 2008. The owners had been coming to Great Barrier Island as far back as 1972 and had often holidayed in a barn on the property. Builder Shane Heney, well known on the Island, was employed as head contractor for the job with the whole project taking some thirteen months to be complete. The spot where the bach was built is a former flood plain which meant the structure had to be elevated about a metre or so to be above a theoretical high water mark. It proved to be the making of the place: Clarke could build his ‘grandstand’ effect to better view the surrounding flora and fauna. To give the desired natural look the long linear design was clad in Western Red Cedar using an exo-skeleton construction to give the house that ‘bach’ feel. “The construction technique was not the easiest of ways to do things but it produced the desired casual look and feel that the architect and owners were looking for.” Mr Heney comments.

The Cedar was supplied by Herman Pacific based in Silverdale and met FSC (Forest Stewardship Council) certification. The external open deck and internal floors were made from sustainable Vitex timber from the Solomon Islands. “This was an important for us” points

out Kim, “and was the primary rationale for choosing this timber over other hardwoods. We visited Chris Vincent at South Pacific Timbers in Auckland on several occasions revisiting the sustainability origins of the timber and viewed the Village Eco certification. All the other timbers we used in the house were also sustainably produced as well.”

A grove of Tasmanian Blackwood (*Acacia melanoxylon*) had been established near the eventual site of the house in 1988 as a future timber crop. In July 2007 a major storm hit Auckland and Northland. Great Barrier Island was hard hit: thirteen blackwood trees were blown over. From this the owners sent the largest logs to the local sawmill to be carefully processed. Some of the resulting timber was sent to Auckland for kiln drying and subsequent laminating into the kitchen bench and fireplace surround cabinetry in the house. The largest planks were made into a large dining table by local woodworker and artist Peter Edmond. It is a centerpiece of the open plan interior lounge and kitchen areas. Other rougher pieces were made into an out door table.

Exterior Finish & Joinery

The exposed Western Red Cedar was finished with Dryden’s WoodOil, a New Zealand made specialized exterior wood finish from Dryden

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Distribution Ltd. This product inhibits mould and stain growth, deters cupping, warping and splitting while extending the service life of the timber, it is a water repellent, non-film-forming timber protector. This is important as the house is situated in a site designated a high seaspray and wind zone. WoodOil was also used on all the exterior timber and joinery. The laminated blackwood benchtop in the kitchen was created by Leslie AJ & Co Ltd a joinery firm based on Auckland's North Shore. This firm also produced all the cabinetry, interior doors and exterior joinery for the project. A major feature of the house are the exterior fixed windows and sliding doors. Made from Western Red Cedar are a double slide door set at the front, a slide door set and fixed window on each side of the rectangular kitchen and lounge area. These were not small: the slide doors were approximately 2.4 m high by 1.8m wide. The joinery was manufactured at A J Leslie Ltd in Auckland using glass from Viridian and glazed by National Glass. They were then loaded into a big van and taken by ferry to the Island.

Glass

The real interest in the joinery lies in the glass used. Kim and Frances wanted the most energy efficient combination they could find: keep heat in in winter and out in summer while being glare free so they could maintain the open air feel of the place. To this end a single glazed low emission laminate glass was specified from Viridian Glass called 10.38 Comfortplus Low E Laminate. The Comfortplus range has been developed to meet specifiers' objectives of transparency and high performance solar control with low reflection. The glass used in this case consists of two 5mm glass sheets laminated together with 0.38mm of PVB laminate making it a safety glass manufactured with a permanent transparent coating which is glazed to the inside of the house. The Comfortplus range features a selection of colours, daylight transmission and

solar performance with low external reflectivity similar to that of standard float glass. Other key features include: high daylight transmission up to 76%, thermal insulation providing for a 30% improvement in the U Value over standard glass, by reducing UV radiation it increases the life of furnishings, reduces noise and traffic noise and is also self-cleaning. "It contributes hugely to the warmth and comfort of the lounge year round, we are grateful to the architect for suggesting it." comments Kim.

Interior Finish

As with many other aspects of their house Kim and Frances looked long and hard at what colour scheme they wanted inside and more importantly what they were going to use to paint it with. They eventually chose Resene Zylone Sheen VOC free painted tinted to Alabaster which is an Environmental Choice approved product. Environmental Choice is an established eco labeling programme here in New Zealand which Resene Paints is part



of. By VOC free is meant there are no volatile organic compounds which can be harmful to health, contained in the paint. "This paint suited our philosophy of using eco friendly product wherever possible. It struck as safe and odour free especially as we have lots of people including children in the house throughout the year." says Frances. "They had the colour and it comes from a well established company."

Heating & Power

As Great Barrier Island has no mains power or water supply alternatives have to be found by residents. In this case as Kim explains "Water is heated through two roof mounted solar panels and stored in a large heavily insulated cylinder reaching as much as 82C. If the water temperature falls below 55C the maze of pipes, control valves and electrical control systems directs the water through the high efficiency intelligent instantaneous gas hot water heater to bring it up to 55C. A real plumbing challenge and fantastic system



to use." The components for all this were supplied largely through leading alternative power systems company Independent Power NZ Ltd based on Auckland's North Shore. The electrical system comprises some 1050Kw of photovoltaic cells with state of the art controlling technologies for charging and monitoring of energy consumption and intake. Kim comments "The FLEXnet DC monitoring system from Outback Systems is the latest technology for such monitoring and provides both an instantaneous and historical record of electrical consumption and generation. We find ourselves constantly monitoring the ins and outs of our power system to see how energy flows work and how best to save and sensibly use the power generated. The back up generator has only rarely been used. We take this seriously – there are no electrical appliances unless they meet the criteria for low energy consumption ie. No dishwasher, rangehood, wastemaster or microwave." As part of their policy of using local tradespeople



wherever possible well known local sparky Ian Gordon of Igor Electrical was enlisted in the installation of all the electrics.

When it came to a fireplace Kim and Frances chose the highly efficient Jetmaster fireplace. "This is fueled by carbon extracted (fixed) from the atmosphere over the last three decades. Some 5800 trees have been planted on the property in that time with some having needed to be felled or have been blown over" Kim explains. To add to this the house is lined with wool based insulation (Terra Lana) and other building code mandated insulation.

The Kitchen

An important place in any house, no more so than in this house where food is prepared for the many people who visit the place as well as a lot of interesting conversations occur. It consists of a simple design where storage space is quite important. Above and behind the Tasmanian Blackwood benchtop are flap stay glass panel doors and hinges from Hettich fitted to shelves made by the Leslie AJ & Co Ltd. To one side are two pull out pantries from Hafele with the fridge on the opposite side. The stove in the middle is gas powered from AWARD. Blum Tandembox large soft close slide drawers are underneath the blackwood benchtop as well as the other soft close slide drawers under the other blackwood bench next to the fridge. "The storage space is extensive but not obstructive. It gives us the room to store all those things we need when we come here for holidays." comments Frances. "Above all it still feels like a holiday home, not cluttered with all the niceties of city living."

Lighting

The lighting for the house was heavily researched by Kim before a decision was made. "The most up to date options offering efficiency and eco friendliness were paramount

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in my mind and was in large part why we relied on LED technology - I might add at considerable cost differential to older technologies. It is effective and keeps power consumption to a minimum.” The technology was sourced from LED lighting solutions company Bright Light based in Auckland. LED is used extensively throughout the house with strip lighting in the cupboards, under the kitchen bench and on the decks outside. The main lighting in the lounge is 20w downlighting which Kim and Frances feel give the room a ‘natural’ feel. For the balance of the lighting in the house compact fluorescent bulbs were used. “The lighting system took some time to install but the effect it produces is well worth it.” Kim says. Incidentally, the house also has an up to date security and fire alarm system.

Kim and Frances have gone to considerable lengths to achieve an eco friendly and energy efficient environment. They were all things they wanted to do with the place. An add on was the sophisticated water and waste management regime. All water used in the house comes from rainwater with filtration mechanisms including a UV sterilization system for drinking water. The septic tank system filters effluent through a sand filter and pumps the highly purified liquid into pipelines in the regenerating bush to the north of the house. This also protects the level flood plain and drainage channels from potential contamination with coliform bacteria and other pathogens. Plants and trees are irrigated using an automated irrigation system supplied by water pumped from the adjacent stream into a holding tank on the hill.

“Certainly we feel at peace with what we have created. There are many people we must thank for seeing this project to fruition. Beyond the architect Paul Clarke and project manager Brent Hore we must thank the many tradespeople we employed from on the Island itself. Their involvement, interest and pride in what they did has made the house far more complete than we could have anticipated. It is truly ‘the magic place’ we thought it was.” comments Kim.


Any advice you could give others thinking of employing the same sustainability principles? “Oh yes, we think as owners you need to spend time to learn as much as you can about the options available and compromise only when there is no practical alternative.”






CREDITS



Photography Simon Devitt. Architects Crosson Clarke Carnachan. Builder Shane Heney & the team from Offshore Homes. Joinery Leslie AL & Co Ltd. Electrician Igor Electrical. Exterior cladding Herman Pacific Ltd. Exterior & interior flooring South Pacific Timbers. Exterior finish Dryden Distribution Ltd. Interior finish Resene. Glass Viridian Glass. Solar power Independent Power NZ Ltd. Lighting Bright Light. Plumbing, drainage, solar installation & gas fitting Great Barrier Plumbing & Drainage. Earthworks & driveway RG Contracting Ltd, Coles Equipment & Manu Scott. Piledriving for foundations Johnny Blackwell. Painting, timber flooring prep & exterior staining Dave Alison. Blackwood milling Dave Ericson. Sisal flooring bedrooms Natural Collection NZ. Furniture maker Peter Edmonds. Building supplies Barrier Building Supplies ITM.



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