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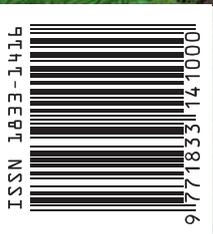
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Beautiful economy

Recycled and recyclable, the ingenious structure of this house is also its most striking feature

by Michael Day

“The *pièce de résistance* of the house is its future-proofing. The uniformity of the structural sections means that it can respond to the needs of future occupants”



On the back of a ridge running along NSW's Barrenjoey peninsula, on a 750 metre Northern Beaches block, architect Andrew Coomer built his inspired riposte to the fibro "beach box".

After more than 10 years in commercial architecture, Andrew elected to switch to residential architecture in 2003. His first project was his family home. "It was my first house and I had all these ideas of what I wanted to do, and I think I proved with it that my designs and ideas work."

The house is an expression of Andrew's strong and logically consistent aesthetic, as well as his

environmental convictions.

The influence of Glenn Murcutt and Richard Lepplastrier can be seen in the economy and lightness of touch of Andrew's design, including the way structural materials are expressed, both internally and externally. Above all, this is an exceptionally well thought-out building.

Says Andrew, "I really don't think there is anything I would change either in terms of materials and finish or in how the house interacts with the environment."

In stark contrast to its many brick veneer neighbours, where bricks give a misleading impression of solidity, this house is a study in

The house comprises two pavilions. The northern pavilion is designed smaller to minimise overshadowing

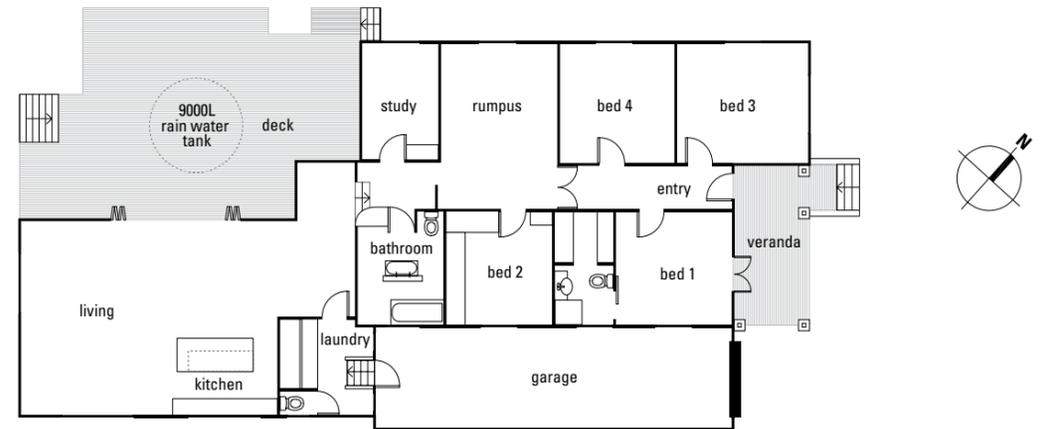
Murray van der Meer



Weatherboard plus

Reverse brick veneer brings this bungalow back to life

By Judy Friedlander



When this home in Collaroy on Sydney's northern beaches wore a "For Sale" sign three years ago, most potential buyers saw the PVC cladding and nondescript facade and opted to move on. But Richard Luke, a builder by profession, saw its potential.

"It appeared enchanting but in need of some TLC," says Richard. "The add-ons were all badly done but I could see that the original building was sound."

The house had been with one family for over 50 years and the owners were reassured when the Lukes – Richard, wife Sarah, and three young

boys – said their aim was to restore the home to its former glory.

Fortunately the termites which had plagued the neighbourhood had hit a brick wall – or rather Cypress pine floorboards – a few decades ago. They had had considerable success in neighbouring houses, systematically consuming more palatable timbers, but these boards were not to their liking.

While the original floorboards from the late 1930s have survived, the home's proud stature and heritage values can be largely attributed to the care and attention to detail the owners have bestowed on it. The house now merges an authentic bungalow

Sustainable House Day

This year *Sanctuary* is the official magazine for 'Sustainable House Day' (SHD), held on Sunday 13th September at selected homes right across the country. In its eighth year, SHD is an initiative of the Australia and New Zealand Solar Energy Society (ANZSES) and supported by the Australian Government.

A fantastic selection of sustainable houses will throw open their doors for you to have a look through, for free. You'll be able to ask questions of the homeowners about what they have done and discuss with builders and architects about applying the great ideas to your own home.

Richard and Sarah Luke's home is one of the houses open at this year's Sustainable House Day. Visit www.sustainablehouseday.com to find out where the open houses are in your local area.

Sustainable House Day 2009 is proudly presented by Solar Shop Australia.



Treetop vantage

A novel solution for a challenging site

by Rachael Bernstone

The steep banks of a winter creek and billabong, dotted with massive river red gums and kangaroo wattle, provided the inspiration for a South Australian couple's new home, but they got more than they bargained for when they approached architect Max Pritchard.

When they decided to move out of the city to a 20 hectare hobby farm, this Adelaide-based couple had modest ambitions. Their property had one shed, some grazing sheep to reduce the fire hazard and no mains power or water. They'd selected a site that overlooked a picturesque waterhole and intended to build a small house and home office,

“When we were building it, I sometimes thought: I could be living there already if I'd just plopped a McMansion in the paddock. But then I'd remind myself that it's a special spot and it deserves a special house”

which would minimise their impact on the land while capitalising on its natural beauty.

“We chose a site with a view of the magnificent gum tree near the billabong and thought Max would perch us on top of the bank,” the owner says. “But that site is south-facing, so Max swung us right around and across the creek, to get a north-facing aspect.”

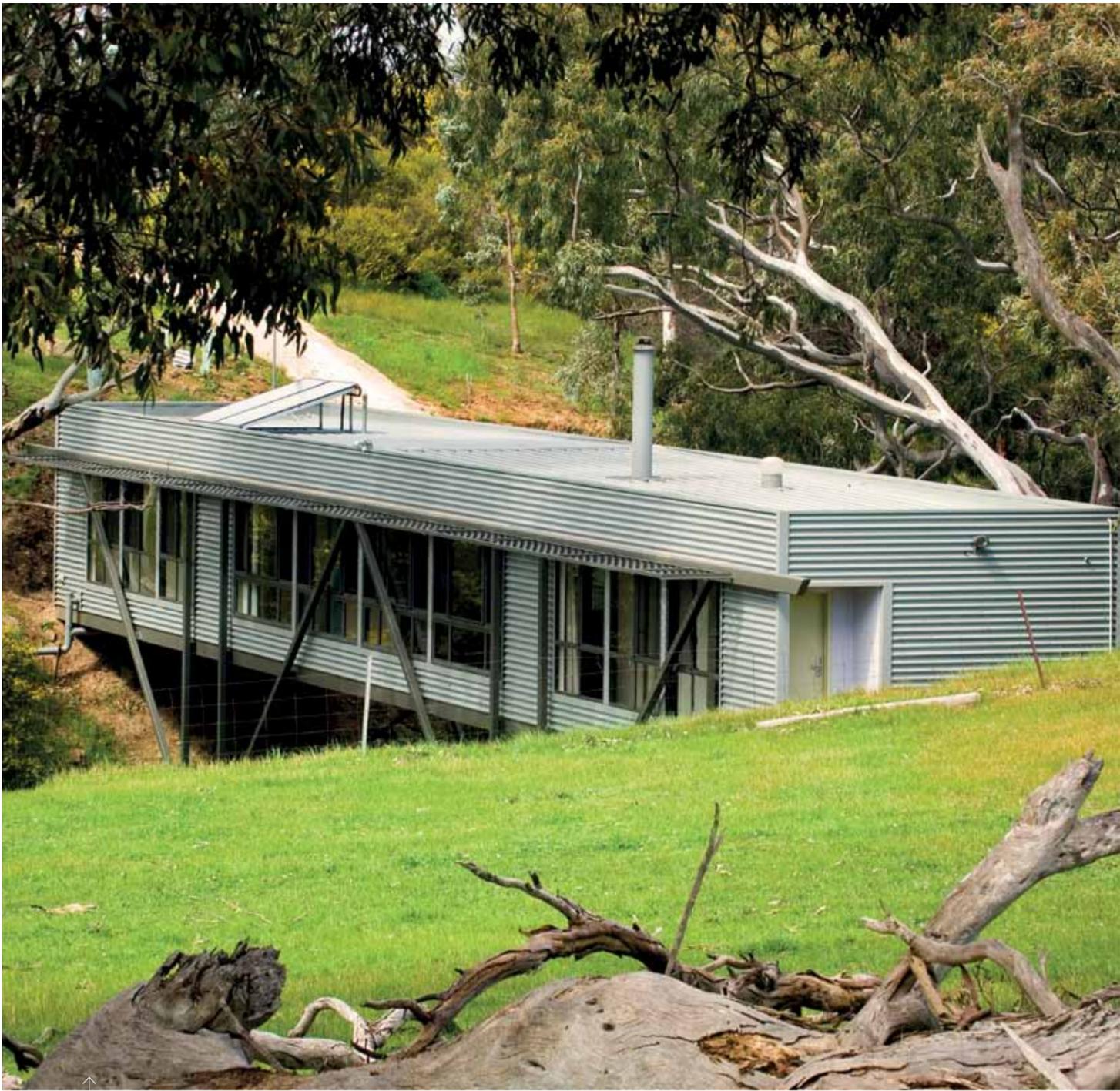
“We were both taken aback initially, because it was hard to imagine being that high: we couldn't string ourselves out there to get an idea of what it would be like,” she adds. “We never thought we would be out over the creek! We are somewhat

boring and old fashioned people and we would never consider something so 'out there'.”

Having settled on the best site, Pritchard designed an economic and efficient house to comply with the couple's tight budget. At only 110m², the house comprises one bedroom, an open plan living area and kitchen and a home office that doubles as a guest bedroom. A second shed acts as the “spare room” for storage of golf clubs, fishing gear and other useful equipment.

The long narrow plan boasts large double-glazed windows on the northern and southern facades that make the most of the stunning views and





↑ Not only has this home been designed with careful selection of environmentally sensitive materials and passive solar design, it's also a showcase for its modest size. At just 110m², it's half the size of an average new home in Australia

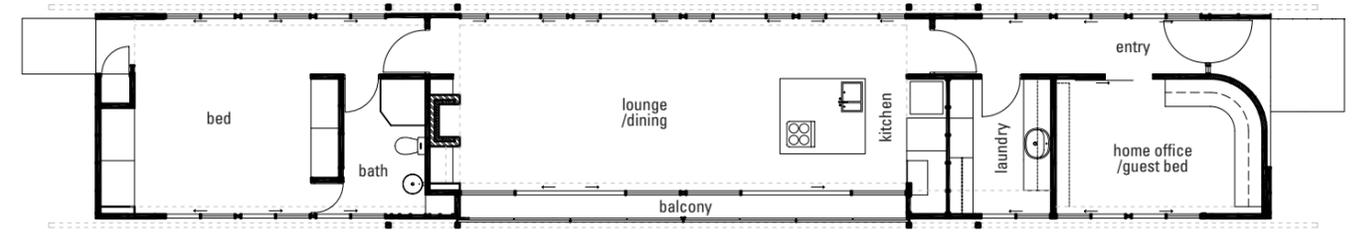
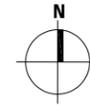
enhance thermal performance. In summer, the glass on the northern side is protected by angled and perforated screens that keep the sun out, while cross ventilation and ceiling fans assist with cooling. **During winter, the perforated screens allow the lower-angled sun to enter the house to warm the insulated concrete slab, which re-radiates warmth at night.** It is supplemented by a small combustion heater that burns wood collected from the property.

The owners had initially considered installing a stand-alone solar system for electricity, but the prohibitive cost – \$40,000 for panels, batteries

and a backup generator, compared to \$20,000 for a grid-connected solar system – convinced them otherwise.

"We wanted to reduce our energy consumption but we have power tools, computers and a TV. Like most people we still wanted to use the latest high tech stuff, and it needs power," the owner says. "We compromised by installing a photovoltaic system that is connected to the grid to offset our consumption.

"We draw energy from our own panels first, and send power back to the grid when we make more than we can use, so we use mains power as



↑ The dark colour rendering of the concrete slab encourages heat absorption during winter

a last resort," she continues. "We also have solar hot water backed up by an electric system. We've already achieved significant savings: our second bill (in summer) was paid for entirely by the grid connection and our most recent one (in autumn) was \$165 for the quarter."

The house is not connected to mains water so three tanks collect rainwater from the roof and the roofs of the two sheds, while a sewerage system treats waste water before it is dispersed into the landscape, away from the creek.

By far the most innovative aspect of the design is the lightweight structure that touches the

ground at just four anchor points, minimising disruption to the creek bed while hovering above the watercourse. While Pritchard had every confidence his remarkable design could be built, he wasn't sure the local council would approve the unusual dwelling.

"**Council approval is a concern with any project you do, but we knew from the start that this would be a long process,**" he says. "We thought it was worth a go, and in fact, the council said that it likes to encourage innovative design." It took the couple about one year to satisfy all of the local and state government approval requirements – including





High on the hill

This eco-house harmonises with its bush setting

By Rachael Bernstone



When the owners of this two-bedroom house in the Perth suburb of Gooseberry Hill approached Adrian Iredale of Iredale Pedersen Hook Architects to renovate their home, they were keen to capitalise on the beauty of their site. The house, on the city's northeastern fringe, turns its back on Perth's suburbs and embraces the bushland beyond.

"The house was architect-designed in the 1980s but it didn't make the most of the site's attributes. For example, the living room windows were 1.2 metres off the floor," Iredale explains, "and I was keen to capture the quality of moving

through a hilly bush site.

"The renovation aimed to provide the opportunity to move through the house and experience the landscape in a variety of ways, rather than just offering a passive wall of glass to take in the views, which can become mundane," he adds. **"Now the house offers intimate views and vast views, abstracted views and focussed views of the bush."**

Iredale's first task was to emphasise the importance of the central spine, which provides access to all of the internal rooms. **"As we extended the building we stretched the spine: at the front there is a long straight concrete wall to**

The house offers a variety of views of its surrounds, from expansive, to localised and abstracted



A room with a view

It's all plain sailing in this passive-solar house

by Fiona Negrin

↑
Shade Sails are removed to take advantage of the warming winter sun

“The house is wrapped up like a cocoon, there are no gaps anywhere!”



It was pure chance that brought Ian and Sue to the township of Birregurra at the foot of the Otways but their decision to buy land was anything but accidental. The acre-and-a-half block they saw advertised had fantastic north-facing access – Ian and Sue knew this would give them the opportunity to build their dream passive-solar house.

What they hadn't anticipated was the challenge of the site: with its north-south and east-west slope it seemed it would be impossible to lay a concrete foundation without serious excavation. Designer Andreas Sederof of Sunpower Design sums it up.

“We wanted to avoid hacking out of hills, because it adds costs and scars the land. The idea is to be smart, and make architecture work: to fit the land and be functional at the same time.”

A small cut was made in the ground to accommodate the east-west contour and the concrete foundation was split to fit the cut. To follow the north-south contour, the foundation for the garage was laid one metre higher than the house, with stairs leading from the garage to the house. Thanks to smart design and creative thinking, the site's primary challenge was successfully integrated into the finished home. ↓

Back to basics

A Melbourne renovation gets the fundamentals right

By Verity Campbell



“We used recycled floorboards for the kitchen cupboards. I love the nail holes and marks of prior life the timber has. It gives the kitchen character”



Shania Shegedyn

An adult violinist and four junior musicians were five very good reasons to improve insulation and keep the peace in the Oleinikov house. The other reasons were less to do with maintaining family harmony, but just as compelling.

The gorgeous double-fronted bluestone home in Melbourne's inner-city suburb of Northcote needed expanding. It was also time to introduce the slate-roofed, light-deprived Victorian abode to the 21st century – with the proviso that its heritage character be preserved.

Says Judy Oleinikov, “Like many, we started our sustainability journey small, while finding more information about greywater recycling systems some years ago.

“Over the years our knowledge about sustainability grew with the knowledge that we wanted to try to make a difference to climate change, so by the time we came to renovating our house we knew a sustainable renovation was a certainty.”

The Oleinikovs were attracted to Construction Queen's no-fuss attitude to sustainable



Bay views

The hard work payed off in this green dream home built by owner builders

By Gabi Mocatta

“Mike was the artist who designed what I had to try and paint. My challenge – as a first time builder – was to get things to a standard that would live up to his vision”

Geilson Bay residence

Designer Mike Cleaver www.cleverdesign.com.au
Builder Steve Dine (owner-builder)
Location Geilston Bay, Hobart, TAS
Project type New building
Cost \$495,000
Photography Richard Eastwood and Gabi Mocatta



Sustainable features

HOT WATER

- Solarhart 300L solar hot water system with electric booster



Gabi Mocatta

WATER SAVING

- 2 x Pinecrest poly tanks (42,000L total) rainwater storage
- Small Pinecrest header tank (1000L) under house with Grundfos automated pump system to rainwater storage tanks
- Linea dual flush toilets

- LG front-loading washing machine

Front loading washing machines are usually the best bet when it comes to water efficiency, however one of the downsides can be detergent residue left on clothes. Choice published a study reviewing washing machines and looked into ways to reduce residue. To help with the problem they recommend using quality liquid detergents or reducing the amount of powder detergent and ensuring it is kept in airtight containers. See www.choice.com.au

- Water saving showerheads throughout
- Ozzi Kleen (www.ozzikleen.com) aerated wastewater treatment system for grey and black water

PASSIVE HEATING & COOLING

- 300mm thickened concrete slabs with side insulation throughout of 25mm high density polystyrene. Under suspended section of slab there is 100mm of polystyrene insulation supplied by Prime Industries.

While an insulated concrete slab built directly on the ground is best practice environmentally, if you're going to suspend a slab, to make the most of its thermal mass, make sure the suspended part is insulated as well. Side insulation of slabs is critical in cold climates despite it being often overlooked.

- ACI Pinkbatt insulation in roof (R3.7) and wall (R1.5)
- Selected internal walls used as thermal mass (solid bricks by Besser)
- Eave widths and angles tailored to optimise sun according to passive solar principles
- Windows and doors located to maximise flow-through ventilation

ACTIVE HEATING & COOLING

- 6kW reverse cycle Daikin floor-mounted airconditioner installed for occasional use in winter

BUILDING MATERIALS

- Koolwall (manufactured by Active Building Systems, distributed by Access Solutions) polystyrene cladding system
- Bluescope Colorbond roof – Shale Grey with Deep Ocean trim
- Compressed earth blocks on south side of house

WINDOWS & GLAZING

- Double glazed throughout with 10mm air gap except for butt joined corner windows and windows in master bedroom. Manufactured by Architectural Windows using Fairview Aluminium Frames. Low-E glass on butt joins

LIGHTING

- Internal Skylights by Velux (double glazed, argon filled)

PAINTS, FINISHES & FLOOR COVERINGS

- Dulux low emission paint
- Large format tiles throughout for less cleaning (lower use of cleaning solutions required) and reduced grouting
- Wool carpet in bedrooms



OTHER ESD FEATURES

- Independent fire pump (Davey 5hp with 90 metres of canvas hose) and custom built perimeter sprinkler system for bushfire protection

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