

# MODERN GREEN HOMES Sanctuary

INSIDE ISSUE 39 Winter window ideas; solar access & the law; recycled container cabin; prefab weekender; community energy takes off; 7 Star cottage retrofit; productive garden house; Kiwi bach + more

## SHACKS & STUDIOS

SIMPLE, SOLAR AND STAND-ALONE

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# Curvaceous beauty

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A creative response to the constraints of an awkwardly shaped site has resulted in an eye-catching curvilinear family home in inner Melbourne.

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WORDS Anna Cumming

PHOTOGRAPHY John Gollings

## IT'S EASY TO SPOT THE TRUE NORTH

House as you approach its small corner block in the inner Melbourne suburb of Kensington: visible from both streets, its sinuous double-storey form stands out from the heritage houses around it. Home to architect Tim Hill of Tandem Design Studio, his partner Victoria and their young son, the house is clad in a distinctive 'pleated' folded metal skin that emphasises its organic curved shape.

The house is placed in the centre of the 312 square metre block, and the facade is bowed in places to allow for a series of 'pocket' gardens on all sides. Inside, Tim has squeezed a kitchen, sunken living room and dining area plus a double-height atrium into the ground floor, and above, three pods containing bedrooms, bathroom and ensuite are accessed via stairs and a bridge. Curves are everywhere, from the custom-built brick island bench in the kitchen

to the built-in dining furniture that's reminiscent of a ship's cabin.

Far from being a design conceit, the curves are a key part of Tim's response to the challenging, wedge-shaped site. "The block is smaller than you think when you first look at it," he explains. "There's enough room for a traditional double-fronted house at the front, but only for one room at the back. A triangular footprint was the obvious solution, but acute corners are difficult to build and furnish, so I curved them off."

The project involved a heritage renovation as well as a new build, as the block includes a heritage-listed 1880s brick stables at the rear. When their son was born, the couple were living nearby in the 'Kensington Lighthouse', designed by Tandem and featured in *Sanctuary 11*. "That house had the challenge of bringing in natural light despite a neighbour's four-metre high wall to the north, and it







Though the small site doesn't allow for an extensive garden, the shape of the house was carefully considered to leave space for a series of 'pocket' gardens all around it. Victoria has been busy crafting them into edible, native, flowering and shade gardens. "Everybody needs to make friends with a building project. Victoria's way is through the garden," says Tim.







Angled towards the sun and away from the units to the south, the high roofline allows sunlight into the living spaces in winter, but excludes hot summer sun. The house and landscape were conceived together, allowing the designer to fully integrate deciduous plants as part of the roof and shading system.





# Garden house

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By 'renovating' the garden at the same time as the house, a Melbourne family has reduced costs over the long term and achieved exactly what they intended – a naturally comfortable home set in a productive landscape.

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WORDS Verity Campbell

PHOTOGRAPHY Tatjana Plitt, Peter Bennetts

## A DOUBLE-FRONTED WEATHERBOARD

in Yarraville, inner Melbourne, had all the classic hallmarks of Victorian-era homes: cold or blisteringly hot, dark, draughty, and a square patch of rear garden locked off from the home's living areas. The family of three with one on the way wanted to take a whole-site approach to ensure their planned high-spec eco home and garden worked as one. They aimed to do it once and do it right.

Architect Penny Guild from Guild Architects was enlisted by Alex and her partner to bring the project to life. The carefully considered landscaping is evident from the footpath. Conceived as both public space and threshold, the front yard is a hive of productivity with pumpkin plants (at the time of writing) wending their way over every available surface and a 20,000-litre trafficable subterranean water tank providing all watering requirements. At weekends, you'll find the family here harvesting or tending. "It's a good way to meet the neighbours," says Alex. Running down the north side of the house is another

productive garden with fruit trees and herbs designed as a dappled harbour-style informal entrance to the home.

The front part of the home is largely unaltered from the original with classic Victorian features accentuated, but only a few steps down the wide hallway the architect's interventions become apparent. To the right a cheerful, boldly tiled bathroom with a bathside slot window creates a room with view. "We always wanted to have a nice bath and look out on a garden," says Alex. Further along is a new sunken living area: the home's 'sanctuary' lined with carpet and deep seat jumpable sofas. This is obviously a great place to unwind of an evening – the doors ensure this room can be closed off from the rest of the house for privacy and warmth. An enclosed leafy courtyard, with pond, encourages evaporative cooling and fresh breezes in the home, and when you're sitting on the lounge the garden is at eye level – exactly as planned.

Through to the extension proper, soaring ceilings are a response to one of the



# Embracing the shack

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A backyard studio 'shack' was the ideal way to create more living space without compromising an otherwise perfect Tasmanian home.

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**WORDS** Gabi Mocatta

**PHOTOGRAPHY** Natalie Mendham

## **WHEN EDITOR AND WRITER AMANDA**

Ducker's family was outgrowing their 1920s Federation bungalow in the genteel suburb of West Hobart, an extension wouldn't do. The family considered an addition, or going up, but they loved their original, history-steeped Tasmanian home and wanted to keep its integrity. Set on a 620-square-metre hillside block, the property had ample room in the backyard – and so the idea of building a small, separate studio was born.

"In Tasmania, there's a very well established shack culture, and we wanted to have one in the backyard," says Amanda. That meant building small, re-using where possible, and, for Amanda and family, blending the informal 'shack' vernacular with a calm, Scandinavian sensibility. Amanda found Jane Hilliard of Designful in Hobart, a practice that specialises in environmentally sound small builds, and a like-minded partnership began.

"A lot of the brief was about the feel of the place, and how Amanda's family wanted to live in it," says Jane. Amanda wanted a writing studio and a living space for her eldest daughter, Zia, a university student. There would be a compact bedroom and

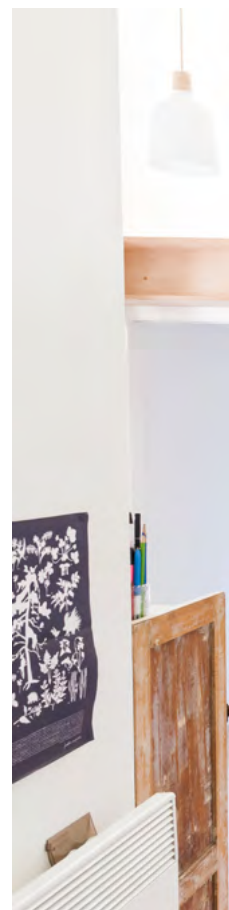
bathroom, a separate study to share, a wide deck, and in keeping with a 'shacky' feel, an outdoor bath. It would also need to be a building that did not cost too much to build or run.

Jane has extensive experience designing compact buildings, and could recognise an opportunity to develop something aesthetically lovely and environmentally sound. "The main thing for me is that if a building is small and simple, and uses a reduced palette of materials, sourced locally, it already has good environmental credentials," Jane says.

These credentials were added to with copious insulation in the roof, floor, ceiling and walls, to keep the north-orientated studio warm in the cold Tasmanian winters. The building was also designed to specific spans in order to reduce wastage of materials; LED lighting reduces energy consumption. The honey-coloured exterior cladding is plantation timber, and there's a recycled kitchen benchtop in the kitchenette. Amanda's recycled pièce de résistance is the outdoor bath. "I bought it for \$70 off Gumtree, and we have insulated it, so it stays really warm even



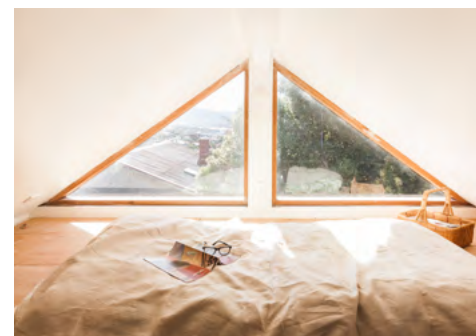
The kitchenette joinery is plywood sealed with a low-VOC Cutek finish. Look closely and you'll see a stairway to the loft cleverly integrated into the kitchen shelving. Image far right: The space can be used to store stuff or sleep humans!







The modest floor area of the shack is complemented by a big deck, under-deck storage and an outside bath tucked in behind a privacy screen at one end. For the cladding, raw fibre-cement sheet and radially sawn silvertop ash were chosen. The timber was left raw to minimise maintenance, and will weather to grey.





# The ideal unwind

A prefabricated, modular design was found to be the most practical way for a Melbourne couple to build 130 kilometres away on a Central Victorian bush block.

WORDS Elly Hanrahan

PHOTOGRAPHY Tatjana Plitt

## WHEN KARRENA BETHKE AND

Alkinos Alkinos bought their 20-acre block in Clydesdale, northwest of Melbourne, it was with building an escape from their busy weekday life in the city firmly in mind. “My favourite thing about it is the peace and quiet,” Karrena explains. “I love it, you always feel like you’re surrounded by nature.” Before choosing prefabricated construction, the couple first investigated the option of having a local architect oversee the onsite build of a modest house. But due to the rural location they discovered it would cost twice as much as an equivalent-sized prefab dwelling, and instead engaged designer Bill McCorkell of Archiblox, a Melbourne sustainable architectural company specialising in prefabricated modular design.

Designed to blend in with the surrounding environment, the timber-clad structure sits on a hill boasting 270-degree views of the serene bushland setting. The finished getaway consists of the main house aligned east-west to maximise north sun to all rooms, and a smaller guesthouse off to the west, partly sheltering the main structure from the harsh afternoon sun. The decision to make the guest ‘pod’ separate was to allow visitors to “set their own

timetable” and allow family to spend time together “without driving each other crazy,” Karrena tells us.

The house and pod are both lightweight structures designed to be transportable. To compensate for the lack of thermal mass, the building is well sealed and the walls, ceilings and floors are filled with insulation. Clydesdale’s climate can see temperatures soar to over 40 degrees in summer and drop to below zero in the colder months, and as this house is primarily a weekender, the lack of thermal mass also has the benefit of making the internal temperature easy to control. The long narrow form with openable windows on both sides allows for effective cross ventilation cooling in summer, and a small Nectre fireplace is all it takes to keep the 7 Star energy rated house cosy and warm.

The absence of eaves was a specific design choice, to avoid impeding the view of the sky from inside. “That’s something we just don’t get in the city,” says Karrena. “From the bedroom you have the most amazing view of the stars at night.” Bill explains that the heat regulation that eaves would have provided was easy to make up for with double-glazed windows that open to provide cross ventilation for cooling,



The main house contains a living space and just one bedroom, plus a bathroom and small laundry. Another bedroom and ensuite are housed separately in the ‘pod’, making it easy to close off when not in use and allowing family to spend time together “without driving each other crazy,” according to homeowner Karrena.







Built in Archiblox's workshop and delivered to site on two trucks, this small weekender consists of a main house and a separate sleeping 'pod' to the west for guests. Homeowners Karrena and Alkinos opted to avoid eaves to maximise sky views; instead, summer heat gain is regulated by double glazing, cross ventilation, and internal and external operable shading.





## Not just window dressing

### High-performance curtains, blinds and shutters

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Internal window coverings can protect privacy and dramatically improve the thermal function of a house, and if you choose with care, they can help keep you comfortable for years, writes Anna Cumming.

**WINDOWS ARE A COMPLEX AND INTERESTING PART OF THE** building fabric of a house. They admit light, warmth and fresh air; they connect the occupants visually with the outside world; sometimes they frame spectacular views. But from an energy efficiency point of view they are usually the weak link in the building structure. Through windows up to 40 per cent of a home's heating energy can be lost and up to 87 per cent of its heat gained, according to *Your Home*. High-performance, double or even triple glazing helps this equation, as does careful consideration of window size, location and orientation. But to ensure the best thermal performance for your home, it's worth also considering effective window furnishings. Blinds, curtains and shutters can improve a window's performance, make your home more comfortable and reduce energy costs.

#### WHERE TO START?

"Internal window furnishings serve a variety of purposes, including light control, privacy, reducing glare, heat reduction and heat retention," says interior designer Megan Norgate of Brave New Eco. Soft window furnishings can also buffer sound. If you're building or renovating, consider window treatments as part of the design process, because taking into account the associated requirements and thermal contributions may mean you make different decisions

about the extent and location of your glazing.

When choosing a product for a particular window, it's important to consider the main purpose it will serve. Keep in mind that if minimising heat gain in summer is the main aim, it's best to keep the sun off the glass in the first place with an external shading device such as an eave or awning (see our article on external shading options in *ReNew* 138 for more information).

Semi-transparent blinds or curtains are a good option if privacy or glare reduction is the primary aim; they can be combined with heavier curtains for night-time heat retention. And this is where great window coverings really come into their own: "They can act like de-facto double glazing if they are multi-layered and tight fitting to the window," says designer Dick Clarke of Envirotecure.

Snugly fitted and insulative blinds and curtains trap a layer of still air next to the window, reducing transfer of heat from the room to the window and thus outside. They also provide a feeling of cosiness: "If you are sitting in a warm room at night between an uncovered window and your heating source it is likely you will feel a chill, partly because of the draught created by the interior heat making a beeline for the cool exterior. Properly fitted and lined curtains and window treatments are the best way to avoid this effect," explains Megan.





Heavy curtains that touch the walls on each side of a window, reach to the floor, and have an enclosed pelmet at the top are very effective at preventing heat transfer between the interior of the room and the window, and thus outside. Good design for curtains includes allowing enough space beside the window to store the open curtain without blocking part of the glazing. Image courtesy Emma Byrnes & Brave New Eco



## CHOOSING YOUR STYLE

There is a wide range of products available depending on the purpose to be served, your budget, and your design preferences.

### Curtains

According to Megan, the humble and currently somewhat unfashionable curtain is set to make a comeback. “Heavy curtains are best for thermal performance and are great to block out light,” she says, “but may not work where floor space is limited or there is no space above the window to mount tracks or at the side to accommodate the open curtains.” There are other considerations to ensure your curtains are effective: they should have an enclosed pelmet at the top or drop straight from the cornice; touch the wall at either side; and just kiss the floor. If not, and as *Energy Freedom Home* explains, the warm air created by a heater will rise to the top of the window and be drawn down into the space between the window and curtains, driving a current of air that can rapidly cool the warm air in the room and can increase condensation.

Pelmets can usually be easily retrofitted to existing curtains and need not be visually intrusive boxes. They can be made from just about any solid material; the most common is timber, but lightweight plastic sheet or even cardboard is an inexpensive alternative, and especially useful for renters. Elizabeth Wheeler, building designer and product specifier for Future Focused, suggests that if you prefer a streamlined look, you can consider integrated bulkheads instead, but notes that usually these must be factored in during the design of your home. One invisible track system that provides this integrated effect is the Ezy-Pelmet from Ezy-Jamb ([www.ezy-jamb.com.au](http://www.ezy-jamb.com.au)). Another invisible, easy-to-DIY option is a retrofit pelmet cap that sits between the wall and the curtain track and touches the back of the curtain; Ecomaster offers ‘Invisible Pelmets’, an acrylic product sold by the metre ([www.ecomasterstore.com.au](http://www.ecomasterstore.com.au)).

### Blinds

Effective blinds come in a range of styles including roller, roman and honeycomb, and are a versatile and effective option, as long as due care is taken to fit them snugly (ideally within the window reveal) to minimise air gaps around the edges. (Vertical blinds and standard venetian blinds can help regulate sunlight and privacy but are of limited help with thermal performance.)

Megan notes that roller blinds are generally cheapest but less thermally effective, and heavy backed roman blinds can be a good option for small and narrow windows where there isn’t room for curtains. However, her favourite type of blind is the honeycomb, a concertina style that’s made from fused layers of fabric that form a series of hexagon-shaped tubes when open, and is very compact and visually unobtrusive when closed.

Although these curtains don't have a pelmet, they are fitted close enough to the ceiling to have a similar effect: preventing airflow from the room down behind the curtain. They also brush the floor and the wide window sill, further increasing their thermal performance. This energy-efficient Melbourne townhouse is profiled in *Sanctuary 35*. Image: Ben Wrigley



Considering your window furnishing needs at the design stage of your build or renovation makes it possible to opt for pelmets integrated into the walls or ceilings, giving a streamlined look. These curtains help moderate heat loss through north-facing glazing at the Yarraville Garden House [profiled on p30]. Image: Peter Bennetts





# Pushing the boundaries

Contemporary architecture is inspiring many of us to think more creatively about house design. Mara Ripani writes that, with a little extra planning, you can push the boundaries of your fence design as well.

## FENCE MATERIALS AND DESIGN



When designing your fence, think about the needs it must fulfil. This front fence of timber and metal reinforcing bar is visually permeable but would still keep small children and dogs contained effectively. Image: Mara Ripani

**WORDS** Mara Ripani

### ONE OF THE WONDERFUL ASPECTS

of building a home in the 21st century is the enormous freedom that exists with the design process. Fewer people are concerned with conforming to neighbourhood standards and, where possible, people are opting for innovative and creative house designs that express stories and values. With this freedom comes the option of extending one's vision beyond the building envelope into the landscape, and right out to the very edge of the property where a new abundance of fencing options abounds.

### FENCING MATERIALS

There are five principal building materials used in fencing design: wood and natural fibres, recycled plastic and wood-plastic composites, metal, stone and living plants. Perhaps the first factor that will influence your choice of material will be its sustainability credentials.

### WOOD AND NATURAL FIBRES

Before you opt for a timber fence, remember to check that it has been sustainably sourced from a managed forest (for example, has Forest Stewardship

Council accreditation) or is recycled or salvaged. Hardwoods are the best choice, if you can afford them and they are certified for sustainability.

Has the timber been treated with a chromated copper arsenate (CCA) wood preservative or an alternative eco treatment? Unfortunately the Australian Pesticide and Veterinary Medicines Authority provides little inspiration for eco alternatives, stating that 'they still pose environmental and health risks'. All wood degrades due to attack from fungi, bacteria and insects (termites) and extreme weather. Wood in direct contact with moist soil is particularly susceptible, and a timber fence's longevity can be extended if placed on an above-soil level concrete base, with capped posts. Wood will grey off within a few years or within six months in some locations if treated with a stain or oil product, even if it contains a UV shield. The process will take longer if a skin coat is used, but be prepared to sand and strip the wood back when it comes to repainting.

One interesting newly developed timber product is Accoya: fast-growing, abundant softwood that is acetylated to



stop rot from taking hold. The process is non-toxic and gives the timber durability and rot resistance similar to the toughest hardwoods.

Bamboo fences are another option. Bamboo is usually supported by hardwood or softwood posts and a top and bottom rail which act as a frame. The bamboo fills the space between. Like wood fences, bamboo needs to be oiled or painted with a clear coat of varnish (every year in the case of bamboo) to ensure longevity. There is a range of products on the market, from

thin bamboo to very large bamboo poles. The larger, older bamboo is stronger than juvenile bamboo and will therefore last longer. There are also different bamboo species to choose from; Moso and Henon are two species often used for fencing due to their longevity and strength.

Other natural fibres that can be used for fencing include brushwood or hazelnut, willow or walnut wattle. Wattle fences in particular are experiencing a revival as people return to artisan crafts once prized and valued.

### RECYCLED PLASTIC AND WOOD-PLASTIC COMPOSITES

Recycled plastic and wood-plastic composites (WPCs) are becoming more readily available for a variety of external applications including fencing and decking. They have the twin advantages of giving another life to waste products and being considerably more durable than plain wood; WPCs have a look and feel closer to that of timber than plastic-only products. They can both be cut, drilled and planed just like timber, don't crack or splinter,



① Working with constraints – such as the need to accommodate the branches of this tree – can lead to imaginative fencing designs. The capping on this fence will help strengthen it and keep moisture out of the ends of the timber palings, prolonging its life. Image: Mara Ripani