MODERN GREEN HOMES

Sanctuary

ISSUE 52 | SUSTAINABLE HOUSE DAY SPECIAL

High-performing volume builds; garden design for mental health; responsible timber

BUILDING A 'NEW NORMAL'

A SUSTAINABLE WAY FORWARD

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Image: Luisa Brimble

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These products are independently selected by our editorial team. If you have recommendations for products you think would be of interest we'd love to hear from you. Email: sanctuary@renew.org.au

Modular battery system

If you're going to design a battery system in Australia you might as well give it an Australian name like Redback. As well as being designed and tested right here, Redback's Smart Hybrid System is scalable, meaning you can add further storage capacity as your household energy needs change. The system combines a 5kW solar inverter and modular battery storage up to 11.8kWh, while the Redback Smart 3-Phase Hybrid System combines a 10kW solar inverter and battery storage of up to 28.4kWh. Redback's systems include an uninterruptible backup power supply that will provide electricity to key appliances in a power outage. They also offer an easy-to-use MYRedback app and portal that allow you to view your system's activity at home or when you are out. Consult an accredited solar installer to plan the right sized system for your energy needs.

www.redbacktech.com

Bulk buy electric vehicles

One Tasmanian business is making electric vehicles more affordable at a time when EVs still seem out of reach to many. The Good Car Company imports used Nissan Leaf electric cars from Japan to be sold in Australia as part of community bulk buy programs. While you wouldn't buy a used car from just anyone, the founders are sustainability advocates looking to accelerate the shift to cleaner transport and reduced greenhouse gas emissions. The next bulk buy is in conjunction with See Change in the ACT, with registrations of interest open via the Good Car Company website. The Hepburn Wind community group in Central Victoria is next in line for a bulk buy when Covid-19 restrictions lift in Victoria. The vehicles range from 2013 to 2019 models that have clocked under 60,000 kilometres (often much less) and have at least 80 per cent of the original battery capacity. Prices start at under $20,000 for a Nissan Leaf AZE0 (2013-2015), with a Nissan Leaf ZE1 (2017-2019) priced around $42,000. Get in touch if you're interested in purchasing outside a bulk buy program.

www.goodcar.co

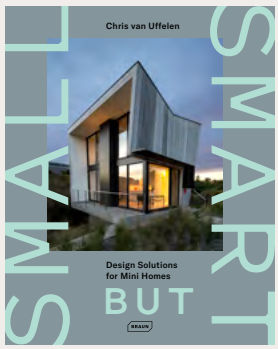
Wood made from waste

Wood is topical in this issue of *Sanctuary* (see our article on page 73), especially making sure that it's sustainably sourced. One option is to buy wood products that have the look and feel of a hardwood, without the need to fell timber. Designer Hardwood is made from waste offcuts from plantation timber that would otherwise end up as woodchips. The technology uses a water-based nano-glue that is mixed with the waste wood to replicate the properties of mature natural hardwood. The result is non-toxic with no formaldehydes used in production, is recyclable and is made locally so has limited carbon miles associated with transportation. The pick of the products would be the blackbutt stair treads, priced from $119 to $179 depending on the length. Designer Hardwood also supplies shelving boards and chopping boards, and the range will no doubt expand.

www.designerhardwood.com.au

If you have recommendations for films, books, smartphone apps, blogs, websites or anything else, email: sanctuary@renew.org.au

BOOKS



Small but smart: Design solutions for mini homes

Chris van Uffelen

Braun, 2020

$60

The 'tiny house' movement has received so much attention over the last few years that on first glance at a book entitled *Small but smart: Design solutions for mini homes*, you'd be forgiven for wondering whether the world really needs another book on the subject. And this attractive new offering from design expert Chris van Uffelen certainly features its share of homes that look tailor-made to be admired by those who extol the aesthetic virtues of tiny houses but would never dream of actually living in one.

However, if you dig deeper, the book also contains plenty of ideas relevant to those of us who live in places smaller than we'd like through financial necessity, or who do prefer a small dwelling but would like it to work better. And there are some really creative solutions for optimising limited space, from a fireplace that retracts into a ceiling during summer to a writer's cabin whose protective sides fold down to form decking when it's in use, effectively doubling the retreat's footprint. There are also ideas that would easily scale up to standard-sized houses: modular assembly, the creative use of sustainable and recycled materials and so on. Perhaps most interesting of all are the designs whose diminutive size is a response to their environment: the VIMOB house in Rozo, Colombia, for instance, a 37-square-metre prefabricated modular design by Colectivo Creativo that is "born from the notion of creating a shelter in an area of difficult access, a place where building is limited by transport of materials and labour."

And whatever your opinion on the tiny house movement, it's clear that *Small but smart* is a lovely book: the photography is top-notch throughout and the accompanying text is both well-researched and satisfyingly full of detail.

How to talk about climate change in a way that makes a difference

Rebecca Huntley

Murdoch Books, 2020

$33

Climate change is real and it is here, but it's a topic that prompts so many emotional reactions from people that it can be hard to make any real progress or action – to make change for the better. *How to talk about climate change* takes a closer look at those emotional reactions (why does climate change make us anxious, fearful, angry or detached?) and tries to get to the other side where people can cope and take action.

Dr Rebecca Huntley is a social researcher, which gives her a unique insight into why people think the way they do. Each chapter focuses on an emotion such as anger, fear or guilt, to show how that emotion drives the way we behave in response to the climate crisis.

By researching and considering why climate change conversations create such mixed emotions, a range of voices emerge, helping the reader gain a better understanding of the various climate change responses. Huntley approaches the climate conundrum in a calm and rational manner, to present a positive and encouraging side to a difficult topic. She writes about the climate books she was too overwhelmed to read, realising that she "needed to be a lot calmer and a lot stronger to keep going."

The book opens the dialogue about climate change to gather those who are anxious about the topic, and engage those who would rather not get involved. It's an accessible and engaging read, and useful for anyone keen to understand the different perspectives they might encounter when having conversations about this pressing issue.

A place of their own

LOCATION Inverloch, VIC • **WORDS** Anna Cumming • **PHOTOGRAPHY** Mark Dury

At a glance

- Built using *Your Home's* 'Design For Place' free plans
- Passive solar design with rammed earth feature walls
- 8.2-Star, all-electric and off-grid home
- Durable, low-maintenance materials
- $400,000 including off-grid systems

Opening for Sustainable House Day 2020 on Sunday, 20 September.

Search for "Harmony House" at sustainablehouseday.com

For this family in coastal Victoria, a set of freely available sustainable home plans was the perfect solution to achieving a cost-effective and high-performing home.

When Richard and Kerryn and their two children moved back to Victoria from interstate seven years ago, they settled in Inverloch, a coastal Gippsland town, drawn to the semi-rural lifestyle and the fact that it's close enough to Melbourne for day trips to visit family. However, they couldn't find a house to buy that suited them: "None of them made sense! They faced the wrong way or had roof slopes that were nowhere near ideal for solar. We always had sustainability in mind, and wanted something better than 'this'll do'," says Richard. He started studying passive solar design textbooks and looking for an affordable pathway to achieving an effective passive solar house on a modest budget.

"I talked to designers, explored kit homes and container homes and more, but nothing met both criteria of affordability and effectiveness – until I came across the Design For Place house plans," he says.

Included in *Your Home*, the Australian Government guide to environmentally sustainable homes, Design For Place (www.yourhome.gov.au/house-designs) offers a complete architect-designed suite of plans for energy-efficient homes, available in three designs to suit different block sizes and orientations. The plans can be downloaded for free and include specifications designed to achieve a minimum 7-Star NatHERS energy rating in nine of Australia's major climate zones.

Richard and Kerryn were drawn to the original three-bedroom Design For Place design, a simple rectangular floor plan that features a central living and dining room opening onto a north-facing deck, with a kitchen, laundry and small study along the southern wall. At one end of the house is the main bedroom with walk-in robe and bathroom, and at the other, two more bedrooms, another bathroom and a single-car garage. The construction is timber frame, with some internal brick walls and a waffle pod concrete slab floor for thermal mass.

"The more I looked at the Design For Place home design, the more I fell in love with it," says Richard. "I got shivers down my spine, and not just from the draughts in our cold rental house! It's a subtle but sophisticated design, which

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"My favourite spot in the house is the living room," says homeowner Richard, "with the beautiful rammed earth walls and the double-glazed doors framing our ever-changing nature 'screensaver': the clouds across the sky and the cows in the paddocks. We're connected to it visually, but separated from it thermally when we need to be." Double-glazed north-facing windows are a key component of passive solar house design.

Novel solution

LOCATION Dulwich, SA • **WORDS** Rachael Bernstone • **PHOTOGRAPHY** David Sievers

At a glance

- Highly space-efficient extension with minimal addition to footprint
- New bedroom and bathroom in roof space
- Recycled materials

Opening for Sustainable House Day 2020 on Sunday, 20 September.

Search for "Dulwich Loft" at sustainablehouseday.com

This modest bungalow in Adelaide has been transformed by a compact loft extension and renovation that introduces natural light and sun for the first time in its history.

The owner of this single-fronted 1920s bungalow in Adelaide's Dulwich – a suburb just beyond the south-eastern edge of the city's central parklands – was keen to retain its heritage charm, while improving overall functionality, comfort and aesthetic appeal.

Kim Evans bought this house and lived in it for seven years before approaching an architect, and in that time, she observed that the low roof, proximity of neighbours on the east and west sides, and verandah at the rear – the northern elevation – all conspired to exclude natural light. That meant the house was cool and dark most of the year round, but especially in winter.

In her daydreams, and as she looked online for inspiration, Kim mentally addressed other shortcomings too. "The kitchen and bathroom were only about 15 years old, and very presentable, but they didn't make great use of space," she recalls. "There was almost no bench space in the kitchen and a lot of awkward empty floor space, and the fridge was outside the kitchen proper. There was a tiny 'sort-of' dining room, but no storage anywhere, and the longer I lived there the more it became obvious that I needed to act."

Following a friend's recommendation, Kim contacted architect Sally Wilson of Archaea to help her plan and realise her vision. "Kim came to me with photos of an attic or loft-type space at the top of the heritage building where she works on the campus of the University of Adelaide," Sally says. "She loved the qualities of this space, with its beautiful rustic beams and cathedral ceilings. She didn't want to extend into her rear garden – she has a large dog and cats – so we created a new loft-like space in the roof for a bedroom, ensuite and walk-in robe."

Downstairs, Sally removed the rear lean-to and moved the end wall out by just 1.5 metres, creating enough space for a better-organised kitchen and dining area, new bathroom and laundry, and plenty of storage thrown in.

Moving her bedroom upstairs makes it easier for Kim to host long-term guests – she's involved in the local and

VOLUME-BUILT WINS:
Steps to a more sustainable project home

WORDS Erika Bartak

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Having decided on a project home for their family's new house in Moonee Ponds, Victoria, environmental lawyer Rebecca Nelson and her partner Richard Smith did their research and chose to work with volume builder Henley as the company could offer in-house sustainability expertise and advice. The couple picked the home design best suited to their needs and block and made alterations including moving the laundry to the south side, removing walk-in wardrobes, and adding internal doors to help with zoning the house for heating and cooling. They also made changes to the materials for improved thermal performance and sustainability. Read the full house profile on page 52.
Image: Tatjana Plitt

Volume-built homes (also known as project homes) are an increasingly familiar sight, appearing en masse in the new estates fringing our cities and towns, or popping up as replacement homes in established suburbs. Many people look to volume builders as an affordable option for their new home – but how do you achieve your sustainability goals with this mass-market product? ESD consultant and housing researcher Erika Bartak explains the easy wins, the pitfalls to avoid, and the important questions to ask at each stage for those wanting a sustainable volume build.

ON THE DRAWING BOARD:
Testing out 10 Stars

WORDS Craig Riddle • **PHOTOGRAPHY** Jacob's Photography

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Built with readily available, locally sourced materials chosen for durability, low maintenance and sustainability, the finished home achieved a 10-Star energy rating and will provide comfortable and low-bills living to the occupants.

Most new homes in Australia rate little more than 6 Stars for energy efficiency, the mandatory minimum. What does it look like to aim for the top of the scale, and can it be done without costing an arm and a leg? Builder Craig Riddle set out to design and build a very high-performing house using iterative energy rating assessments, careful construction and standard, readily available materials. He shares what he learned along the way.

I had been considering building a secondary dwelling on my investment property in Telarah, inland from Newcastle, for a little while. Being a builder, I felt this was a great opportunity to really push the boundaries and explore the possibilities around thermal performance without the constraints we'd normally have working directly with clients.

What was important to me was achieving a high-performing house with readily available materials and cost-effective construction methods. From early on I had a goal in mind of designing the project to be 10 Stars, the highest possible NatHERS rating. The main reason behind this decision was for me to learn and understand first-hand how it could be done. I also wanted

A KNOTTY ISSUE:
Responsibly sourced timber

WORDS Sophie Weiner

Just about every building project uses timber. While it's a renewable resource, its harvesting is often associated with deforestation practices that are harmful to the environment. We look at the current state of sustainable timber in Australia, and how to make sure the wood you use for your build is as responsible as possible.

Timber is a controversial material among environmentally conscious builders, architects and consumers. While many rightly favour it as it's a renewable resource that sequesters carbon, the role of timber harvesting in deforestation and habitat loss around the world is indisputable. But getting rid of timber entirely is not possible or desirable in most of our builds. What are sustainability-minded consumers to do?

In 2015, we wrote about how to use timber sustainably in your new build or renovation project ('In search of good wood: building with sustainably sourced timber', *Sanctuary 26*). Since then, the landscape for timber products in Australia has evolved. Some of these changes are for the worse; these days, it's more likely that you'll encounter slow-grown, not-always-legally harvested Baltic pine or spruce imported from the Baltic States or Russia in your local hardware store. You'll also find hardwood decking from tropical rainforests of South-east Asian and Amazonian countries with what can be dubious environmental certifications. But there are still good avenues available for people interested in wood that's ethical and sustainable.

Good guidance on these subjects can be difficult to find, and we want to help. Below, we'll get into our recommendations for finding good wood for your build, and how to do your part to minimise harm in our precious forest ecosystems.

START WITH RECYCLED TIMBER

Our first recommendation from five years ago still holds true. Recycled timber is the most sustainable way to use wood in your build. This is particularly so when it comes to flooring, for which many people like to use beautiful dense hardwoods that are particularly unlikely to have been harvested sustainably.

There are plenty of options for finding reclaimed timber across Australia. If you're DIY-minded and prepared to do the

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Sustainable timber in use. Top: Australian and NZ plantation timber (Monterey cypress, radiata pine plywood and karri) used as shiplap and feature wall cladding and window frames on a house at Mullum Creek in Donvale, Victoria. Bottom: This verandah has framing of locally sourced bushpoles and Victorian plantation radiata pine, and ceilings lined in Queensland plantation hoop pine. Images: Paul Haar

AVOIDING THE WINTER COLD:
Housing retrofits as a health intervention

WORDS Toby Cumming

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Much of Australia's existing housing stock is cold and draughty, but simple upgrades can make a big difference, delivering warmer and healthier homes. Renovations to this hundred-year-old cottage in Yarraville, Victoria, included updating the original part of the house to be as thermally efficient as possible, with ceiling, wall and underfloor insulation and all gaps and penetrations sealed with spray foam. The project was a collaboration between Altereco Design and Melbourne Vernacular; read more in *Sanctuary 42*. Image: Nikole Ramsay

As well as reducing your energy bills and your carbon footprint, upgrading your home's building envelope can have a positive effect on your health and wellbeing. Health researcher Dr Toby Cumming explains.

Imagine you have just moved into a lovely 1950s weatherboard house somewhere in Australia's temperate regions. While it has charm, it has barely any insulation, the wind whistles through gaps in the doors and sash windows, and the old gas heater in the living room costs heaps to run. As any dedicated *Sanctuary* reader knows, there are some pretty straightforward and affordable upgrades you can make to improve the house and its thermal shell. Chances are you are thinking about these upgrades in terms of improving energy efficiency (saving the world's precious resources) and reducing costs (saving your precious resources). Yet one of the best arguments for the upgrades is that they will improve your health.

THE DANGERS OF WINTER

Back in 1857, William Guy, Cambridge graduate and Fellow of the Royal College of Physicians, had been running his eye over Britain's data on births, deaths and marriages. Not only

Nourished by nature

Garden design for mental health and wellbeing

WORDS Chris Crerar

There's plenty of evidence that connection with nature is beneficial for both mind and body. Recently, the uncertainty of life in a global pandemic has made the need to look after our mental health more acute, while stay-at-home orders have given many of us the opportunity to spend more time gardening. We speak to the experts about designing gardens for improved mood and wellbeing, and what we can do at home to create green spaces that give back in a therapeutic way.

As the coronavirus pandemic swept into Australia, it wasn't only supermarket toilet paper aisles that were cleaned out; the seed and seedling sections of garden nurseries across the country were also stripped bare.

Was it simply that as state lockdowns came into force people were staying home and had more time to garden, or could it be something deeper? Did the anxiety and uncertainty created by the pandemic and associated economic fallout drive Australians to want to connect with the earth and nature, get some soil on their hands and nurture plants?

According to gardening professionals, while the phenomenon was probably a combination of both, there's now a body of evidence demonstrating that in times of crisis many people seek out nature, gardens and gardening, and that there are measurable benefits for mental health and wellbeing.

"When the ground was shifting on a global scale, people turned to the reassurance that gardens, gardening and being closer to the earth provide," says Dr Pauline Marsh of the University of Tasmania. Pauline is one of the founders of DIGnity, a therapeutic garden program at Dodges Ferry on Hobart's southern beaches. Set up for aged care residents and people living with dementia as well as the general public, the initiative supports users to overcome physical, cognitive and emotional barriers to good health. Pauline says that one of the most important therapeutic functions of gardens is as places of respite from both daily and global stresses.

Sydney-based therapeutic garden consultant Joanne Aquilina believes there were deeply-rooted reasons why people gravitated to gardens and natural spaces during lockdown. "Historically, during times of war and crisis, people have turned to growing their own food out of fear of shortages and hunger. While there hasn't been the same fear of hunger for most of us this time, I think many people have felt a driving need for physical contact with the earth – to connect with

Tips for therapeutic gardening at home

- Creating and tending a balcony garden or even indoor plants can bring as much therapeutic benefit as a larger garden.
- Think about the functions of spaces in your garden. If possible, plan an area for gathering and an area for solitude.
- Think about light and shade and how they might function in your garden. Depending on the season, shade can be restful, and sunshine is a mood enhancer and provides beneficial vitamin D.
- Think about the visual and aural stimulation different plants provide. Grasses that sway in the wind, varied colours, flowers and the texture of leaves and bark all trigger our senses and engagement with nature.
- Select some plants for their fragrances. Plants such as lavender, mint, rosemary, lemon balm and chamomile are aroma-therapeutic and can relieve anxiety and help you relax.
- Encourage wildlife in the garden by providing nesting boxes, hiding places for insects and lizards and bird baths; this can further enhance the outdoor experience.
- Plant for success. Grow species that will thrive in your area. Nothing kills the therapeutic benefit of gardening faster than plants that wither.
- The real therapeutic benefit is in the 'doing', embracing a connection to nature. Get your hands down in the soil. Consider kicking your shoes off and walking barefoot.

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Nurse-turned-horticulturalist Steven Wells' garden incorporates spaces designed for social gatherings as well as nooks for retreat and contemplation. Image: GAP Photos/ Brent Wilson

→
Therapeutic garden designer Joanne Aquilina suggests creating a space in your garden that is conducive to grounding practices like barefoot walking. When it comes to what to grow, she says: "Select plants with a variety of foliage and flower colours, plants with different textures, scrumptious herbs, vegetables and fruits for smell and taste, as well as grasses and trees that rustle or crunch. Your plant selections could also reflect the change in seasons." Image: Luisa Brimble

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