

Sanctuary

MODERN GREEN HOMES

ISSUE
62

SUSTAINABLE HOUSE
DAY SPECIAL

KEEN ON GREEN

Australia's loveliest
eco homes on show



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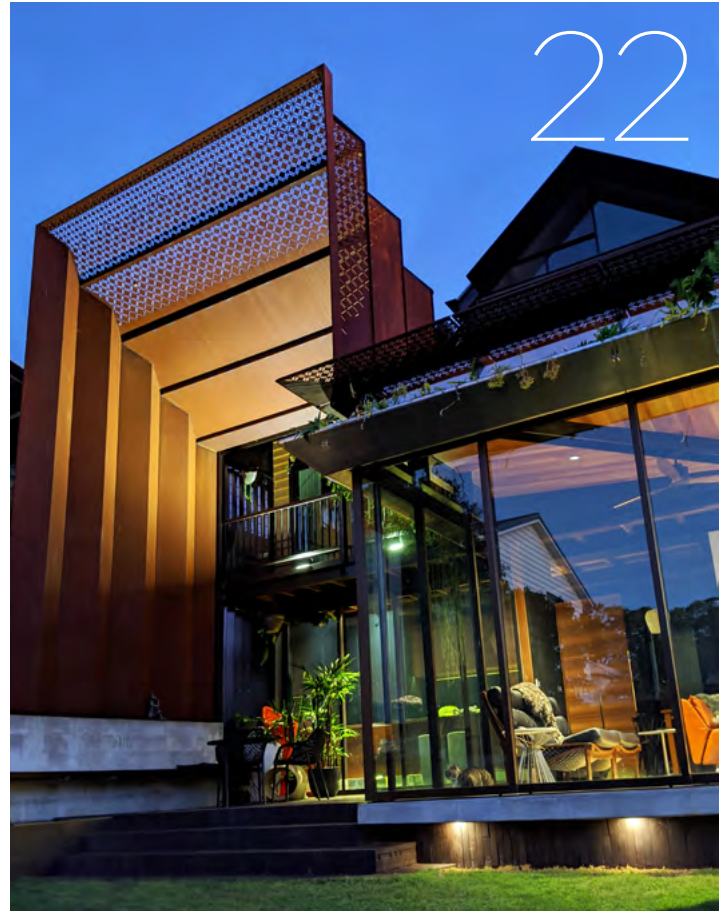
PLUS

Tackling termites
New 7-Star building standard explained
Wild gardening in the suburbs

WIN

A Benzina Zero City electric
scooter valued at \$5,500!

Offer open to Australian residents. Details page 75



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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



A corker for your floor

With its insulative and acoustic benefits, cork is great for flooring. The material is also sustainable and renewable, harvested from the cork oak without damaging the tree. Ready Cork tiles from Premium Floors are made and secured without glues, with the natural resins within the cork used to bind the material and a joining system used to lay the tiles. They are coated with a durable UV-cured acrylic lacquer that is VOC-free. Intriguingly, cork flooring has anti-static properties that make it somewhat dust-repellent: great for people with allergies. There are six colours to choose from in the Ready Cork range. Contact Premium Floors for pricing.

www.premiumfloors.com.au

Super low VOC ply

There is a lot to love about plywood, but not all plys are equal; choose one that uses ethically produced timber and benign glues. Ecoply is made from FSC-certified plantation radiata pine and low-formaldehyde glue rated to Super E0 standard, the lowest VOC rating attainable. It comes in a range of products including Plygroove, suited to wall and ceiling linings, and Plyfloor, which is available in different thicknesses and assembled using a tongue-and-groove join. Pricing depends on product, but as an example, a 2,400mm x 1,200mm sheet of 15mm Plyfloor is around \$95.

www.chhply.com.au



SIPs for both walls and roof

As regular readers will know, structural insulated panels (SIPs) offer a quick way to build a thermally efficient, well-sealed home. One option is the InsulLiving SIPs range by Bondor, which includes InsulWall for walls and the SolarSpan roofing system. Both panel types feature a lightweight insulated core and incorporate service ducts for cabling, saving installation time. The two panel types easily connect and when used together form a fully insulated structural shell. The insulative R-value of the system depends on the thickness of the SIPs, with up to R5 possible, contributing to high NatHERS ratings up to 9.5 Stars. The panels can be used in some bushfire-prone areas up to BAL-40. Contact the Bondor InsulLiving team for a quote.

www.insulliving.com.au/contact-us

REVIEWS

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

BOOKS



Building for change: The architecture of creative reuse

Ruth Lang

Gestalten, 2022

\$110

This large volume, rich in superb photography, provides an in-depth look at the principles of reuse and repurposing of architecture. The book is a timely addition to the conversation on sustainable building practices as the world faces the perils of climate change, an ever-increasing global population, and dwindling resources. It serves as a guide for architects, developers, and other industry professionals on the key strategies for reusing buildings, while remaining accessible to anyone that is interested in how architecture may lessen its environmental impact.

The author argues that the building industry is currently set up in such a way that the construction and turnover of new buildings is seen to be easier and more profitable than retrofitting existing buildings, while ignoring the potential for reduced operational expenditure in the longer term. She also promotes the idea of reuse as a form of social and environmental care that presents creative opportunities that extend far beyond perfunctory repair.

The book is divided into six core themes: addressing barriers to reuse, challenging industry practices to offer new opportunities, adapting to changes in usage at both the urban and individual building levels, finding alternative ways to employ materials, reusing entire sites, and designing nimble structures that can be easily disassembled and adapted. Each theme is supported by a range of case studies with a wide geographic reach. A stand-out for me is the Kamiko Zero Waste Centre in Japan, which embraces reuse in both its design and functional program. After the decommissioning of the municipality's waste incinerator, the old facility was converted into a recycling centre constructed from reclaimed and repurposed materials from the area, incorporating a shop selling reclaimed items, a community hall, laundry and hotel. The centre also serves an educational purpose, generating a shift in the public mindset regarding waste.

Overall, this book is a thought-provoking and inspiring guide to the architecture of creative reuse and how it can help us build a better future.

Review by Fiona Gray



Sustainable travel: The essential guide to positive-impact adventures

Holly Tuppen

White Lion Publishing,
2021

\$30

It's an uncomfortable truth that while leisure travel – especially air travel – is a carbon-intensive activity that we should probably avoid where possible, the world is a beautiful, fascinating place and exploring it can be a joy. With Covid lockdowns a thing of the past (we fervently hope) and the opportunity to travel opening up again, it's timely to think carefully about how we can make our travel as sustainable as possible. In this very readable book, sustainability expert Holly Tuppen digs into what it means to be a conscientious traveller, and gives advice on how we can explore the world and enjoy nature-based experiences while making lower-carbon choices.

The book begins by posing the question 'can we travel better?', and goes on to discuss the impact of travel and ways to reduce your carbon footprint. There is a comprehensive section on planning a trip, including tips on where and when to go, how to get there, where to stay and even what to pack, all with an eye to minimising your trip's cost to the planet.

Perhaps the most inspiring chapter is the one on regenerative travel, which explores ways to ensure your travel has a positive impact by bolstering communities, safeguarding culture and helping protect nature, for example. And to kick-start your itinerary, the final part of the book is a 'taster' directory of standout accommodation, experiences and ways to get around in your chosen area of the world. Holly is a proponent of slow travel by trains, buses, ferries, walking or cycling – the magic of travel is certainly not lost by skipping that extra flight – and gently reminds readers to opt for immersion and impact over Instagrammable attractions. This book is a great start for adventurers looking to make a positive change.

Review by Marla Sommer and Anna Cumming

Sustainable House Day





Sustainable House Day is an event by Renew that provides the opportunity to explore some of Australia's most unique and inspiring homes, and learn from the people who designed them, built them, and live in them.

This time around, we're doing Sustainable House Day a bit differently, with an expanded events program that will reach more people on a wider range of topics. The big day will take place on March 19th 2023, when you can explore over 100 online tours of Australia's most sustainable homes, attend in-person events around the country, or dive into a day of free online events. And it doesn't stop there: in the month after Sustainable House Day we're hosting a series of ticketed extension sessions featuring the country's best sustainable architects, builders, designers, and experts.



Shadows and light

LOCATION Spring Hill, QLD • WORDS Emma Scragg • PHOTOGRAPHY Christopher Frederick Jones



At a glance

- 130-year-old home retained and restored
- Clever design preserves nearly half the 202m² block as garden
- Designed for optimum natural ventilation: no air conditioning required
- Robust material palette of steel, brass, concrete and reclaimed timber

A Brisbane architect brings all his creativity to bear on the salvage and reimagining of a humble workers cottage into his own airy green oasis.

Tightly packed Queenslanders march up and down the slopes of Spring Hill in inner Brisbane. One of these is Green House, the home of Brian Steendyk of Steendijk Architects, with an oasis behind its gilded facade. It's the third in a cluster of renovations by his practice; the reworking of each house is a unique response to local character, climate and the tight 200-square-metre blocks, but they share a common palette of folded and perforated Corten steel, timber battens, Brisbane tuff stonework, brick paving and connection to landscape.

Green House has packed in a narrow wedge of lush subtropical planting at the front to soften the facade, buffer afternoon summer sun and give back to the community. In addition to landscaping, steel and hardwood screening, eave planters and solid louvres adjust privacy, breezes and sun.

Despite the house's dense urban

setting, a sense of spaciousness has been created through careful planning (which retained 40 per cent of the small site as garden), generous ceiling heights and strong visual connection to the garden. Views have been thoughtfully framed and screened and the line between outdoor and indoor is blurred. "The backyard is a sanctuary. It's about having a place to retreat and having a sense of repose to regroup before going out into the world. It's a lovely space, especially in the afternoon – it's beautifully cool," says Brian.

The new ground floor entry opens full width with a pivot door of steel and amber glass. Around the corner, the kitchen of grey ironbark and brass is as robust as it is elegant, and its compact footprint is expanded by reflections to the garden off its polished black aluminium side wall and mirror splashback. The lounge is an open, green-fringed garden room and shares a ceiling of exposed grey ironbark framing and flooring with the kitchen, made possible by concentrating ducting and wiring for services over the entry.

Upstairs was "butchered" in the past, says Brian. He peeled back the introduced linings and removed the spiral staircase



↑
While the building now has a solidity to it with all the concrete and steel, “there are lots of delicate things happening”, says architect Brian Steendyk of his renovated workers cottage. The soaring Corten steel awning is folded for stiffness, its edges perforated to create negative pressure in wind and to throw intricate shadows.

Beach beauty

LOCATION Goolwa Beach, SA • WORDS Rachael Bernstone • PHOTOGRAPHY Peter Hoare



At a glance

- Modest-sized 7.1-Star home designed to sit lightly on its sandy site
- Owner-built for just \$260,000, using plenty of recycled materials
- Solar PV and battery storage

A new home on the sand dunes at Goolwa Beach proves that good things can come in small packages.

Building designer Rogier and his partner Carmen migrated to Adelaide from the Netherlands in 2006 when their children were aged 3, 7 and 13. Now that Maxime, Lars and Karlijn are adults and have moved out and established their own lives, Rogier designed and built this beach house in the dunes at Goolwa Beach south of Adelaide to bring the family together – with a plan for the couple to move there permanently in the future.

Rogier built the house with his son Lars; they both took a year away from work and study respectively, living on site in a shed they had constructed for the purpose.

This new house embodies Rogier's design and life philosophy: that it's possible to live well in a modest space, with passive solar orientation, large windows, tall ceilings and connections to a generous garden to elevate the experience.

"I set out to build the house to a budget of \$260,000 – which was possible

because I put so much time and labour into it; if we'd used a builder it would have cost considerably more," Rogier says. "It also helped that the house is only 150 square metres. Most clients who request a home design want at least 200 square metres, but if you plan well, you don't need that much space.

"Also, most blocks of land nowadays are pretty small, so if you place a large house on the site, and then add a garage, driveway and so on, you end up with a veggie patch sized garden."

One of the first comments their visitors make is about the garden, which integrates with the L-shaped house. "The home is very connected to the gardens and the neighbouring nature reserve, which creates a sense of wellbeing," Rogier says. "We have many birds, including black cockatoos, and lizards around the house."

→

The house is split-level to accommodate the contours of the sandy site. High-level operable windows admit light and catch the sea breeze.



Sparkling joy

LOCATION Ascot Vale, VIC • WORDS Jacinta Cleary • PHOTOGRAPHY Marnie Hawson



At a glance

- Period home upgraded and gas supply removed
- Uninspired 1990s extension transformed for light and park views
- Energy rating raised from 2.2 to 5.8 Stars

Clever spatial planning, high levels of insulation and a switch to all-electric make this stately Melbourne period home more liveable and efficient.

Over the back fence from Sherrin and George's inner suburban Melbourne home sits a quiet park with a gentle slope down to the train station. However, the 1990s extension by previous owners had the couple and their two children disconnected from the park, the backyard, and the benefits of the northern sun such as natural heating in winter. "The layout was all wrong, with the bathroom and laundry enclosing the back of the home. It was dark and depressing, with no light," says Sherrin.

A northern outlook wasn't the only thing on their minds when planning the renovation of the period home. They wanted to lift its energy efficiency from a lowly 2.2 Stars and switch to all-electric appliances, while keeping the hydronic heating, minus the gas. The shift to electric appliances was "bleedingly obvious", says Sherrin, not only because she is aware of the efficiency of all-electric

systems as a renewable energy engineer, but also through the couple's experience of heating a poorly insulated house with gas. "The house had only R1.5 insulation in the ceiling and in winter the gas heating was on all the time – it was expensive," says George.

Building designer Logan Shield from Geometrica and interior and retrofit expert Megan Norgate from Brave New Eco collaborated on the renovation. "I focused on the shell and Megan the interior, but our philosophies worked together," says Logan. "We could have done a substantial extension, but instead decided to stay small and be a bit smart with how we laid the house out – the better environmental choice." The footprint of the updated home pushes just two metres beyond where the closed-in laundry and bathroom used to sit – now replaced with a sunlit living area – and the existing spaces were reconfigured.

→

George and Sherrin's renovation and small extension prioritised better energy efficiency and improved connection to the backyard.

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“We furnished the house with furniture made from sustainable materials and custom made by local manufacturers. The only thing not local is the Fair Trade rug,” says Megan.

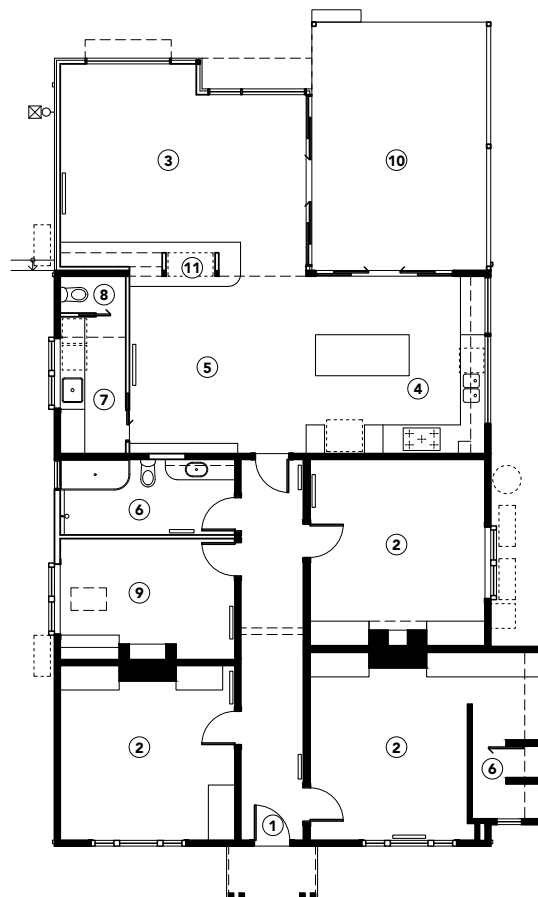


The double-glazed north-facing windows and doors in the kitchen and living areas are protected from the summer sun by wide eaves, and in one case a deep shroud. The window frames are a feature, with powder-coated aluminium outside for greater durability and FSC-certified hardwood inside. Logan explains that the adjustable louvre roof on the updated pergola off the kitchen gives more flexibility to shade the windows over the shoulder months. “The deck is like a cool microclimate when the misting fan is on and the louvres are closed,” says Sherrin.

The recently installed solar PV system is the final piece in the electrification of the home, sized to be able to run most appliances year-round, even during winter cold snaps. Converting the gas hydronic heating to electric was not straightforward: there was a limited range of electric heat pump boilers available, and the existing radiator panels had to be replaced due to the lower running temperature, but Sherrin and George are happy with the result. A three-phase electricity supply was installed during the upgrade, with plans for an electric car down the track that will also act as a home battery via bi-directional charging.

Megan gives credit to the couple's persistence in getting better design and energy efficiency outcomes. “It's really nice when the client doesn't run out of steam, and Sherrin and George's commitment has meant it is a well-resolved and comfortable home,” she says.

FLOOR PLAN



LEGEND

- ① Entry
- ② Bedroom
- ③ Living
- ④ Kitchen
- ⑤ Dining
- ⑥ Bathroom
- ⑦ Laundry
- ⑧ Toilet
- ⑨ Study
- ⑩ Verandah with louvre roof
- ⑪ Ethanol fire

SEEING 7 STARS:

New home energy efficiency standards explained

WORDS Sarah Fiess



↑

Many people are already enjoying the benefits of energy-efficient homes, such as Joan and Ken, whose 7.2-Star home designed by Atlas Architects featured in *Sanctuary 60*. Updates to the National Construction Code will ensure all new homes are 7 Stars or above. Image: Tess Kelly

The next iteration of Australia's National Construction Code (NCC) will bring with it a change to the minimum energy rating of new homes from 6 to 7 Stars – plus other important efficiency measures. This is great news, as the improved standards will ensure that the homes built today will be more comfortable to live in and cost less to run now and into the future.

In Australia, our homes are responsible for 7.9 per cent of all energy use, 29 per cent of all electricity use and 11 per cent of all greenhouse gas emissions. Making them more energy efficient can cut household energy bills and emissions, as well as provide better protection from extreme climate events like heatwaves. Homes are long-lived assets, and retrofitting later to improve efficiency is much more difficult and costly than getting it right from the outset. That's why improving the performance of new homes is vital to ensure our homes can provide comfortable, affordable and climate-resilient shelter into the future.

ASK THE EXPERTS: Living in a Passive House

WORDS Talina Edwards



↑

Chris and his family built a Passive House in suburban Sydney designed by Envirotecture; he says that he appreciates knowing that his wife and young children have a safe, healthy and comfortable home to live in. Image: Jonathan Cohen Photography

Passive Houses tick a lot of boxes, but what are they actually like to live in? The team at the Australian Passivhaus Association surveyed Passive House residents for some answers.

Originating as Passivhaus in Germany, the Passive House building standard is gaining huge momentum in Australia – for good reasons! Over the last few years in particular, lockdowns and increased working from home arising from the Covid pandemic have shone a spotlight on poor comfort in many homes, in addition to inadequate ventilation strategies in most buildings that can have negative impacts on our health.

DESIGN WORKSHOP:

Learning on the job

Want us to Design Workshop your house?

To apply, email sanctuary@renew.org.au with your plans and a brief outline of your project.



Builder Jared Brodrick is keen to use his latest project, the renovation and extension of a heritage home on a narrow site, to test what he's been learning about high performance homes and passive solar design. On hand to help is Claire McCaughan of Custom Mad, specialists in sustainable upgrades to Victorian terraces.

PROJECT TYPE

Heritage renovation and extension

LOCATION

Orange, NSW (Wiradjuri Country)

EXISTING HOUSE SIZE

109m²

PROPOSED HOUSE SIZE

222m²

LAND SIZE

607m²

BUDGET

\$150,000-\$250,000

THE BRIEF

- Renovate and extend heritage house into a high-performing home
- Maximise northern sun on a very narrow block with north to the side
- Minimise waste, reusing and recycling as much material as possible

Jared has a busy life in the central New South Wales town of Orange, where he lives with his wife Hannah and four kids and runs a building company. Recently, he bought a heritage cottage in a great location close to the town centre, initially intending to “fix it up and flip it”, but having (as he describes it) “fallen down the rabbit hole” of high performance, sustainable homes, he’s now eager to put into practice what he’s been learning. “Although I have been in the industry for over 12 years, I am very new to sustainable systems and the benefits they can have, and have found a new passion for it all. So I am currently learning as much as I can and implementing new systems into my business, starting with minimising building waste.”

This project will provide a challenge. “I really like the original heritage house; it has great bones and a lot of character for a small home,” Jared says. “But the narrow block, shared driveway and the industrial buildings to the rear aren’t so great. Also, the house is built so close to the boundary that there’s going to be a fence right in front of any north-facing windows.”

He is aiming to retain and upgrade the original part of the house and add a sympathetic modern extension, downsizing from four to three bedrooms but adding a bathroom and taking full advantage of the northern sun. “I want to make it all-electric and high performance, as well as focusing on minimising waste, reusing and recycling as much of the material from the demolition as possible,” he says.

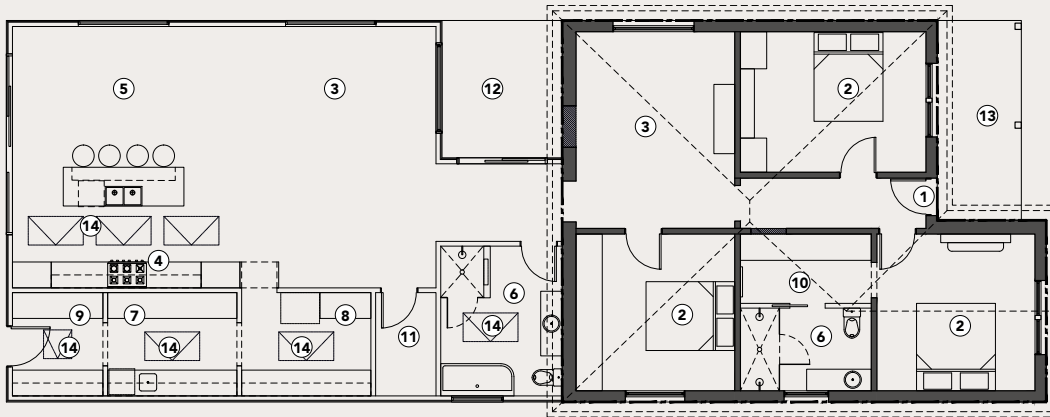
Working with a local draftsman, Jared has developed a plan that adds a spacious north-facing living, dining and kitchen in place of the existing low-quality lean-tos; a services area consisting of a bathroom, laundry, pantry and mudroom is placed along the southern side. He’s planning to turn one of the current bedrooms into an ensuite and walk-in robe, but otherwise leave the floorplan of the original house unchanged. He’d love some advice on how to make the existing part of the house perform better, as well as how best to make the most of the northern sun on the narrow block.



LEGEND

- ① Entry
- ② Bedroom
- ③ Living
- ④ Kitchen
- ⑤ Dining
- ⑥ Bathroom
- ⑦ Laundry
- ⑧ Pantry
- ⑨ Mudroom
- ⑩ Walk-in robe
- ⑪ Store
- ⑫ Courtyard
- ⑬ Porch
- ⑭ Skylight

JARED'S PROPOSED FLOOR PLAN



↑

The double-brick house is built right up to the northern boundary and is constrained by a shared driveway to the south. Jared loves its character and plans to restore the original section and add a sympathetic modern extension to the rear.

CLAIRE'S RESPONSE

Jared's house has some beautiful heritage features, but is in need of a facelift to suit contemporary living for the young family he is envisaging as the future residents. We love that the first consideration that Jared has is to match sustainable systems to suit the heritage features of the home. This is where we like to start from as well. Our design studio's main work is upgrading the Victorian terraces in Sydney, so we have lots of experience revealing the heritage character while designing with sustainable techniques.

We like to start this process off by looking at the house as a kit of parts: how can we work with the space to reduce waste and reuse as much of the existing house as possible? How can we make the home as energy efficient as possible with what we have? Then we ask how can we work for a home to help it store water, grow food and reduce energy? These techniques of working with and for our spaces help us to design environmentally sustainable homes.



OUTDOORS

Wild gardening

A natural, low-effort approach to
producing food at home

WORDS & PHOTOGRAPHY Leila Alexandra

Leila Alexandra is a lifelong gardener who has transformed the backyard of her Melbourne rental property into a verdant and productive green wilderness - all with minimal weeding and digging. She shares her philosophy.

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valued at \$5,500



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