

MODERN GREEN HOMES Sanctuary

INSIDE ISSUE 25 115+ green products & design tips; Building in bushfire zones; Urban beekeeping; Design Workshop: free advice on your home plans; Material inspiration for homes that reuse

EARTHY TEXTURES

A hemp & rammed earth home

Resilient design
Small & tiny homes
Material inspiration

ISSUE 25 • SUMMER 2013/14
AUD\$11.95 • NZ\$10.95
SANCTUARYMAGAZINE.ORG.AU

ISSN 1833-1416



9 771833 141000

WIN

A solar power system from Tindo Solar

*Offer open to Australian residents only

MODERN GREEN HOMES Sanctuary

Contents

—Issue 25



HOUSE PROFILES

14

Cottage character

A north-facing extension to an Adelaide cottage provides flexible and energy efficient family living spaces without compromising the character of the original home.

23

Earthy modern living

A Melbourne hempcrete and rammed earth home takes bold steps in environmentally sustainable family living.

31

Creative economy

Extensions to this Queensland home create a family hub that hasn't sacrificed on style or spatial quality, is durable and easy to maintain.

50

Bush bound

Salvaged and recycled timbers are front and centre in this renovated northern beaches Sydney home.

66

Rural studio

An artist's workspace is designed for the graceful fields of Norfolk, England.



14

59



FOCUS

38

Resilient design

While households have rallied to reduce their carbon footprint, how can we make our homes resilient to the effects of climate change?

59

Small spaces, tiny homes

Opting to live in smaller living spaces can save resources and money and with clever design small spaces can be extraordinarily liveable.

Contents

—Issue 25



DESIGN WORKSHOP

44

Eco retreat meets design reality

Rob Norman from design firm Symbiosphere unpacks the design challenges faced by a couple planning to build an eco retreat in Queensland's Gold Coast hinterland. In the process, he crafts a design for their proposed treehouse cabins.

91



OUTDOORS

73

Outward reflections

A liquidambar tree to the east, a tulip tree to the west and a grapevine to the north; sustainable architect and landscape designer set out to weave the outdoors into this home's design from the word go.

77

Urban buzz

Beth Askham finds out why urban spaces are great places to be busy keeping bees.



PRODUCT IN PROFILE

91

Hemp

Building with hemp



DESIGN MATTERS

80

Building in bushfire zones

For those building (or considering building) in a bushfire-prone area, managing environmental and regulatory issues can be a challenge. Here, sustainable design experts from around Australia provide some advice on the issues homeowners need to keep in mind.

85

Universal design – assisting accessibility

Good universal design for anyone with a mobility issue is invisible, writes Mary Ann Jackson. And the net of people it can help is much broader than the able/disabled distinction initially suggests.

REGULARS

10

Reviews

12

In the post

48

ATA update

57

Subscribe

88

Products

92

Marketplace

96

Ask our experts



73



WIN

A Tindo Solar System

Subscribe or re-subscribe to *Sanctuary* magazine

by 2 May 2014 and you could win a grid-interactive, fully expandable, 1.5kW AC (micro inverter) solar system from Tindo Solar worth \$4690.

tindosolar®

Tindo Solar is Australia's only solar panel manufacturer and operates a 60MW capacity production line in Adelaide, SA. Tindo is the fusion of world-class manufacturing with Australian innovation, creating the next generation of PV solar panels manufactured, sold, and installed direct to the Australian public and proud to be 100% Australian made.

Letter from the editor

—Issue 25



To wrap up 2013, we're toasting community, resilience and creativity. They are an eclectic mix, but as architect Paul Downton says, community is vital because we can't do anything without other people. And where would we be without the creativity of homeowners and designers? Or without the amazing places we create when we work in tandem with other people and the environment?

In this edition we've brought together a mix of sustainable homes that have emerged from creative partnerships. In Queensland, a pair of architects let the materials they've salvaged and Brisbane's climate shape their kitchen and studio extensions (p30). In Melbourne, a family take bold steps to enjoy the earthy textures and insulating properties of hemp and rammed earth (p23). Meanwhile architects, builders, homeowners and a landscape designer work together to extend an Adelaide cottage (p14) and in Sydney recycled timber is prominent in a renovation that's careful not to disturb the surrounding bush (p50).

This edition also looks at the important role design plays in making our homes and communities more resilient and robust in the face a changing climate. Jacinta Cleary talks to experts about how we can (and why we should) make our homes more resilient (p38). Leading sustainable designers, architects and bushfire consultants discuss building homes in bushfire-prone areas (p80) and Mary Ann Jackson provides an overview of universal design (p85).

On a lighter note, Beth Askham delves into small-space living (p58) and urban beekeeping (p76). She also visits a Melbourne home to see how its designers weaved the outdoors inside from the word go (p72).

This year has been another inspiring and busy one for the *Sanctuary* team. We're always delighted to discover the fresh and creative ways homeowners and experts are approaching design for more sustainable living. We've also made some changes to *Sanctuary*. We've launched our new website and Sustainable Design Directory and made the print magazine a little more compact, a move we hope saves many trees. Keep in touch with our news and share your stories and feedback through the *Sanctuary* website, our enewsletter, Facebook and Twitter.

We hope you enjoy this issue and have safe and happy holidays full of inspiration, great food and good times.

Sarah and the Sanctuary team.

sanctuary@ata.org.au
sanctuarymagazine.org.au



Sanctuary is published by the Alternative Technology Association (ATA), a not-for-profit environmental organisation promoting renewable energy, sustainable building and water conservation since 1980. ATA's advisory service, advocacy and research and publications aid 5500 members Australia-wide.

www.ata.org.au

www.sanctuarymagazine.org.au

PUBLISHER

Alternative Technology Association
ABN 57 533 056 318

EDITOR

Sarah Robertson

EDITORIAL ASSISTANT

Beth Askham

SUB EDITORS

Sasha Shtargot, Lance Turner

CONTRIBUTORS

James Angliss, Dick Clarke, Jacinta Cleary,
Anna Cumming, Rob Norman, Mary Ann
Jackson, Emma Scragg, Fiona Whitelaw,
Melissa Wittig

PHOTOGRAPHY

Emma Cross, Simon Devitt, Jamie Gill,
Charles Hosea, Hayley Islip, Thomas Kayser,
Katherine Lu, Trevor Mein, Emma Scragg,
Rhiannon Slatter, Claire Takacs

COVER IMAGE

Rhiannon Slatter – 'Earthy modern living', p23

DESIGN

Calan Stanley

ADVERTISING ENQUIRIES

Katy Daily
Ph: (03) 9631 5412
adverts@ata.org.au

DISTRIBUTION

Gordon & Gotch

PRINTING

ATA

Not-for-profit organisation promoting
renewable energy, water conservation and
sustainable building since 1980.

Level 1, 39 Little Collins St

Melbourne VIC 3000

Ph: (03) 9639 1500

sanctuary@ata.org.au

www.sanctuarymagazine.org.au

www.ata.org.au

ISSN 1833-1416

\$11.95 (Aus) \$10.95 (NZ) Recommended Retail Price

Copyright © Alternative Technology Association,
November 2013.

JOIN THE ATA TODAY



The Alternative Technology Association has been Australia's leading authority on practical sustainability for over 30 years. Join 5500 members Australia-wide who are taking practical environmental action in their own homes.

Benefits of membership

- Access free advice from ATA's experienced environmental product and design advisors
- Receive discounts from the ATA Webshop on a range of environmental products
- Join forums and exchange information with other members
- Support the ATA's local and international projects



Neil – Ivanhoe, VIC

ATA 2-star membership

- Four issues each of *Sanctuary* and *ReNew* magazines to your door
 - Free pdfs of all back issues of *Sanctuary* and *ReNew*
 - Access to the ATA's advisory services, member discounts & more
- 2-star membership supports the ATA's activities. \$100 per year for individuals.



Dianne – Red Hill, QLD

ATA 1-star membership

- Four issues of *Sanctuary* magazine to your door
 - Free pdfs of all back issues of *Sanctuary*
 - Access to the ATA's advisory services, member discounts & more
- 1-star membership supports the ATA's activities. \$75 per year for individuals.

JOIN TODAY! Call us on (03) 9639 1500
or sign up online at www.ata.org.au

PUBLISHER OF SANCTUARY
AND RENEW MAGAZINES



MODERN GREEN HOMES
Sanctuary

All rights are reserved. No part of this magazine may be reproduced without the written permission of the publisher. The publishers of Sanctuary take great care in selecting and verifying all material that appears in the magazine, but do not necessarily share the opinions expressed in articles, nor do they accept responsibility for the accuracy of statements made by contributors and advertisers. All designs and plans in this publication are copyright and are the property of the architects and designers concerned.

Reviews

—Books, apps, websites and other interesting stuff

BOOKS

If you have recommendations for books, smart phone apps, blogs, websites or anything else you think would be of interest we'd love to hear from you. Email us at sanctuary@ata.org.au



THE GREENEST HOME: SUPERINSULATED AND PASSIVE HOUSE DESIGN

Julie Torres Moskovitz
Princeton Architectural Press, 2013
\$70.00

From the designer and architect of New York's first certified passive house comes a stunning book detailing 18 recent super-insulated and passive homes from across North America, Europe and Japan. Each home features floor plans, energy performance data, cross-section detail drawings, beautiful photographs and discussion about the project's inception and the hurdles encountered along the way.



SUSTAINABILITY, ENERGY AND ARCHITECTURE: CASE STUDIES IN REALISING GREEN BUILDINGS

Ali Sayigh
Elsevier, 2013
\$97.00

In this comprehensive technical volume, renowned experts from around the world offer insights into energy-efficient buildings. They give their advice on pivotal issues associated with green building design, while case studies demonstrate how sustainable architecture can be achieved in varied climates and economies.

APPS



HEALTHY HOME

\$1.99; iPhone, iPad, iPod

Using a quiz-based format, the Healthy Home app aims to reduce pollutants in your home by guiding you through both the positive and negative aspects of your home. It includes helpful tips, solutions, information and challenges. Users can add notes, take photos and save their favourite tips.



LIVABLE HOUSING

Free; Android, iPhone, iPad and iPod touch

This app from Livable Housing Australia helps you design and construct a home that is more livable, at all stages of life. Design features included are inexpensive and help to make homes safe, comfortable and easily accessible to everyone.

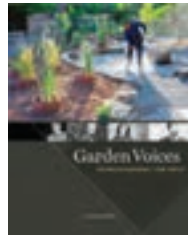
? DID YOU KNOW?



CHANGING GEARS: A PEDAL-POWERED DETOUR FROM THE RAT RACE

Greg Foyster
Affirm Press, 2013
\$24.95

Battling with his workplace’s consume-or-die ethos and his own growing environmental ideals, Greg Foyster (with partner Sophie Chishkovsky) decides to abandon all and cycle up the east coast of Australia. Throughout the journey Greg shares insights from some of the most forward-thinking environmentalists he meets on the way, including those who are passionate about shifting down a few gears.



GARDEN VOICES: AUSTRALIAN DESIGNERS – THEIR STORIES

Anne Latreille
Blooming Books, 2013
\$59.95

This book takes a look at leading and notable Australian gardeners and their responses to the Australian landscape. Personal stories and histories of each gardener are shared alongside details of their gardens. Written by a journalist, this book is both an interesting read and a good reference on Australian gardening.



Passive cooling is appropriate for all Australian climates.

Maximising the flow of cooling breezes through a home is an essential component of passive design.

Landscape and building form can be designed to deflect and control the flow of breezes or block unwanted sun.

At least one bedroom should be accessible to family members who may experience physical limitations.

Up to 40 per cent of waste generated by Australians is building waste.

Sources: *Your Home Technical Manual*. Image Emma Cross, from ‘Outward Reflections’, p75.

WEBSITES



RETRASH
www.retrash.com

Retrash showcases artists who use ‘waste’ in their work. Featuring products and artworks, the website aims to inspire people to purchase original works and in the process reduce the amount of waste going to landfill.



C3
www.climatechest.org.au/host/ata

The Community Climate Chest or ‘C3’ gives households and businesses access to cheap, tax-deductible GreenPower and carbon offsets online, while directing a share of the proceeds to local environmental groups, such as the Alternative Technology Association (ATA).



In the post

Write to us! We welcome letters on any subject, whether it be something you have read in *Sanctuary*, an experience you've had as part of the green design or build process, or a great idea you would like to share.

Please limit letters to 200 words. We can't guarantee we will publish all letters received and letters published may be edited for appropriateness, clarity and length. Email letters to sanctuary@ata.org.au with your name and the state you live in.

BUILDING BACK GREEN FROM THE CHRISTCHURCH EARTHQUAKES

I've just signed up for a *Sanctuary* subscription from New Zealand. I've also back ordered a number of magazines. These will be added to the collection that you sent me previously following the Christchurch earthquakes. The rebuild has not really started yet as more buildings are still being demolished. However, we are starting at the planning stage of a number of projects and want to encourage building green. Thank you for producing a wonderful magazine – it provides plenty of inspiration. – *Anne*

Thanks for your letter, Anne. It's great to hear you're rebuilding 'green' and we wish you all the best for the project. Let us know if you have any questions along the way. – *Sarah*.

From our iPad mini prize winner

I would personally like to thank the ATA *Sanctuary* team for renewing my subscription. By so doing I was very lucky and fortunate to win the mini iPad competition. I think *Sanctuary* magazine is the best sustainable magazine being produced and I look forward to receiving my copy. Great articles, well informed and up-to-date. Thanks – *Rob*

HAPPY SHOWERS

I love your magazine, although it's mostly food for fantasy and wishful thinking – and the occasional minor purchase. – *Brigid*

POSITIVE REINFORCEMENT

Frankly, I can't live without the positive reinforcement I get from reading *ReNew* and now, once again, *Sanctuary*. My involvement in an ecovillage co-op will enable me and the rest of its members to start using some of the ideas and products therein. – *Gregory*

From our online friends

www.facebook.com/SanctuaryMagazine

www.sanctuarymagazine.org.au

Our online followers and readers have enjoyed the beautiful Campbell's Creek house by Lifehouse Design and the earth-covered home in Warburton we featured in *Sanctuary 24*.

Meanwhile, our feature on 10 Star homes has caused some discussion. Jonathon says all new homes and offices should be 8 to 10 Stars. Livos Australia comment that a healthy home is also important, while John of sustainable design firm Sunergy Design says that if a home is built for its local climate 10 Stars isn't always necessary. See his letter right.

ARE 10 STAR HOMES ALWAYS NECESSARY?

Having a 10 Star house is great ... if you live somewhere that can use a 10 Star house.

In lots of locations, like the Mid North Coast of New South Wales, a 10 Star house would be like buying a Ferrari to drive to the shops – nice but not justified.

The best example of places where 'performance' is almost irrelevant is the Sunshine Coast around Noosa. There are many homes there that need no heating and cooling and are almost tent-like because it is never that hot there and it never gets cold.

I'm all for energy efficiency, and I'm into site specific design, but a big part of site specific design is recognising that you only need as much performance as your site's actual local climate can use.

Articles about efficiency, building performance or specific homes should indicate the climatic conditions of the actual site because implying that all sites need very high performance is misleading.

– *John, Sunergy Design*

Cottage character

A north-facing extension to an Adelaide cottage provides flexible and energy efficient family living spaces without compromising the character of the original home.

WORDS Anna Cumming
PHOTOGRAPHY Jamie Gill





The long, slim extension maximises northern light to make the most of the benefits of passive solar design. Keeping the building's footprint small also maintained a generous and much-loved backyard with room to grow vegetables and space for the kids to play.



↑
A laundry and bathroom sit off the hall between the extension and the existing cottage. To the bathroom's right, stairs lead down to the basement rumpus room.



↶
“Cary’s never one to dress up natural materials,” says homeowner Luke of their architect’s approach. The concrete floor is trowel finished rather than polished. Georgy and Luke sealed it themselves. Clerestory windows aid cross ventilation and vent any excess hot air. Door and window frames are finished with a natural oil.

The study nook, right next to the kitchen, is deliberately public so homeowners Georgy and Luke can keep an eye on their kids at the computer.



↷
Eaves and a pergola provide appropriate shade to the north-facing windows year-round.

“In the beginning, I didn’t understand that I wouldn’t need to turn on the fire every day in winter. Now I live here, I get it. The kids have had that ‘ahah’ moment, too, and they’re not even ten years old.”

Homeowner Georgy

THE STORY OF LUKE AND GEORGY’S

sustainable extension in inner-eastern Adelaide started back in 1996, when Luke picked up a copy of *Sanctuary’s* sister magazine *ReNew* at the airport as he headed off to study abroad. “He arrived in Canada a convert to passive solar design,” laughs Georgy. Years later, they were ready to buy and Luke’s requirements for their new block were clear. “It had to be within 15 minutes’ walk of the Norwood football stadium, and have a rear northern aspect,” his partner explains.

They settled on a tiny 1880s cottage largely in original condition, sitting at the front of a deep east–west block. “We always knew that we would be extending,” says Luke, “but it was a few years before we were ready.” At first they considered removing the dilapidated 1930s lean-to and building a new kitchen, laundry and bathroom on the back of the cottage, with a view to selling and moving to a bigger house as their two young kids grew older. Instead, they decided to build for the long term, adding to the cottage’s four small rooms with a light, airy and energy efficient extension along the southern boundary.

The extension is designed to provide practical, flexible space that will meet the

changing needs of the family over time. A ‘link’ connecting the existing house with its new addition houses a piano and a generous built-in day bed. Moving into the extension, a laundry and small shower room wrap around a private courtyard with an open-air hot water bath. Stairs lead down to a large basement, or a couple of steps take you up to the open kitchen and living area with its raked roof, floor-to-ceiling windows to the north, a concrete slab floor and a feature rammed earth insulated wall to the south. Small southern windows and northern clerestory windows provide plenty of cross ventilation.

For the architect, Cary Duffield of Troppo Architects, one of the most successful aspects of the finished extension is “the sense of the space throughout the year, particularly in winter when the thermal mass of the concrete floor and rammed earth wall soak up the sun.”

“Going underground was Cary’s idea,” says Luke. “We knew we needed more space but we could never visualise how it was going to work, as we didn’t want to lose too much garden.” The basement is lit by a row of north-facing windows that are at ground level outside. Luke and Georgy say it will probably become a teenagers’ retreat in the future.

The living space extends outside, with



a generous covered deck to the west that helps shade the house from the hot afternoon sun, and a pergola to the north that extends over a lawn. The lawn is watered with rainwater via a sub-surface irrigation system.

Amanda Balmer of WAX Designs designed a mixed native and productive garden, with just two non-native deciduous trees planted for their summer shading, says Georgy. Rainwater is used in the laundry and to flush the toilet; two of the three water tanks are tucked in behind the rammed earth wall. Cary explains that it was hard to resist building right on the southern boundary to maximise garden space to the north, but by setting the wall off the boundary “we created a space for tanks and allowed for openable highlight windows to take in the view, and [this] allowed cross ventilation inside”.

Although they had been dreaming of their build for a long time, Georgy admits that the size of the project was daunting. The catalyst for action was finding a sympathetic builder. She found Danny Pauley and Donna Bartsch of Energy Aspect Living. “[They] were really good about our tight budget and our desire to use recycled and locally sourced materials.”

“Georgy and Luke were very passionate about using the right materials,” agrees Donna, “not only to reduce their impact on the environment but to also ensure their new home was healthy for their family to live in. As a result we incorporated natural materials, including recycled timber, into the home to make features such as benchtops, doors, and the stair balustrade.”

With a limited budget, Georgy and Luke opted to invest in expert green design for their extension and leave many projects for the future. They have more fruit trees and wicking garden beds planned for the garden, and have just started on the renovation of the original cottage – work they are doing themselves. Soon it will house three small bedrooms, a new bathroom and a walk-in wardrobe.

Georgy is delighted with their passive solar home. “In the beginning, I didn’t understand that I wouldn’t need to turn on the fire every day in winter. Now I live here, I get it. The kids have had that ‘ahah’ moment, too, and they’re not even ten years old.” It’s a warm endorsement for a long-awaited new home. 📍



The rammed earth wall in the living room is set just north of the property boundary. This enabled two water tanks to fit in behind and openable windows above for cross-ventilation. “[Rammed earth is] a lovely material,” says Georgy. “It’s good acoustically, good for regulating humidity, and of course good thermal mass.”