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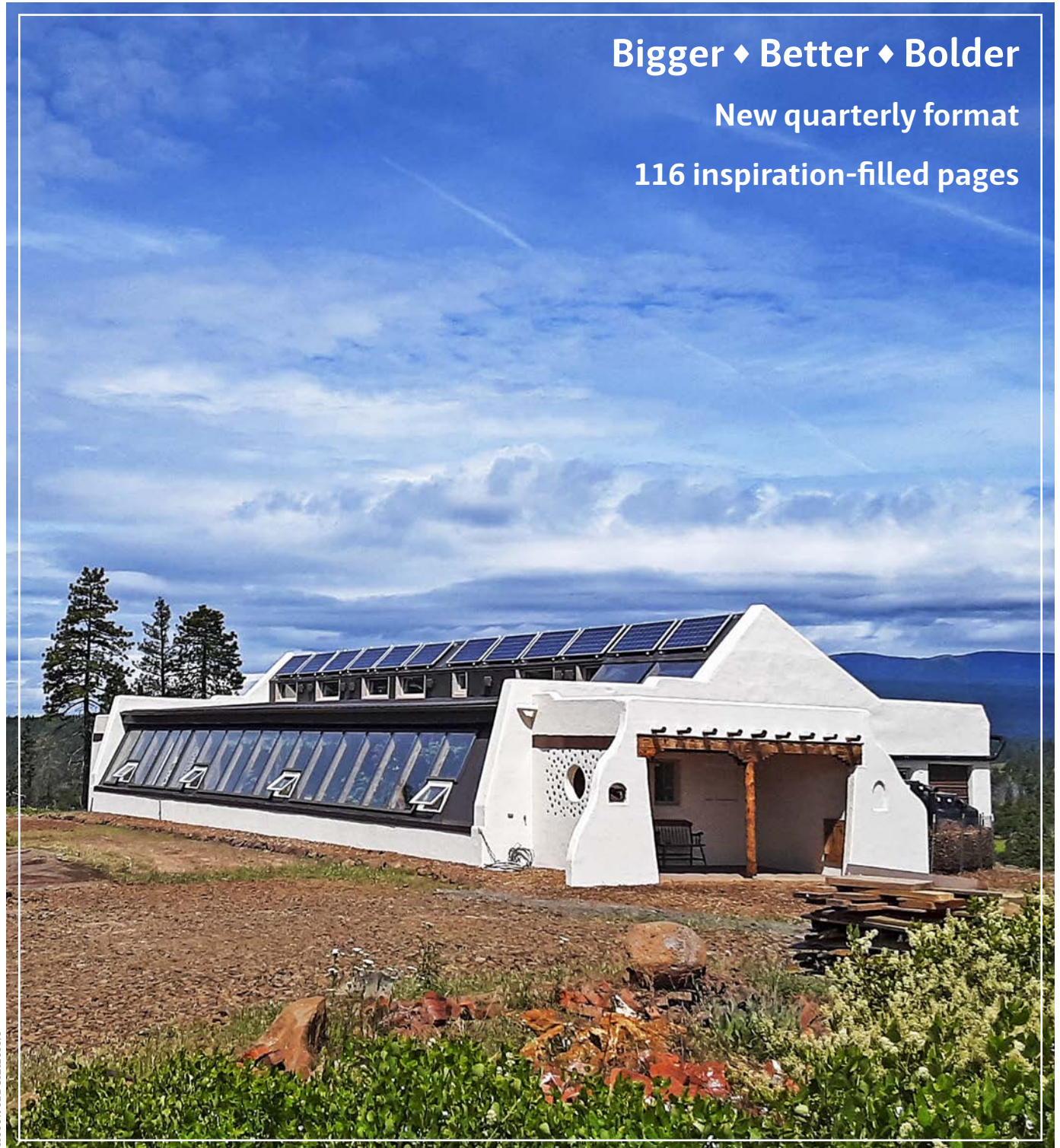


PHOTO: JOEL CHALLUPNY

EARTHSHIP ♦ FERROCEMENT ♦ URBAN INFILL ♦ GRANNY FLAT ♦ STRAW BALE



Elegant infill

Careful orientation, spaces with double functions, and plenty of storage combine to ensure this family home on a subdivided Brisbane block feels larger than it is.

BY EMMA SCRAGG
PHOTOS: JOHN BOURNE

After 12 years of living in an unrenovated 1920s Queenslander in inner Brisbane, Josepha Dietrich and Brett Beeson decided it was time to move out of their 'leaky wooden tent' and build a home which performed better in the subtropics and suited the needs of their small family of three.

Wanting to minimise mortgage stress as well as build the least house necessary, Brett designed a compact 90 square metre home in the rear half of their home's 640 square metre block. Using Brett's skills as an ESD consultant and mechanical engineer and with Josepha acting as the client, the new design is oriented to make the most of the northern aspect while retaining a decent area of green space. The smaller floor area also allowed for higher quality construction methods and finishes, a large solar array, a plethora of monitoring devices and a built-in air exchange unit within the budget.

Brett and Josepha used clever tricks to make their 'tardis-like' home feel spacious, giving rooms and elements multiple functions and providing abundant storage. 'Our study converts into a guest bedroom, our shower turns into a sunken bath, our coffee table flips up to make the lounge room an entertainment nook and our kitchen splashback is a large rectangular window that allows light into the hallway and gives a view into our son's play area,' Josepha says.

Prior to construction the biggest challenges were town planning (to subdivide the relatively small block) and bringing in services (road access, power, water and sewerage) from the rear cul-de-sac. 'The challenge with small-scale developments is the upfront costs can be pretty high,' Brett says.

The land between the two houses was originally a swamp and is prone to overland flow, so Brett ruled out a slab-on-ground. After much thermal modelling of alternatives, he settled on an elevated, well-insulated, steel-framed timber floor and timber stud walls. The roof performance was enhanced by layering thicker-than-normal plasterboard, phase change material to provide thermal mass, 150mm bulk insulation, a plywood skin to provide a safe work platform and solid support to solar panels, and a waterproof membrane, all capped with metal roofing. While the building form is modest and modern, Josepha says 'we designed our home with a nod to our old Queenslander; we used cypress horizontal weatherboards to connect with the streetscape on one half of the house and vertical tin on the other.'

Brett carried out much of the construction himself, using skilled tradespeople only when needed, so he could take time to test out more radical ideas and reduce build costs. He involved architecture students and volunteer labour through HelpX, where travellers work for half the week in exchange for

board and lodging. This enabled some detailing to be carried out which would be prohibitive if paying a full contractor wage, 'and was a bit of fun', Brett says. As the build progressed, Josepha researched the most sustainable paints, finishes and products, chose colours and upholstered Brett's built-in seating/storage in the lounge.

Timber features heavily above the steel floor frame, as Brett enjoyed working with timber and recognised its low embodied energy and ability to be reused. The floor is remilled power poles, an old Cadaghi gum felled on site became the kitchen benchtops, cypress pine framing provides natural termite resistance, and plantation plywood provided an economical and robust material for cabinetry fronts, the abundant storage and open shelving. Ply is also used for selected ceilings not only for aesthetic value but also to be easily removed for maintenance. Brett salvaged hardwood from his workplace's demolished lift shaft to clad sliding shutters for essential solid shade in summer to the east and west.

Left top: A recycled timber shutter protects the glazed entry door from hot afternoon summer sun and shade sails provide summer protection to the polycarbonate deck roof.

Left bottom: The main living space features north-facing glazing, built-in seating with storage, abundant shelving and kitchen benchtops milled from a tree felled on site.



At a glance

- Compact, carefully designed urban infill project
- Multi-function spaces and abundant storage
- Phase change material for thermal mass in a lightweight structure
- Owner-built with the help of architecture students and volunteer labour through HelpX

Above: The built-in seating and storage makes the most of the north-east corner and was a collaborative effort between Brett and Josepha. A TV cleverly flips out of the chest coffee table.

Right top: The building form is modest and modern; the horizontal weatherboards combine with vertical corrugated cladding.

Right bottom: The small house makes the most of connections to outdoor spaces – with a large deck leading to the garden.



Healthy indoor air quality was assured by using VOC-free paints and clear finishes and easy-care *Marmoleum* to the entry and bathroom. The drop-in slatted shower deck has now been changed from timber to a composite plastic decking to reduce humidity and mould issues from the damp timber.

Generous natural light and sunshine, aided by the clear polycarbonate deck roof and large glazed areas, is reflected by light wall and cabinetry colours inside and moderated by shade sails and the solid shutters in summer.

'Moving in here, it's essentially the same lightweight construction, same floor area, same location as the old house,' says Brett. But the family loves the marked improvement in thermal comfort that their new home offers thanks to the careful design, and have no regrets about its neat size.

This article first appeared in Sanctuary magazine Issue 48 Spring 2019, published by Renew; inspiring, enabling and advocating sustainable living.

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