

Sanctuary

MODERN GREEN HOMES

ISSUE
71

Flexible floor plans, student studios, shared projects and multigenerational living; knockdown-rebuild timber salvage and reuse; ideas for permeable paving and more

OFF *the* PLAN

Creatively different
approaches to housing

PUBLISHED BY **renew.**
WINTER 2025 • AU/NZ \$15.95
SANCTUARY.RENEW.ORG.AU

ISSN 1833-1416



9 771833 141017

WIN

A furniture and interior
design package from Moss
Furniture, valued at \$6,000

Offer open to Australian residents. Details page 79

Homegrown studios



AT A GLANCE

- Owner-built strawbale backyard studios
- Affordable urban infill accommodation
- Natural, renewable and secondhand materials

A desire to support his adult kids and a passion for sustainable building inspired David's backyard strawbale project.



Above The two studios are stacked on top of each other and have the same layout to keep construction simple.

When the time came for David and Tes' children to find somewhere affordable to live, they didn't want them pushed too far out of Perth. "We wanted to give them independence but keep them close," David says. "And knowing that they wouldn't be able to afford to go and buy a place or even easily rent one was difficult."

David, a carpenter by trade, built two self-contained studios in the backyard of their Perth home. The one-bedroom units, each just 36 square metres, are stacked vertically and classified as ancillary or independent accommodation, much like a granny flat. "They take up pretty much the

same footprint as the shed that was there," says David. They're fully electric, rated 7 Stars, and packed with salvaged and homegrown materials, including straw and wool from David's hobby farm.

"I'd been interested in strawbale building for a while," he says. "And with the farm, it just seemed a pretty good idea to grow my own house." He chose a tall wheat variety commonly used for hay to ensure long stems suitable for bales. Wool from his Dorper sheep, not typically valued for fleece, was washed and repurposed for insulation in the internal walls and the spaces where he couldn't fit

strawbales.

Throughout the build, David prioritised salvaged materials and a low-impact approach. He carefully dismantled a local church hall floor for reuse as posts, framing timber and a beautiful blackbutt floor in the upstairs studio. "Around 80 per cent of the structure is recycled," he says. "It was really nice to use all those salvaged materials – it's a bit of a passion of mine."

He kept costs down by designing the studios himself, working with architect John Damant from Econests to refine the plans for building approval. While planning permission sailed through,

the structural drawings took longer to process. With John's help, and some back-and-forth with council, the project gained approval. Minor wording changes to the upstairs plan, such as renaming the 'kitchen lounge room' as a 'student studio', helped get it over the line.

David also ran into limitations with sourcing materials. Aluminium shade louvres he'd seen on other homes weren't available off the shelf, so he designed his own and had them fabricated by a local metalworker.

The studios are now home to two of the couple's three children, offering them affordable, independent living while working and studying in the city. Down the track, the dwellings could be used by guests or relatives – or even by David and

Tes, if they decide to downsize onsite.

For their daughter Elen, living in one of the studios has offered the perfect balance. "It's given me the freedom and independence that comes with moving out of home, while still being close to family when I need them," she says. "As a full-time uni student, I wouldn't be able to afford to rent right now, so having this space has made a big difference. I'm able to make it my own with furniture and decorations, and I have loved having my own kitchen to cook. It really is the best of both worlds."

The project has proven to be low-cost to run, too, with energy-efficient appliances and natural heating and cooling. North-facing glazing with sun shades welcomes winter sun while

keeping summer heat out, the concrete slab floor downstairs provides thermal mass to regulate indoor temperatures, and louvres above the bedroom doors enable cross ventilation. "If you open the place up after the Fremantle Doctor afternoon breeze comes in, it cools down pretty quickly," says David.

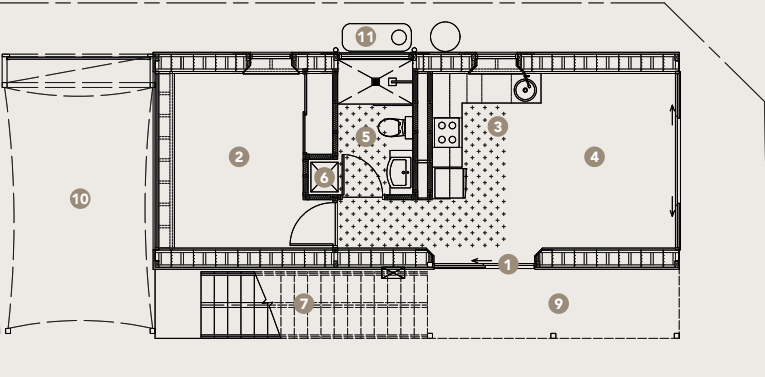
The studios are connected to the main home's electricity and water supply. "We haven't noticed a marked increase in our utility bills, mainly because we've got solar panels, so we haven't had an electricity bill for years."

Looking at the two studios, it's hard to believe they were built with little more than salvaged timber and straw, and a lot of resourcefulness. **S**

Below The living areas are similar but different, with a polished concrete floor downstairs and reclaimed blackbutt floorboards upstairs. Both feature plenty of north-facing glazing for natural light and solar gain, and shading for summer.

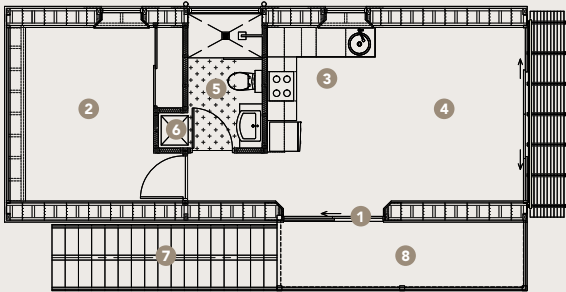


GROUND FLOOR PLAN



- 1 Entry
- 2 Bedroom
- 3 Kitchen
- 4 Living/dining
- 5 Bathroom
- 6 Laundry

UPPER FLOOR PLAN



- 7 Stairs
- 8 Balcony
- 9 Terrace
- 10 Carport
- 11 Water tank

SPECIFICATIONS

DESIGNER

Owner with John Damant

BUILDER

Owner-builder

PROJECT TYPE

New-build backyard studios

LOCATION

Wembley, WA
(Whadjuk Noongar Country)

COST

\$175,000
Completed 2024

SIZE

Each unit 36m²
Land 645m² (shared with main house)

ENERGY RATING

7 Stars

HOT WATER

– iStore 180L heat pump

RENEWABLE ENERGY

– Wiring in place for future solar PV with battery

WATER SAVING

– 6,000L rainwater tank plumbed to studios
– Greywater system irrigates fruit trees and lawn

PASSIVE DESIGN, HEATING & COOLING

– Highly insulated building envelope
– North-facing glazing with aluminium shades to block summer sun
– Concrete floor downstairs for thermal mass
– Louvres above bedroom doors for cross ventilation

ACTIVE HEATING, COOLING & VENTILATION

– Electric underfloor heating to bathrooms and downstairs kitchen

LIGHTING

– LED lighting throughout

COOKING

– Induction cooktops

BUILDING MATERIALS

– Exterior walls: reclaimed jarrah posts infilled with homegrown wheat strawbales (approx R7)
– Interior walls: reclaimed jarrah framing
– Cladding: lime render to strawbales, plus some Colorbond sheeting
– Roof: Bondor SolarSpan insulated panels (R5.4)
– Floors: Concrete slab downstairs, reclaimed blackbutt flooring upstairs
– Insulation: homegrown sheep wool to interior walls (approx R2), secondhand rockwool batts to some small areas, secondhand acoustic insulation between floors (approx R2.4)
– Reclaimed jarrah joinery and trims
– Benchtops: reclaimed hardwood flooring downstairs, concrete cast onsite upstairs
– Decking: reclaimed blackbutt floorboards

WINDOWS & GLAZING

– Canon Double Glazing uPVC tilt-and-turn double-glazed windows and doors with low-e glass, made in WA

PAINTS, FINISHES & FLOOR COVERINGS

– Murobond Murowash to interior walls
– Cabot's CFP Floor (water-based) to upstairs floor, benchtops, timber trim

OTHER ESD FEATURES

– Two small-footprint, self-contained dwellings for increased urban density and affordable housing
– Homegrown and repurposed secondhand materials used, including strawbales, wool insulation and timber
– Many fixtures and fittings secondhand, including vanities and basins, shower screens, door frames, skirting boards, architraves, water tanks, greywater system and most of the electrical cabling