

# Sanctuary

MODERN GREEN HOMES

ISSUE  
61

UNIVERSAL DESIGN  
SPECIAL

PLUS: Three urban renos fit for the future; ecovillage home;  
upgrading to induction; design for active bushfire defence

## DESIGN FOR EVERYONE

Accessible, flexible, sustainable

PUBLISHED BY **renew.**  
SUMMER 2022/23 • AU/NZ \$13.95  
SANCTUARY.RENEW.ORG.AU

ISSN 1833-1416



9 771833 141017

WIN

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

Offer open to Australian residents. Details page 81



### At a glance

- Home designed for ageing in place, including possible future wheelchair use
- Double-storey for views and breezes, with ramp access and provision for a lift
- High-performing, energy-efficient hempcrete house

↑

Built largely with hempcrete, Trish and Rob's house places the living spaces on the upper level to capture breezes and make the most of views north to the port and west to the ocean. Greenery will climb the mesh trellis along the northern facade over time, creating a sense of enclosure on the ground level, while maintaining light and outlook upstairs. A covered ramp incorporating shallow steps provides easy access with a wheelchair or a shopping cart.

# Easy and breezy

LOCATION Beaconsfield, WA

WORDS Rebecca Gross

PHOTOGRAPHY Robert Frith

**A hempcrete house that's comfortable year-round, with careful thought given to accessibility: perfect for the long term for Perth retirees Rob and Trish.**

When Trish and Rob moved from their family home of 33 years, they wanted to live in a small, warm, easy-to-maintain house where they could confidently enjoy the next stage of their lives. "Accessibility is about more than being able to move around. It's about size, maintenance, ease of cleaning, temperature control and comfort. To be able to live somewhere for longer, without moving or employing people to help, adds to accessibility," says Trish. They engaged Philip Stejskal Architecture to design their new Fremantle home with accessibility and sustainability at the forefront so they can comfortably age in place.

The house, located on the subdivided property behind Trish and Rob's former home, is a two-storey building with an external ramp linking the two levels. The couple live upstairs, where an open-plan kitchen, dining and living area occupies

the front of the house and a bedroom and bathroom sit at the back. The orientation and narrow plan maximise passive solar performance, with large windows along the north side for sunlight and high-level windows along the south for cross ventilation. The living area opens to a west-facing verandah that feels like an outdoor room: sliding glass screens provide protection from the prevailing wind, concealed roller blinds provide sun control, and louvres along the side open for the summer breeze. The verandah wraps around the corner to join the covered ramp, designed with a gradual incline to make pushing a shopping cart or a wheelchair easy and incorporating shallow steps in the middle. "We were interested in the idea of a traditional Australian homestead verandah as an architectural device that protects the building from sun, and we incorporated the ramp as part of that," says architect Philip Stejskal.

Downstairs is a second bedroom and bathroom/laundry plus a storage room and garage. A short flight of steps gives internal access from the garage, and provision has been made for a lift to be installed in the future if needed. A

↳→

A generous verandah to the west functions as an outdoor room, with sliding glass screens providing protection from the prevailing wind, concealed roller blinds for sun control, and louvres along the side that open for the summer breeze. Inside, judicious areas of exposed hempcrete plus the warm tones of the timber wall panelling and built-in shelving give a sense of comfort to the open kitchen and living area. A gentle incline leads to the main bedroom with accessible bathroom and walk-in robe.



covered path connects the new house to an existing building containing a studio space and a small apartment that is rented out; between these two buildings is a central landscaped courtyard featuring gentle ramps that navigate the natural slope of the site and provide step-free access from the garage to both the house and the studio.

The home's interior is designed to cater for future mobility restrictions, should they occur. The open-plan living space allows for plenty of manoeuvrability, with moveable furniture and an extendable dining table. Doors and openings throughout the house are wide, and a small ramp leads to the bedroom and bathroom. Large sliding doors open up the bedroom, or close it off when there are guests. A curtain conceals the wardrobe, and the bathroom is large and spacious with an easy-to-clean polished plaster render on the walls. "That's an accessibility feature for me, with no tiles or grout to deal with," says Trish.

The couple wanted their house built with hempcrete after friends used the material for a co-housing development in Denmark, on Western Australia's southern coast. Hempcrete – made with lime, hemp and water – creates a breathable, airtight, insulated wall that offers excellent thermal

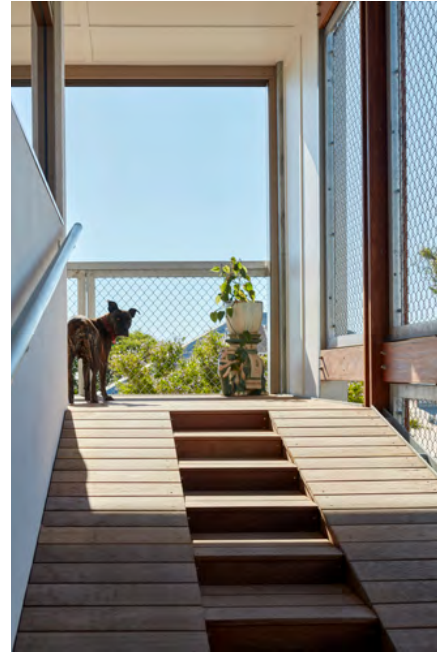


properties. It also helps control humidity, aids indoor air quality and captures carbon. “The hempcrete walls are 300 millimetres thick, with a structural timber frame,” explains Philip. “The hempcrete serves as insulation, internal lining and exterior facade in some places.” The interior face has been left exposed in two areas as feature walls – one upstairs and one downstairs – and the remainder covered with a lime-based render that still allows the hempcrete to breathe and maintain its thermal properties. Add double glazing, and the house is warm, energy-efficient and without air leakage. “Being warm is important because you are home a lot more when you retire,” says Trish.

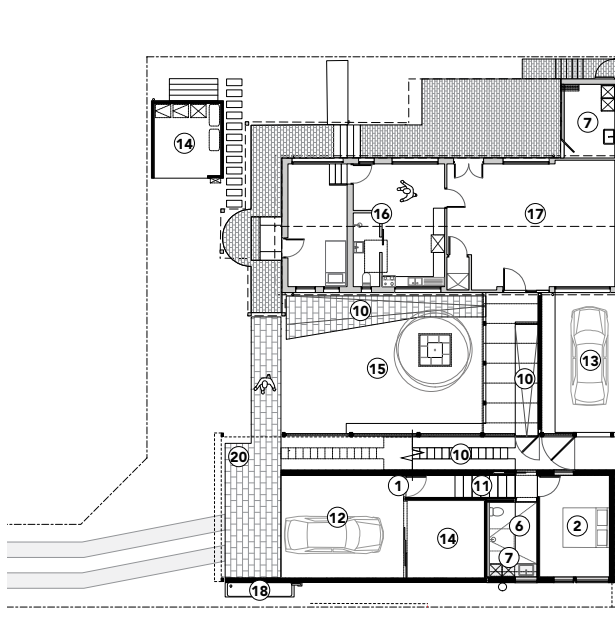
Philip’s team selected the other materials in the home to offer durability and longevity: “We prioritised practical

materials that will weather naturally and stand the test of time,” he says. Zincalume clads the external structure, and spotted gum is used for the battens and decking. Concrete flooring provides thermal mass, and solid pine and hoop pine ply for the joinery and wall panelling give a sense of warmth. The house is all-electric with a sizeable solar PV system. There is underfloor heating, but no ceiling fans or air conditioning – cross ventilation is enough to keep the place cool in summer.

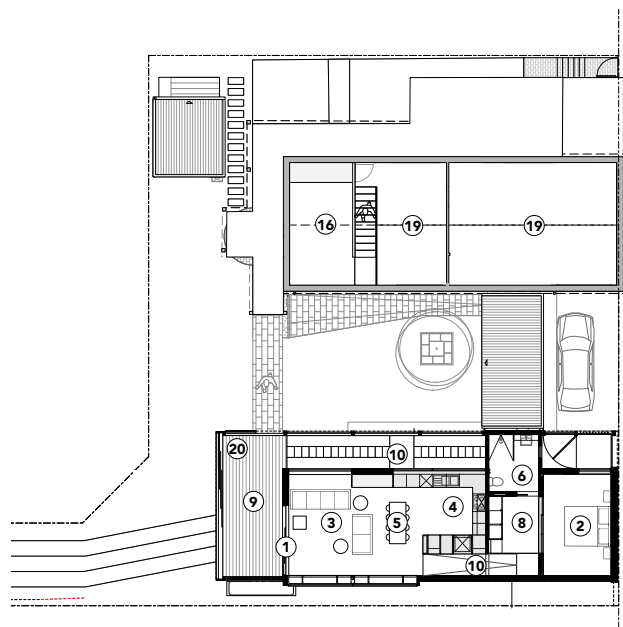
Trish and Rob moved into their new house at the end of 2021. They have enjoyed the transition from their larger family home, and the confidence that comes from knowing they can comfortably live here for the years ahead. “It’s warm, small, simple to live in and well designed for ageing in place,” says Trish. ❸



GROUND FLOOR PLAN



FIRST FLOOR PLAN



- |           |                |                    |                        |
|-----------|----------------|--------------------|------------------------|
| ① Entry   | ⑥ Bathroom     | ⑪ Stairs           | ⑯ Existing apartment   |
| ② Bedroom | ⑦ Laundry      | ⑫ Garage           | ⑰ Existing studio      |
| ③ Living  | ⑧ Walk-in robe | ⑬ Parking space    | ⑱ Water tank           |
| ④ Kitchen | ⑨ Verandah     | ⑭ Store            | ⑲ Void                 |
| ⑤ Dining  | ⑩ Ramp         | ⑮ Courtyard garden | ⑳ Future lift location |

# HOUSE SPECIFICATIONS

## HOT WATER

- Stiebel Eltron heat pump hot water system

## RENEWABLE ENERGY

- 6.6kW solar PV system from Infinite Energy, with provision for future battery storage

## WATER SAVING

- Thintanks 2,000L rainwater tank for use in the kitchen and for garden watering

## PASSIVE DESIGN, HEATING & COOLING

- Narrow plan to maximise northern aspect to all rooms
- Main living spaces upstairs to capture sea breezes and make the most of views
- Hempcrete walls and concrete slab floor for thermal mass and a well-insulated building envelope
- Deep western verandah with concealed roller blind for control of low afternoon sun
- Optimised cross ventilation

## ACTIVE HEATING & COOLING

- Resistive electric underfloor heating from Radiant

## BUILDING MATERIALS

- 300mm hempcrete walls over timber stud frame, finished with unpainted lime render inside and outside
- Concrete blockwork retaining walls and some lower floor walls
- Zinalume cladding and roofing
- Concrete slab floors to both levels for thermal mass
- Painted fibre cement sheet to some external elements

- Spotted gum battens (FSC-certified) to balcony and decking
- LOSP-treated pine and steel ramp and deck structure
- Insulation: hempcrete walls (approx R5); loose hemp fibre to ceilings (approx R2); insulated suspended slab between living area and garage
- Astral hoop pine plywood cabinetry and joinery with low-VOC FSC-certified board carcasses
- Dekton hybrid porcelain benchtops (low crystalline silica content)

## WINDOWS & GLAZING

- AWS aluminium-framed double-glazed windows and doors

## LIGHTING

- LED lighting from Unios

## PAINTS, FINISHES & FLOOR COVERINGS

- Dulux low-VOC paints
- Cutex Extreme oil to external timber
- Osmo oil to internal timber

## OTHER ESD & UNIVERSAL DESIGN FEATURES

- All-electric house with induction cooking
- Mesh trellis to northern facade will be covered with a deciduous vine for green shade in summer
- Integrated ramps to all levels of house and courtyard garden
- Provision for lift to western terrace
- Accessible bathroom and walk-in robe
- Parking on two levels: garage via driveway and rear parking space via laneway

## DESIGNER

Philip Stejskal  
Architecture

## BUILDER

TALO Construction

## PROJECT TYPE

New build  
(plus renovation of existing cottage)

## LOCATION

Beaconsfield, WA  
(Whadjuk Country)

## SIZE

New house 102m<sup>2</sup>  
Garage 36m<sup>2</sup>  
Existing studio and self-contained apartment 124m<sup>2</sup>  
Land 646m<sup>2</sup>

## ENERGY RATING

6.95 Stars

## ENERGY ASSESSOR

Sustainability WA



← The west-facing verandah offers views of treetops, sky and ocean.

## INSIGHTS

“This highly efficient, low-energy design prioritises a sense of connection – allowing our clients to engage with their near neighbours, the densely landscaped courtyard, and the surrounding suburb – and to age in place easily while reducing their outgoings in retirement.”

Philip Stejskal, architect