

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

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.





← An insulated recycled brick wall adds to the thermal mass provided by the concrete slab floor to the lower part of the house.

A split-level design negated the need to level the site, and the sand dune continues beneath the raised timber-framed section of the house. The communal spaces at the front – kitchen, dining and living – overlook the nature reserve (formerly a golf course) across the road. The house takes advantage of the northern orientation, and the raised section captures great views.

The northern aspect combines with thermal mass – in the form of concrete floors and a reclaimed brick wall in the living space – to deliver comfortable temperatures inside, across most of the year. “The winter sun comes in and heats the concrete slab, and in summer – thanks to the two-metre overhang of the verandahs – the sun is kept out,” explains Rogier. “That passive heating and cooling works really well in this climate.”

A reverse-cycle air conditioner in the main living space is used mainly in winter to heat the space on some mornings, or if it’s overcast or raining outside. The house is powered by a 6.6-kilowatt solar PV system and a battery, which generate and store more electricity than the occupants need each day. “The battery is charged up in the morning, then we use the solar in



↑ The L-shaped house was designed to integrate with its garden and the neighbouring nature reserve.



the afternoon as it's generated and switch to the stored energy at night. It helps that it's not a big house, so we are not heating or cooling a big volume," says Rogier.

The bedroom and bathroom wing features a wall of joinery made from reclaimed oregon, with high-level windows on the eastern side. These facilitate cross ventilation and the timber wall creates an interesting transitional space with storage on both sides.

"The spatial design, reclaimed materials and eclectic collection of secondhand furniture give the home its character," Rogier says. "The bedroom windows were purchased at a salvage yard and they were in great condition. It is good to use reclaimed or recycled products. It reduces waste and uses fewer virgin resources."

Rogier had never built a house before and he credits friends who helped to realise his vision, including a builder who helped with the brickwork and certified the build; a local joiner, Brian;

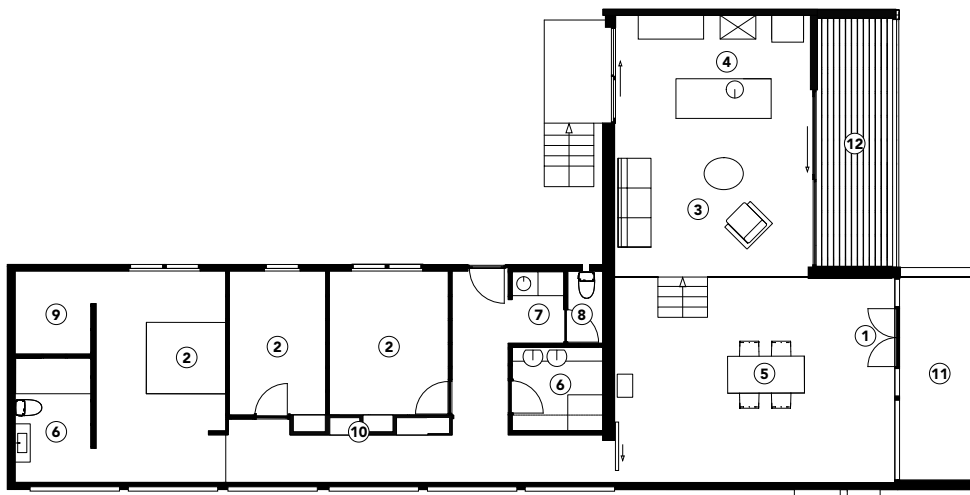
and local tradies including plumbers and electricians. "I would do it again," he says. "I really enjoyed working with my son and the physical aspect of it. It's all about the experience, enjoying the building process and working together to create this home. Although, next time I'd get a couple more tradies in to help with some of the repetitive tasks, such as installing the plasterboard and painting."

And it's also been a worthwhile experience for his design business, through which he works mainly with residential clients. "I encourage clients to focus less on the size of the house and more on the spatial quality of the rooms," he says. "It's nice to be able to show them the Goolwa Beach house as an example."

Having completed the build in early 2022, the family has enjoyed spending time at their coastal home so much that Rogier and Carmen are looking forward to relocating permanently to their house on the dunes. 5

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The hallway features high-level windows to the east and a wall of joinery made from reclaimed oregon.

FLOOR PLAN



LEGEND

- ① Entry
- ② Bedroom
- ③ Living
- ④ Kitchen
- ⑤ Dining
- ⑥ Bathroom
- ⑦ Laundry
- ⑧ Toilet
- ⑨ Walk-in robe
- ⑩ Storage
- ⑪ Terrace
- ⑫ Deck

HOUSE SPECIFICATIONS

HOT WATER

- Stiebel Eltron 302L heat pump hot water system
- Ecotouch instantaneous electric water heater to kitchen (to avoid lengthy pipework and associated heat losses)

RENEWABLE ENERGY

- 6.6kW solar PV system with 5kW Growatt hybrid inverter
- 13kWh battery storage (2 x Growatt 6.5kWh lithium batteries)

WATER SAVING

- 2,000L rainwater tank for irrigation use

PASSIVE DESIGN, HEATING & COOLING

- Living area oriented north-north-west for solar gain; deep overhangs provide summer shade
- Concrete slab and insulated double brick wall for thermal mass
- Design for natural ventilation and cooling: cross ventilation, high windows for effective night purging, windows placed to capture prevailing sea breeze from south-west

ACTIVE HEATING & COOLING

- Mitsubishi Electric reverse-cycle air conditioner to living area
- Slow combustion wood heater used occasionally for ambience
- Martec Albatross ceiling fan to kitchen area

BUILDING MATERIALS

- External walls: double timber stud frame construction with some insulated cavity brick using rejected (imperfect) bricks, and some steel framing
- Cladding: radial sawn silvertop ash and Lysaght Spandek
- Lysaght Trimdek roofing
- Polished concrete waffle-pod floor
- Reclaimed Baltic pine floorboards to kitchen area

- Finger-jointed pine lining boards to wall and ceiling throughout the home
- Perforated Zinalume mini orb acoustic panels to kitchen area ceiling
- Insulation: Pink Glasswool Bio-Soluble batts to ceiling (R7), Pink Soundbreak acoustic batts to internal walls (R2.5), Kingspan Kooltherm 80mm insulation board (R4.4) to brick cavity walls, Pink Batts (R4.3) to timber-framed external walls, 300mm polystyrene waffle pod under slab
- Concrete kitchen benchtop with oxide pigments, cast on site
- Reclaimed oregon joinery in hallway
- Silvertop ash decking

WINDOWS & GLAZING

- New windows: Victorian ash frames with double glazing, by Tiana Joinery
- Western red cedar internal doors by local joiner
- Reclaimed windows to bedrooms

LIGHTING

- LED lighting throughout

PAINTS, FINISHES & FLOOR COVERINGS

- Watty I.D Advanced low-VOC paints
- Livos natural oil finish to polished concrete floor

OTHER ESD FEATURES

- All-electric house with ceramic cooktop
- Garden area maximised by careful positioning of the house on the site
- Secondhand furniture, mostly from the local tip shop
- Construction waste minimised through precise ordering of building materials, and waste carefully recycled
- Mainly native garden plantings with several birdbaths to attract birdlife

DESIGNER

StudioRogier

BUILDER

Owner-builder

PROJECT TYPE

New build

LOCATION

Goolwa Beach, SA
(Ngarrindjeri Country)

COST

\$260,000

SIZE

House 150m²
Land 800m²

ENERGY RATING

7.1 Stars

ENERGY ASSESSOR

SUHO

BUSHFIRE ATTACK

LEVEL

BAL-12.5

INSIGHTS

“Based on our high-level calculations, the solar array and battery are enough to bring this home to net zero for operational energy.”

Ben Walsham
Energy assessor