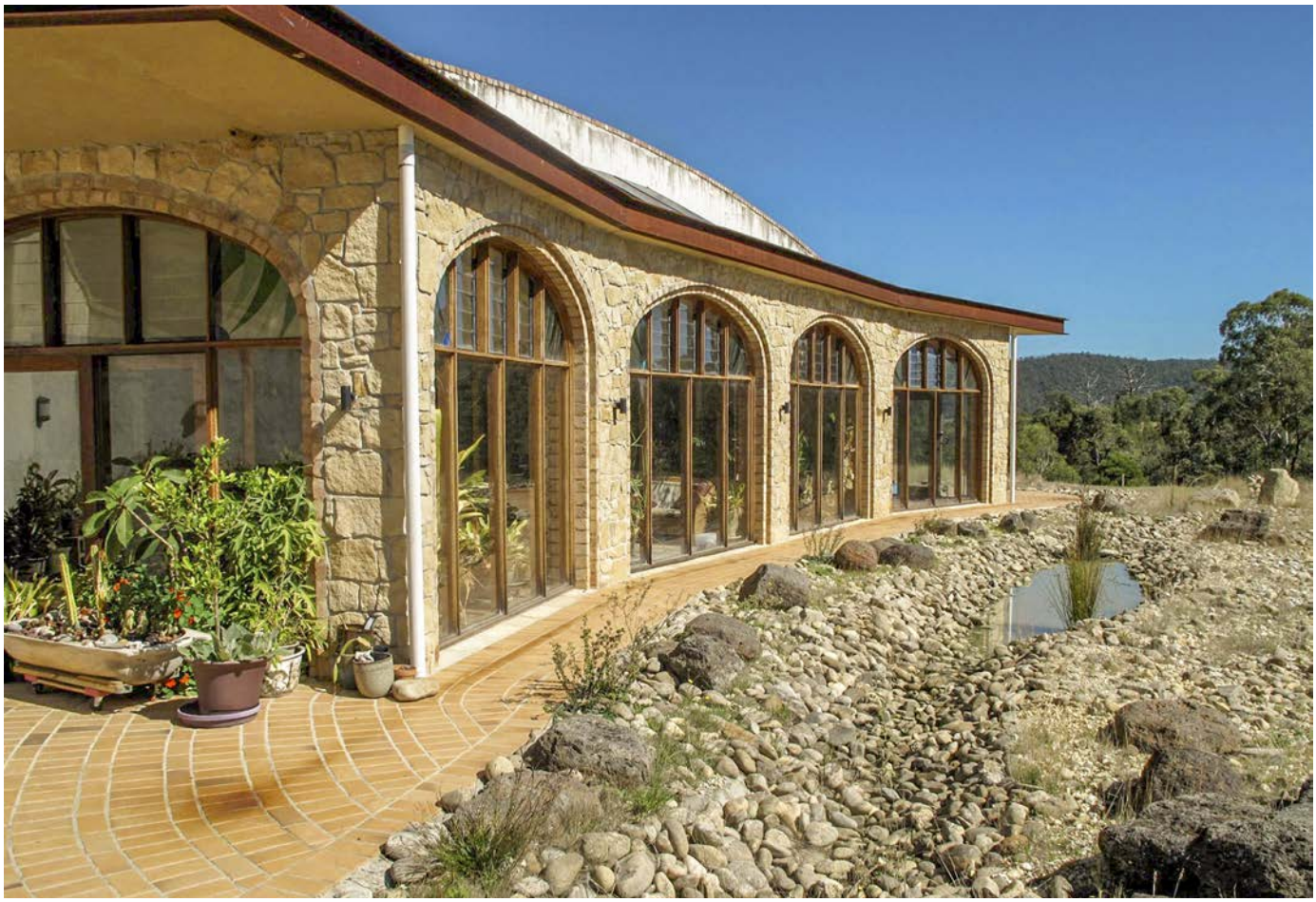


Sustainable House Day

Owner-built inspiration

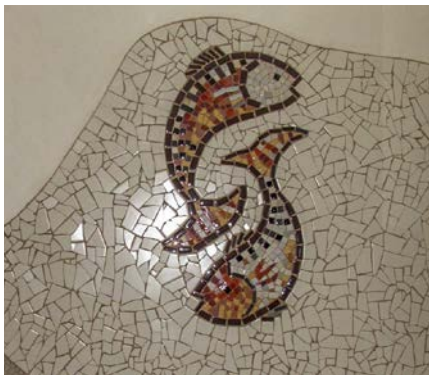
BY NINA BISHOP

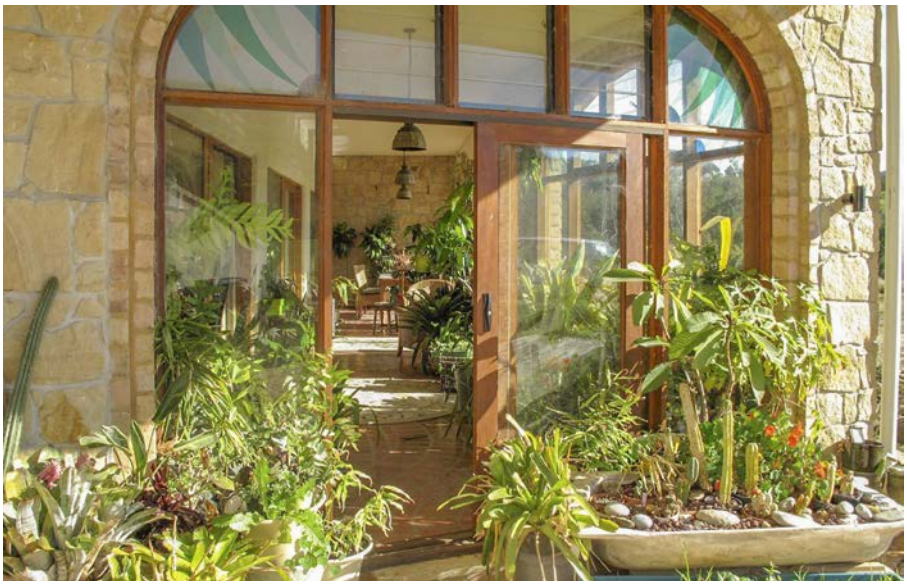
In 2008 and then again in 2017, I opened the doors of my own home for Sustainable House Day (SHD). As a proud owner-builder and someone who worked hard to integrate sustainable features, I wanted to share my experience with others hoping to go down the same path.

It was a valuable experience as it offered me the opportunity to share my experience with hundreds of visitors. Indeed, I wished I had the opportunity to talk to others during the course of my five-year owner build.

Last year I sold my owner-built house and I'm now planning my next. Since I'm not able to open my own home this year I'm going to take the opportunity to tour SHD houses, enabling me to do the research that wasn't available the last time I took the plunge.

Over 250 homes are expected to open this year for Sustainable House Day, including many owner-built projects. This provides an excellent opportunity to get inspiration from others who have already travelled down the path of creating a sustainable home, by viewing real-world examples of sustainable design. These three homes featured are just a sample of houses that are opening this year.





Steels Creek House

Location: Steels Creek VIC 3775
House size: 200m^2

This beautiful, unique house was designed by the owner's son (Alvyn Williams with Soft Loud House Architects) after their previous home was destroyed by fire in 2009. It was built to be energy efficient and easy to maintain, using the principles developed for *Earthships;* the home was also featured on Grand Designs Australia.

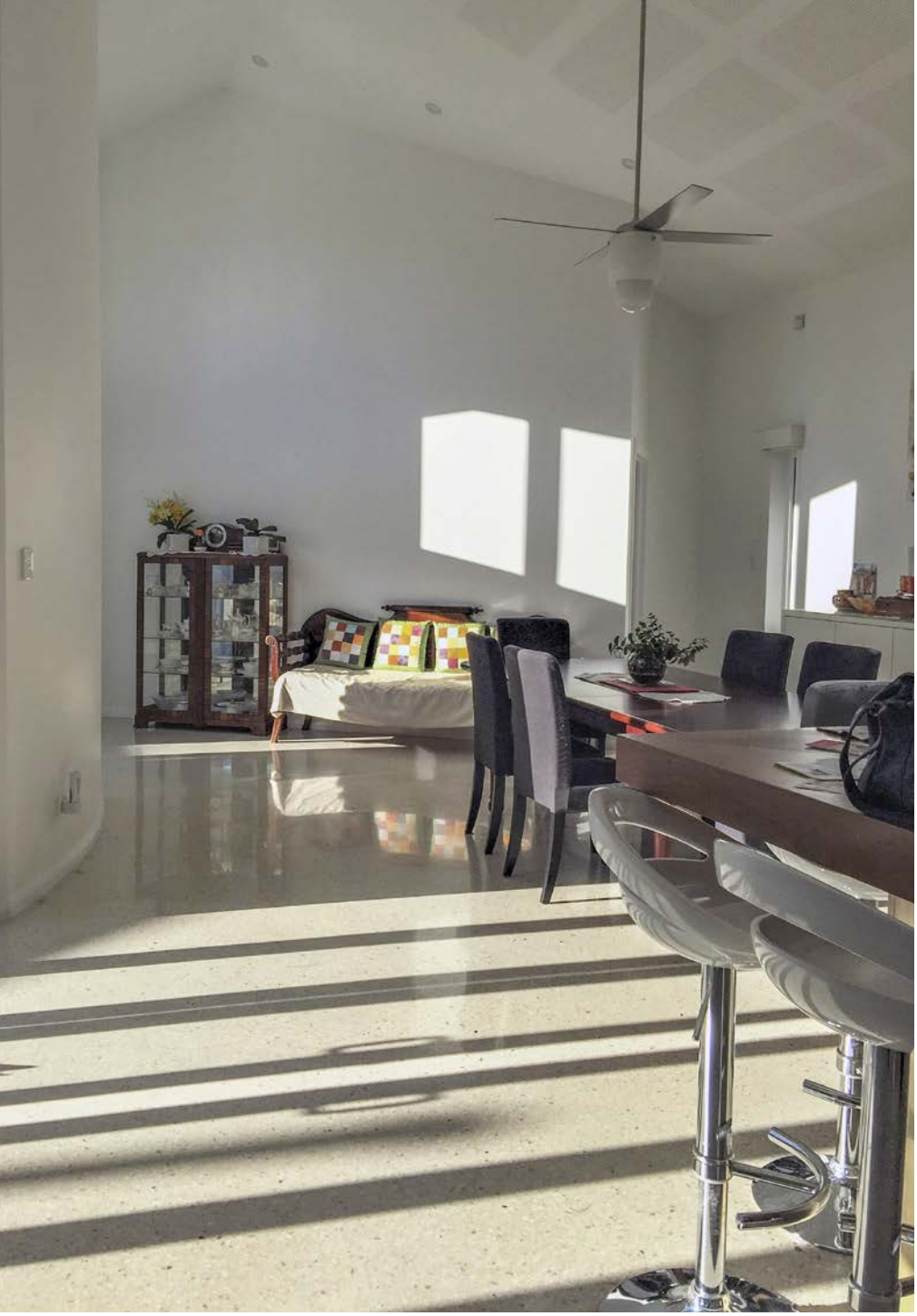
The home performs extremely well with internal temperatures ranging from 19°C in winter to 25°C during prolonged heat waves in summer, with a usual average of 22-23°C. Solar tubes, LED lights and a front wall of insulated glass provide plenty of light. Clay pavers keep the floors cool in summer and store solar heat in winter; the main temperature control is through the high level of thermal mass.

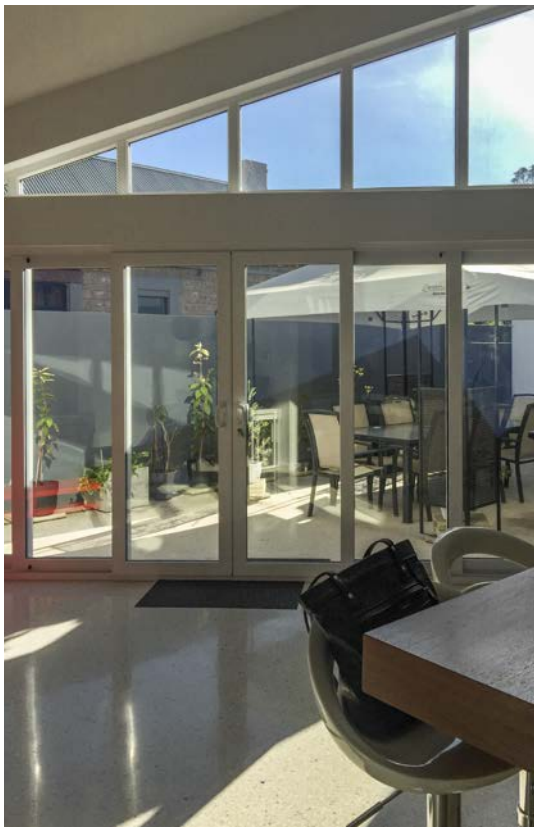
External noise is mostly eliminated by the design and with most of the house underground, there is good wind protection. All windows are easy to reach for cleaning and one can walk up the roof to service the chimneys.

Solar grid connected power produces well over their energy needs and water is collected from the farm buildings above the house to allow for gravity feed. Flash flood water is led away by a dry creek mote that drains into the dam and the floors at the back of the house contain drain outlets.

Recycled materials are used for doors and other features and a solar buffer zone grows ginger, turmeric and other plants that help control air pollutants.

As you can imagine, fire safety was a major design concern. The ruins of the old house have been recycled as a BBQ and class room area enclosed by an edible garden, while the new house is situated in a fire reserve by a large dam. Sheep graze on the roof and around the building to keep the vegetation short.





Gilberton House

Location: Gilberton SA 5081
Land size: 400m^2, House size: 265m^2

After meeting Architect John Maitland when he opened his own home on Sustainable House Day, Cathryn Hamilton and John Zeppel were impressed enough to hire John to design their own sustainable home. Then, without any recent building experience, Cathryn took on the role of project manager for the build, with great support from friends in the building industry.

With each new tradesperson, Cathryn and John met with them first to discuss their philosophy around sustainability, liveability and quality, and to present their plans. If they were happy with their responses and skills, then they'd ask for a quote.

'It was great to be in control of the project, but it was also hard at times, and mistakes were made. Our main tasks were finding good tradespeople and coordinating them'. Despite the challenges, they love the end result. 'The house works exactly as we'd hoped'.

This home is an energy efficient reverse brick design with high levels of thermal mass, which was unusual at the time, and energy efficient appliances. 'One unusual part of our building is the use of hydronic heating and cooling, powered by an electric heat pump.'

Their home is currently a net contributor of electricity to the grid and uses, on average, 80% of water from rainwater captured and stored on-site. The house is reasonably high tech and is being monitored for temperature and humidity as well as all aspects of local PV generation, energy use, and water use.

'The house was designed for easy access from the street via ramps, wider doorways for ageing in place and everything we need for daily living on the ground floor'.

Work started in September 2012 with excavation for the underground concrete rainwater tanks; by October 2013, a Certificate to Occupy had been granted. 'We were pleased with the duration, as we'd seen other builds take much longer when aspiring to this level of quality.'

When asked what advice Cathryn would give to another owner-builder, she replied 'Take your time on the design process and make sure every detail, as much as possible, is included on the plan. Scheduling is important!'

The Treehouse

Location: North Narrabeen NSW 2101
Land size: 1182m^2
House size: 228m^2

Owners of this award winning house, Rodney and Barbara, wanted a sustainable home that would cater for their growing family and a separate granny flat for visitors – all with a tree house feel. Its name comes from having large treetops in direct view from the living areas.

This home is situated on a very steep block with views to the coast and a 10m drop sloping away from the road. As lovely as that sounds, you can imagine the challenges this steep gradient in a slip zone provided, including providing universal access to the main living area of the house.

It stands to reason that increased costs would be one of the challenges; for example, having to drill down 6m for the footings. The high costs of providing thermal mass on such a slope meant that the construction method remained lightweight. Therefore particular attention was directed toward insulation and thermally broken, double glazed windows. Hydronic heating was also installed to boost the comfort levels in winter. The insulation is post-consumer recycled PET and double-sided foil.

Rainwater is used throughout the house, stored in 4x18,000-litre tanks under the garage. A solar hot water system with gas boost provides the domestic hot water and hydronic heating. The house also has a 2.5kW photo voltaic power system.

The Treehouse's owners, and architects Envirotecture, are committed to sharing their owner builder experience, having opened for Sustainable House Day every year since 2014. ◆

Sustainable House Day is an event of the Alternative Technology Association (ATA), providing the opportunity to visit homes that are not only environmentally friendly but also cheaper to run and more comfortable to live in. SHD 2018 is on 16 September. If you have a sustainable, owner built house then consider opening it to others, or register to attend on the day.

www.sustainablehouseday.com
03 9639 1500, www.ata.org.au