LIVING A sustainable life

Eco-friendly isn't just something to think about pre-construction. Equip your home with sustainable features to help care for the planet in the future and you could well reduce your bills, too

WORDS CASSIE HAYWOOD

For most people, striving for an eco-friendly lifestyle is a culmination of a number of small actions, whether that's ditching coffee cups for a keep cup, choosing to buy second-hand or, for many, going green in your home. There's plenty of lingo bandied around about passive homes, renewable energy and greywater recycling, but what does that mean? And how do we start?

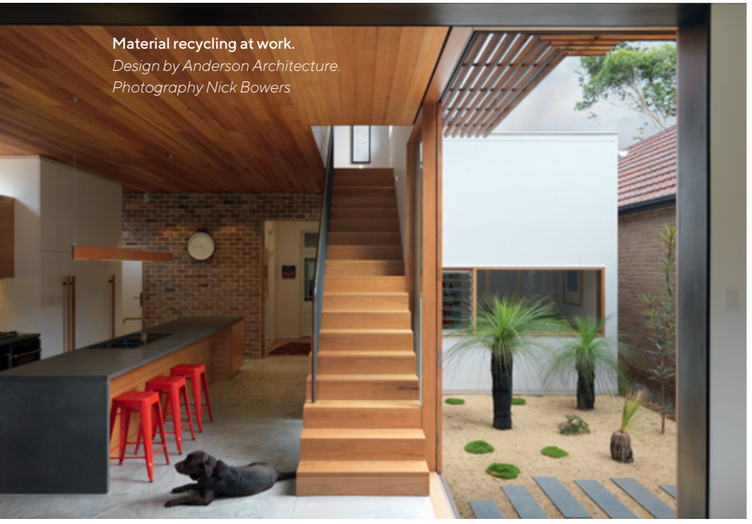
Sustainability isn't meant to be a chore; it's something to be integrated into the way we live. "Do whatever you can to lessen your footprint and live in harmony with the natural environment," encourages Dave Martin, co-founder and director of sustainable building company The Sociable Weaver. "Look to the natural world to create this — get inspiration from shapes, colours and functionality.

"Connect with nature and weave that connection into your build wherever you can."

Sustainability is ongoing, continuing long after your home has been built and the tradies have left. Consider the systems you can put in place during or after the build, as going green can save you on bills, keep your garden watered in time of drought and your home comfortable in heatwaves or wintry evenings. "So much of what helps a house to perform well can be 'baked in' throughout the build process," Dave explains. "Start with simple things such as introducing solar or alternative energy generation, allowing space for sizeable water tanks and removing gas. Then there are building biology principles such as using glues, sealers and paints that are all non-toxic to the inhabitant and planet, with a natural base."

The bare bones of your home are the starting point to long-term sustainability. Passive homes are centred around the idea of a thermally comfortable residence that regulates its own temperature through passive design principles and management. "There's huge potential in the orientation of the site (maximising the north aspect), breathable external walls, cross-flow ventilation, high-performing windows and thorough sealing," Dave says. "Combine these principles with energy-efficient practices and we can reduce heating requirements completely in some cases or by 75 per cent in others."

THIS PAGE & OPPOSITE The first 10-star energy-rated home in Victoria, this house embodies living lightly on the planet — healthy and non-toxic, built with a zero-waste philosophy, carbon positive and with a 10-star energy rating. *10 Star Home by Sociable Weaver in collaboration with Claire Cousins Architects. Photography Dan Hocking*



Material recycling at work. *Design by Anderson Architecture. Photography Nick Bowers*

Honeycomb blinds trap air for insulation. *luxaflex.com.au*

“A KILL SWITCH AT THE FRONT DOOR IS THE SIMPLEST WAY TO ENSURE YOU’RE NOT WASTING UNNECESSARY ELECTRICAL ENERGY WHILE YOU’RE NOT HOME” — JAMES LEGGE

ABOVE *Design by Six Degrees Architects in collaboration with Excelon Projects*

BELOW Double-glazed with a high thermal mass and blinds at the ready, this home offers a private outdoor haven metres from the temperature-comfortable living area. *Design by Anderson Architecture. Photography Tom Ferguson*

Look around a room at the walls, doors and windows. Simon Anderson of Anderson Architecture describes windows as the weakest link for letting heat in or out. “If high-quality, double-glazed windows are used that have good ‘air tightness’ (that is, they don’t leak air) and these windows have good eaves or external blinds to shade the summer sun, then you’ll have significantly lower heating and cooling costs,” he says. “Blinds and curtains can also be added or updated to help improve a window’s thermal efficiency. Most blinds are good at trapping or reflecting heat, particularly honeycomb blinds that do well in creating an air layer to increase a home’s comfort levels without ruining the look.”

Sustainable power consumption can be approached in two ways: the first is to reduce energy usage where possible, the second is to examine alternative ways to power our homes. “Homeowners have so many alternatives to choose from and geothermal, solar and domestic hydro are all great options,” Dave says. “Keep in mind less is more and it’s easier to maximise impact by looking at reduction techniques. We focus on what we actually need in a home and how we power it by using the least amount of electricity the most efficiently.”

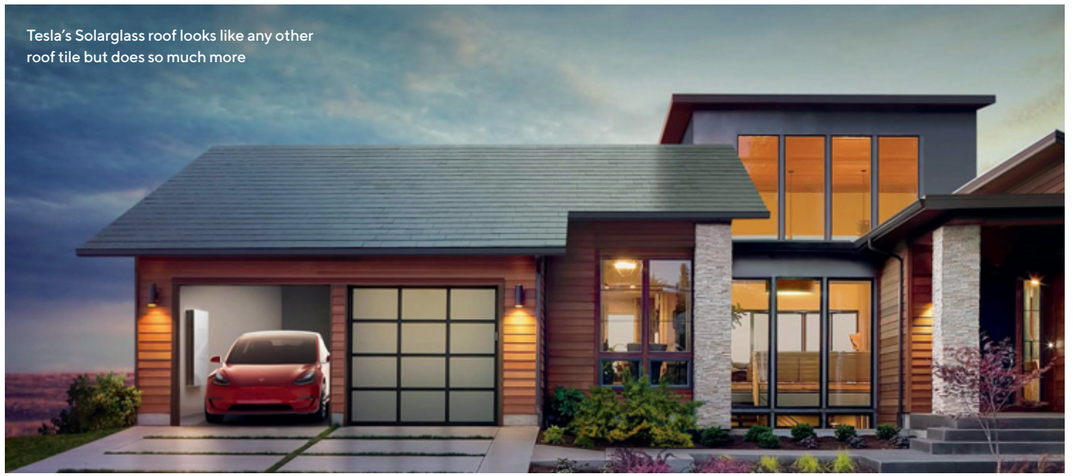
Solar is currently the big thing on the sustainability market. This energy can be generated passively from solar panels placed on a roof that soak up the sun’s rays to power your home. While we’re used to seeing the black panels atop terracotta roof tiles, there are many more options available now. Designed for a more subtle style of solar, Tesla has released the Solarglass roof that can be customised to your home’s aesthetic and engineered so the photovoltaic cells are invisible. Paired with the home battery, Powerwall, the Solarglass roof can power the entire house with 100 per cent renewable energy. At time of writing, this product is only available for pre-order in Australia, but we’re waiting eagerly for this one to hit the shelves.

WHATEVER THE WEATHER

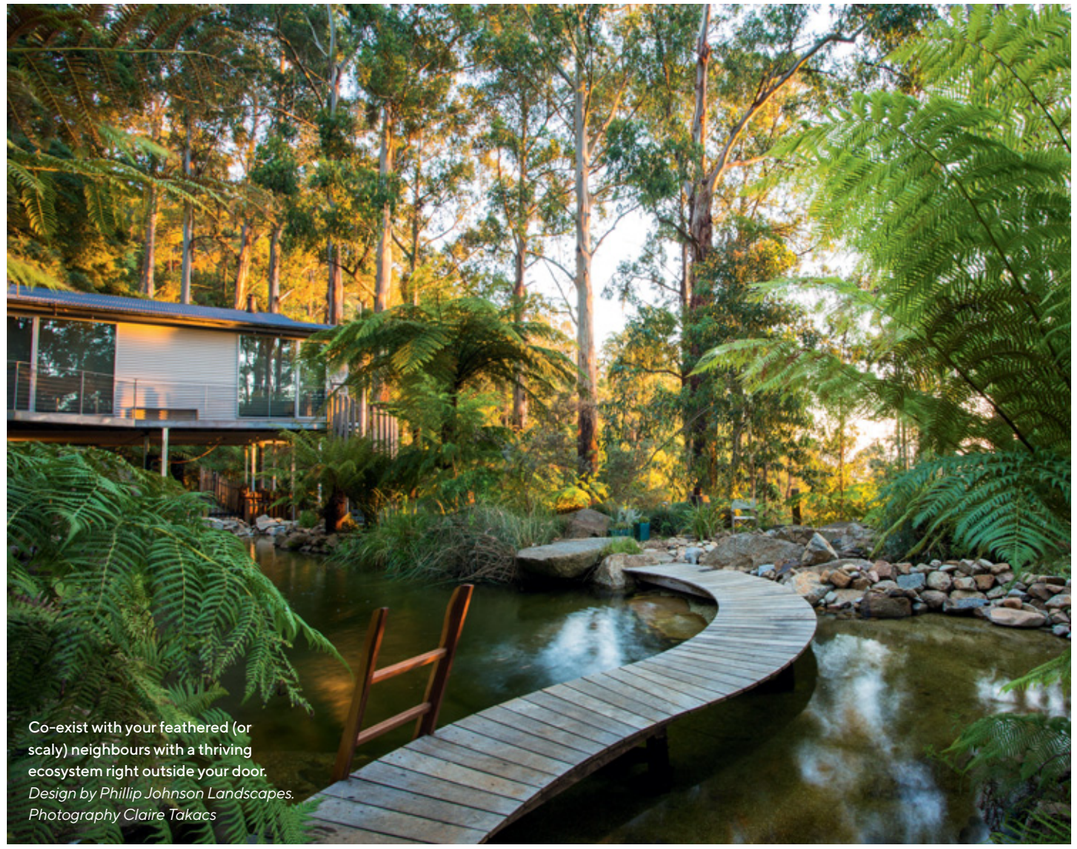
James Legge, director of Six Degrees Architects, says we should make the most of solar-powered energy and think outside the box to set up systems to utilise this natural power. “Plan ahead and use the weather and sun as much as you can to heat and cool your home. Yes, install photovoltaic cells, but unless you’re part of an embedded network, try to use the power they produce, otherwise you’ll be giving it back to the grid for a pittance,” he notes. “You may be able to use it to heat your hot water — via a heat pump — as a type of energy store. Batteries, although pretty hard to justify at present, will likely come down in cost over the next five years.”

We’ve all heard the advice about turning off electrical points at the wall for appliances not currently being used. With switches often hidden in difficult-to-reach places and houses chock-full of items that use electricity, this sometimes feels impossible. Enter: the kill switch. “A kill switch at the front door is the simplest way to ensure you’re not wasting unnecessary electrical energy while you’re not home,” James explains. “A kill switch can easily turn off all but essential power on your way out. So, while your fridge will keep running, the bedside lamp and fan can be cut off to reduce residual electricity waste.”

The debate about whether gas- or electric-powered appliances are better for the environment is ongoing. With most of our electricity coming from burning coal, gas in some cases is considered better for the environment, while



Tesla’s Solarglass roof looks like any other roof tile but does so much more



Co-exist with your feathered (or scaly) neighbours with a thriving ecosystem right outside your door. *Design by Phillip Johnson Landscapes. Photography Claire Takacs*

alternative energy sources are even better. If you find yourself with a surplus of power and are not interested in selling the excess electricity to the grid, maybe it's time to invest in an electric car.

THE WONDER OF WATER

Did you know that on average, Australians use 300 litres of water per person per day? Besides power, water usage is the second most important way to reduce the environmental impact of your home. Drought restrictions in Australia have brought this issue to the fore, but there's more we can do at home than watering with a watering can (though, of course, this is a great step, too!).

With the bulk of water used in bathrooms, then the garden and finally the kitchen, it's clear where we need to be focusing our efforts. Swap out those old showerheads for new water-efficient ones, use the toilet's half-flush function (or consider a compost loo), and always turn off the tap while brushing your teeth. Particularly valuable is not flushing drinking water down the toilet. Don't be put off by potty talk and consider solutions such as rainwater tanks or greywater recycling.

Rainwater tanks are typically filled from roof run-offs and can be used for many purposes in the home and garden. In areas with access to water mains, the town's water is encouraged for use. In rural areas, rainwater is sometimes cleaner than the water available on the property. Rainwater of a certain quality can be used for everything from showering to washing clothes and watering the garden.

Tanks don't have to be a blight on your garden either, with sub-surface tanks an option, as well as slim-line or colour-matched tanks to suit the home and garden. "I'd recommend getting the largest possible tank for your residence," sustainable landscaper Phillip Johnson says. "You need a tank that works well within your garden space. You can screen the tank with a structure or plants or you can position it out of sight."

Rainwater collection is important on Phillip's own property, with water harvested from the roof and water from the driveway captured separately to support a billabong on site, a haven for wildlife. Collect the cleanest water you can with leaf blockers, backflow prevention and first flush diverters that block the first flow of water from entering the tank to avoid any contamination with dust or animal droppings that have been on the roof.

SHADES OF GREY AND BLACK

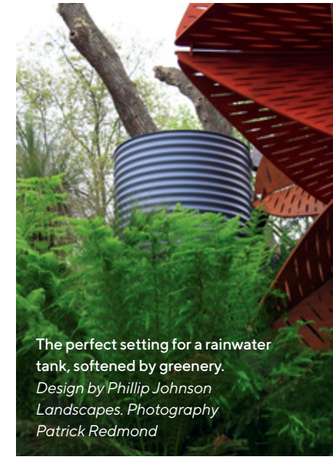
Rainwater isn't the only type of water we can reuse in our homes. There's also wastewater — grey and black. Greywater is the waste water from fixtures such as showers, basins and taps. Blackwater is from toilet waste, kitchens and dishwashers, where contamination of nasty pathogens or grease can be present in the supply. Neither greywater nor blackwater, even after processing, are recommended for use as drinking water. After appropriate treatment, greywater can be used for toilet flushing and clothes washing, while untreated it's great for watering your garden (as long as you take certain precautions).

Blackwater needs biological or chemical treatment and disinfection. Blackwater is only for the outdoors and typically only for subsurface irrigation.

"One of the best ways to utilise greywater is to have a system that pumps the water out to the garden or grass. If storing greywater for more than 24 hours, you need to treat or filter the water, which becomes more expensive and involves more red tape for health approvals," Simon Anderson says. "With blackwater, a worm farm uses worms to break down the

GET SMART

With technology advancing at a rapid pace, automated systems in our homes are increasingly appealing. Automated solar shading systems work with the sun to reduce heat gain and glare in a room. These motorised shading units track the sun to keep you comfortable in your home. Smart irrigation systems are also becoming commonplace and are weather-based or utilise soil moisture sensors. They can sense rain falling and turn off the automatic watering system, or may note the moisture of soil to choose which part of the garden should be watered. When it comes to our pools, there are now intelligent pool units that monitor water quality, chemistry, flow and electrical usage. Pooled Energy's system calculates the most cost-efficient time of day to automatically clean or adjust the chemistry of a pool, and can even tell you if more salt is needed or identify a pump failure before it happens.



The perfect setting for a rainwater tank, softened by greenery. *Design by Phillip Johnson Landscapes. Photography Patrick Redmond*

A small-footprint, minimalist home invites residents to slow down and connect with nature. *The Bungalow by Sociable Weaver. Photography Marnie Hawson*

WASTE NOT, WANT NOT

The idea of recycling blackwater from toilets can be a bit daunting — even if it's just for the garden. Something to remember is that we've always had the same amount of water on earth. In Australia's sticky summers, sweat that falls on the ground could be recycled into plants that we then eat, or it evaporates into clouds that rain on our dams. Who knows, you might be drinking Cleopatra's recycled bathwater this week!

waste, which can then be fed to areas under gardens and grass."

For both grey and blackwater, we recommend thorough and regular testing, as well as using the water where outlined by your local council. With the right precautions and usage, you can utilise wastewater in big ways to lower your consumption.

THE GREAT OUTDOORS

Whether you live on acreage, in the middle of suburbia or the heart of the city, bring a bit of nature inside with careful and considered landscaping and planting. "Plants make us feel good, provide a habitat for birds and insects, keep the sun off a building in summer and provide shade to windows, doors and outdoor decks," James says. "Subject to bushfire considerations, get as much planting into and around your home as you can."

Beyond creating a beautiful and comfortable space for us to inhabit, plants can also be a path to self-sufficiency and a natural way of living. "Making it easy to produce your own food is a game changer," Dave enthuses. "We love constructing veggie gardens and wicking beds within easy access of the kitchen. Consider little things such as built-in compost bins so you can easily manage food scraps."

Make part of your home a glazed atrium for outdoor living and veggie growing of tomatoes or beans year-round. Think of fruit or vegetables that are expensive at the shops and research how those grow so you can work with them in your space. Rooftop gardens are another option, as well as dwarf fruit trees that can be grown in a pot on a balcony or in smaller outdoor areas.

If your fingers aren't particularly green, you can still create a garden to share with wildlife. "A beautiful ecosystem such as a billabong or frog pond will look good aesthetically and allow local wildlife such as frogs, birds and insects to benefit," Phillip says. "The water should never sit stagnant, so circulating the water with a pump is important. Grow plants that attract birds, butterflies, bees and insects."

Investing in your power, water or natural environment will always have its rewards and challenges. Striving for a greener future for our homes and planet is a series of decisions we make along the way. "Be smart in urban design, capture and retain water within homes and communities, and care for and nurture your little patch of green for the future of this planet," Phillip concludes.

Start small or start big, just start with something, and see where it takes you.

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