

# Green Houses

The houses of the future aren't coming: they're already here – and they're looking very good in green. We take a look at homes that won't hurt the planet.



1. Life is good in the Ecovillage

**Some might say** it's everyone's job to make sure the world survives into the next millennium and beyond, but a special responsibility has been laid at the feet of architects: to design and build sustainable houses that are great places in which to live – and do as little harm as possible to our planet.

It may sound like a Utopian dream but there are innovative architects around the world who believe that one day, whole communities will be founded on the principle of sustainability, finally realising the vision of total 'eco-living'.

Traditional towns, consuming and polluting, will be a distant recollection. This brave new world will allow for the establishment of villages run on the three 'Rs': recycle, reuse and respect.

Sound implausible? Think again. Already, there is a village just like this: The Ecovillage at Currumbin, on Queensland's Gold Coast. With thirty-odd local and international awards to its name, its creators claim it is Australia's most awarded residential development – recognition of the site's impressive self-sufficiency with regard to water, energy and social infrastructure. Even the marketing brochures selling The Ecovillage land are printed on environmentally friendly paper.

The entire site is hooked up to a grid-connected solar power system; the grounds are 'edible landscapes', with residents allowed to pick fruit and vegetables not just from

their own backyards but throughout the site; there's a thriving permaculture tended by the residents; as well as waste minimisation and recycling. It is a living, breathing, completely sustainable community. It's also a lovely place to live, as any resident would no doubt tell you.

This innovative development comes as no surprise to David Craven, senior associate, sustainability, at global architecture practice Woods Bagot.

"The idea of creating a sustainable village from scratch would be every architect's dream," he says. "If you were given the ultimate sustainability brief and money was no object – of course, we'd all love to do it. And now that the technologies exist to reduce carbon footprints substantially and the costs are less prohibitive, it's completely possible to achieve, too."

The reality, however, is that most of the work architects do when dealing with residential projects is somewhat different. Nowadays, certain legal requirements for sustainability must be met with every new project, but beyond that, it's up to the client to dictate how 'green' a project should be.

"Sustainability is a key element of our strategy and, beyond meeting mandatory water and energy requirements, there's a lot we can do to reduce the carbon footprint of buildings at the operational phase," asserts Craven.

"Essentially, the sustainability dream is to ensure that during a building's lifecycle – say, sixty years – the environmental footprint it leaves should be neutral at the very least, and ideally, positive. The reality, unfortunately, is that today, very few reach that goal."

The introduction of the 'green star' system for rating a building's eco-friendly credentials isn't just window-dressing; it has also had some clear and demonstrable benefits, believes Craven, but it's not without its complexities. "The rating systems are something of a conundrum," he says.

"On balance, the green star idea is a net positive, encouraging the industry to move to a sustainable outcome. It is managed by the Green Building Council of Australia, an independent body that aims to challenge the building industry."

"But there is a caveat: these stars shouldn't become a surrogate for innovation in their own right. Designers can get



EME Design's River House

trapped in a 'box-ticking' mentality, looking for the least-cost pathways to achieve a Green Star rating rather than focusing on the best solutions for the project and the environment."

#### Into the mainstream

It seems that truly sustainable design is not just about a rating system: it's about an entire philosophy, brought to life through innovative and practical features. Already, some of the best sustainable ideas, which appeared first in bespoke projects around the country, are trickling down into mainstream residential developments. For instance, photovoltaic panels and solar hot water are far more common in the everyday marketplace than they used to be as alternatives to traditional home-heating solutions.

"A sustainable home doesn't have to cost any more: it's just a matter of setting your priorities," asserts Craven. "For example, if you make it a priority to have good cross-ventilation and adequate insulation, you may well be able to do without an air conditioner, or at least be able to downsize its capacity."

'Green roofs' are also growing in popularity. You can see a great example – in fact, the world's first fully funded, competition-winning, retrofitted green rooftop – at 131 Queen Street in Melbourne. Essentially the rooftop spaces of buildings converted into extensive gardens, green roofs have been recognised by town planners as an effective response to climate change and a way to create areas of 'green relief' in the urban landscape.

The Growing Up project, overseen by eight young business leaders participating in the Committee for Melbourne's Future Focus Group, with the full support of Melbourne's Lord Mayor Robert Doyle and local council, is busy proving that nature can coexist happily with the built environment, beginning a push towards greening CBD rooftops, which make up 17 per cent of total land area in the city.

Already becoming popular in urban developments, green

**ALREADY, SOME OF THE BEST SUSTAINABLE IDEAS ...  
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EME Design's Woodleigh School Eco Centre

Photo: Scott Haskins Photography

roofs are another way in which residential developers can reduce the carbon footprints of homes they build – and add real value to the living experience of the residents who get to tend these lofty veggie patches.

Luke Middleton of EME design, specialists in environmental design, has been pushing the envelope regarding sustainability solutions. “Over the past ten years, we have been committed to designing beautiful and efficient architecture,” he says.

“All this time, we have been improving our skills and understanding. In 2002, we celebrated our six-star designs: we used low-solvent paints, and local and recycled timbers. These buildings continue to outperform contemporary examples in terms of saving resources such as energy and water, while remaining rich, beautiful spaces to be enjoyed.

“Last year, we made a new commitment to ourselves and our clients to design buildings that contribute to our environment in a positive way. With one successful working example of ‘carbon-positive architecture’ already in our portfolio – the Woodleigh School in Baxter, which had hands-on involvement from students – we are looking forward to collaborating with our clients to create many more.”

### Designed for living

Middleton explains that “we call our collaborative design process the ‘Elastic Loop’. It’s an approach that asks questions and listens carefully to the answers to provide an informed and creative response. Understanding the requirements and aspirations of the users, and how they enjoy space, is paramount.

“As the name suggests, the Elastic Loop also involves a continuous feedback loop that begins with the project’s

inception. For more than four years, we have been working with [The University of] Melbourne on monitoring the real performance of our homes and school buildings to reveal strengths and weaknesses of theoretical design strategies.”

Examples of the work of Middleton and his company include River House in Mildura, in which Middleton’s use of a combination of materials to meet the client’s aesthetic agenda became a springboard for opportunities to make environmental gains. The initial brief outlined the client’s visual aspirations, which were then explored to uncover underlying priorities that ultimately informed this exceptionally efficient and sustainable project.

Victorian-based Positive Footprints designs and builds environmental homes – “homes that tread lightly on our planet”, say principles Jeremy Spencer and Chi Lu. Sustainability is at the heart of everything they do: such as using the energy of the sun to keep houses warm in winter, heat water and produce power, and that of cooling breezes to waft through rooms in summer.

As well as constructing their houses, Jeremy and Chi help clients choose recycled materials with which to furnish their

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Australia's Zero Emission House (AusZEH)

homes, reducing the use of materials that contribute to 'sick building syndrome'. They recommend gardens planted with native flora to help conserve water and the outdoor environs, and install rainwater tanks and greywater systems. Most importantly, perhaps, the homes they create are beautiful, making the choice to take a sustainable route an easy one.

These are houses anyone would be happy to live in – yet they do little or no harm to their environs. These days, it seems, you do not need to sacrifice comfort or compromise aesthetics to realise a green dream.

Woods Bagot is working on sustainable solutions for residential and mixed-used sites such as exist at its Zero Emissions Design (Zero-E) development in China.

"At Zero-E, we are creating a new model for large-scale zero-emissions development, which is significantly moving [forward] the construction industry's contribution to China's goal to reduce its greenhouse-gas emissions intensity by 40 to 45 per cent by 2020," Craven explains. "For a nation [that] is responsible for some of the most polluting industries in the world, this can be nothing but a very good thing."

It is possible, then, to design homes that allow residents to live in the style to which they have been accustomed without compromising on sustainable beliefs – unlike more traditionally designed homes, whose builders plunder the planet's resources to bring buyers creature comforts.

There's really no excuse for not introducing elements of sustainable design, however small, into every new plan for a home. Costs for innovative solutions are coming down, and the market is waking up to the fact that the future of us all may lie in the hands of home owners like you and me. ☺

[www.theecovillage.com.au](http://www.theecovillage.com.au)

[www.woodsbagot.com](http://www.woodsbagot.com)

[www.emedesign.com.au](http://www.emedesign.com.au)

[www.positivefootprints.com.au](http://www.positivefootprints.com.au)

## Australia's first Zero Emission House

Australia's first Zero Emission House (AusZEH) has joined the ranks of 'normal' houses in Melbourne.

This new, carbon-neutral house was constructed by Henley Property Group within Delfin Lend Lease development Laurimar, north of Melbourne.

AusZEH is a detached residential building featuring innovative technologies and materials. It produces enough energy to meet its needs and its net greenhouse-gas emissions are zero.

This is achieved through energy-efficiency and demand-reduction measures, a six-kilowatt solar panel array, a high-efficiency solar-hot-water system and an energy-management and monitoring system.

The 'embodied carbon' associated with the energy

used in the manufacture of the house is neutralised via carbon offsets. This ensures the AusZEH has a carbon-neutral life cycle footprint – a first in Australia for a residential project. For more, visit [www.auszeh.org.au](http://www.auszeh.org.au)

- The building sector creates 30 to 40 per cent of global CO<sub>2</sub> emissions
- The AusZEH house produces zero-emission electricity to satisfy its energy needs
- The AusZEH demonstration house will use 70 per cent less energy than a traditional home of similar proportions



1. Sustainable houses give you the power to make a change