

MODERN GREEN HOMES Sanctuary

INSIDE ISSUE 15 90+ green building & renovating tips; greener apartments; ask our experts;
reducing building site rubbish; building orientation; 30 pages of sustainable homes profiled

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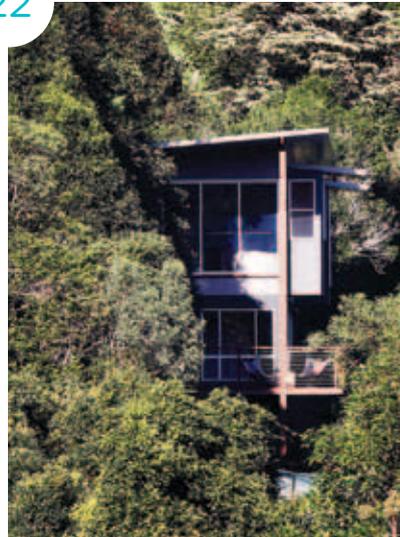


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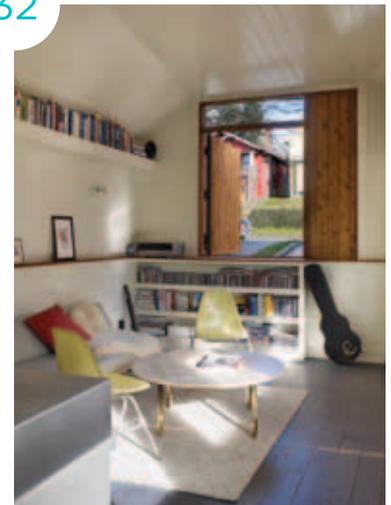


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SMALL GESTURES

DESPITE ITS SMALL SIZE, THIS CANBERRA HOUSE PROVIDES A RICH LIVING ENVIRONMENT, THANKS TO THE GENTLE TOUCH OF ARCHITECTS JOANNA NELSON AND NINO BELLANTONIO

WORDS RACHAEL BERNSTONE
PHOTOGRAPHY DIANNA SNAPE, TIM THOMAS & NINO BELLANTONIO

➔ New kitchen cabinets mark the line of the original porch, which now serves as a small library. Photo by Dianna Snape



HAVING MOVED FROM MELBOURNE'S

inner city to Canberra, architect Joanna Nelson missed the hustle and bustle of the bigger city, but loved the immediate connection to landscape and greenery of the national capital. She and her family fell in love with a small house built in 1959, from a plan purchased from *The Australian Women's Weekly Home Planning Centre*.

"When we lived in Melbourne, our house was on the corner with public space on two sides, so we found Canberra – where houses are separated by large backyards and set back from the road – quite confronting," Nelson explains. "When we found this house, with its two courtyards and laneway spaces between the house and various outbuildings, we felt very comfortable here."

"In some ways, the house felt like a little town, because you move through it and experience it differently from a rectangular house set in a large garden," she adds. "It had an urban quality that was really attractive, but it also boasted Canberra's easy connection to landscape, with the large brittle gum tree at the front, the O'Connor Ridge Nature Reserve up the road, and distant views to the Brindabella Ranges."

Even though they loved the house, Joanna and her family realised that it was too small for their needs. "We have two teenage girls and they were pretty intensely involved in contributing to our brief – they both wanted bigger bedrooms for a start – so it was a tough job to reconcile all of our ideas," Joanna says.

Instead of choosing to knock down and rebuild, Nelson elected to preserve the house and update its interiors, making two small additions: a first floor studio and a plunge pool. "We agreed on a compromise: that we wouldn't change the layout of ground floor but we could add more room upstairs and make the courtyards more enjoyable spaces to spend time in," Joanna explains.

For several reasons, she sought the assistance of a local architect to help her with the project. "I was working full-time in a demanding job, and, having worked in sole practice in Melbourne, I was enjoying the process of working collaboratively in teams," she says. "And because I didn't know Canberra, and its planning system, or any builders, I decided to team up with Nino Bellantonio after seeing one of his houses in a magazine."

The partnership was a good fit – Joanna and Nino shared similar design philosophies, and he was already familiar with the house. "Nino knew a previous owner so he'd been there to visit, and he'd almost bought it before we did, so it was a serendipitous situation because he loved the house too," Nelson says.

By today's standards, this is a modest dwelling – the 170 square metre footprint contains three bedrooms, combined living and dining spaces with a separate kitchen, upstairs studio, one bathroom, and laundry with a second toilet – with many positive attributes, such as big windows that overlook the established garden, parquet floors and timber panelling in the entry hall.

"This is a very flexible house and every room could be adapted to modern living, 50 years after it was built, without any fuss," Nelson says. "It works as well today as it did when it was built. Because it's very compact, we don't have any unused spaces, and the layout – with bedrooms at one end and the living spaces at the other – makes it very functional."

The H-shaped plan means that every room receives abundant natural light, and the layering of windows creates transparency and connection between rooms and from inside to outside. The narrow pavilions make it easy to open up to cooling breezes that flow across the hilltop site in summer, while winter sun penetrates deep into the rooms for natural warmth.



↑ The living room remains unchanged. The feature wall has a "crazy paving" pattern marked into the render, which matches the exterior rendered base walls. Photo by Dianna Snape

"In Canberra, there is a tendency to knock down and rebuild these 60s houses, many of which have great qualities, or to undertake a makeover that obliterates what was there."

TALLOWOOD TREEHOUSE

SMALL AND SMART: ANOTHER NEW HOME AT THE CURRUMBIN ECOVILLAGE SHOWCASES BEST PRACTICE ESD

WORDS TIM BLYTH AND ANGELA CROCOMBE
PHOTOGRAPHY JANALYN YANOVER



↑ The sensitive ecosystem on the site dictated a slim compact footprint to avoid the need for felling of trees.



SHED BUILT

MAKING THE MOST OF EXISTING SPACE TO INCREASE DENSITY AND UTILITY IN URBAN AREAS IS WELL UNDERWAY IN SEATTLE

WORDS VERITY CAMPBELL
PHOTOGRAPHY BEN BENSCHNEIDER

📍 The living/dining room looks out to the garden through a half-door above a bookshelf. This door replaced the original garage door – it's clad with salvaged cedar milled into shiplap siding.

↪
The faceted ceiling and the level of the sleeping loft, extended by the bookshelves to the full length of the room, “draw one’s eye along the length of the building”, says designer Thomas Schaer.

IT WAS TIME TO MAKE A DECISION ABOUT THE DECREPIT

garage in the backyard of a family house near downtown Seattle. The owners were happy with onstreet parking, so they didn’t need the use of a garage. They also knew, because of building codes, that they wouldn’t be able to replace it with a new dwelling. So they invited SHED, a Seattle architecture firm of experienced builders, to help them think laterally. The brief was to increase the building’s utility, to ensure it was making the most of the land and to make sure it wasn’t just “idling” space for their “stuff”.

The solution transformed the building, enabling it to perform a number of functions within the same footprint. Once a faded, overstocked and cobwebbed garage – now studio apartment (with exit/entry separate from the main home), storage (reduced, but better designed), and workshop. The dwelling can be rented independently of the home or used as a home office or guest house; the newly excavated basement workshop and storage space are accessible by the clients in the main home.

While the transformation was fairly simple in execution, it took three summers to reach fruition. Construction was a collaborative effort between SHED, the owners, and friends, and work occurred as funds and labour were available.

The first step in the project was to replace the garage’s rotten stumps with an earthquake resistant steel frame, fabricated and installed by SHED. “It allows for the corner of the garage to float above the yard, keeping it visually light and creating a porch for the lower level,” says Thomas Schaer, a principal of SHED who designed the space and did much of the construction. While replacing the stumps, they excavated under the building, creating a cavity for storage space, a workshop, a laundry, and space for the high-efficiency tankless water heater for hot water and radiant heat.

Work on the garage proper came next. Most of the external weatherboards were worn and rotten; those that could be salvaged were used to clad the porch ceiling at the entry to the basement workshop. The rest were replaced with lapped fibre-cement planks for low

maintenance and longevity. The planks were attached over battens to create a ventilated cavity integrated with the roof vent cavity. The air intake is at the base of the siding, and air is exhausted via a continuous roof ridge vent. This is very effective at keeping the building cool in summer, according to Thomas. “The air behind the dark siding heats up and a convection loop draws it up and out – the interior stays cool in summer despite the southern exposure.”

The existing tongue and groove internal timber panels were retained and insulated with blow-in insulation to reduce heat loss, while the roof was insulated with rigid foam.

The interior of the studio apartment needed a thoughtful design approach to ensure a light and generous living space despite its modest 29.7 square metre footprint. A compact core was inserted into the north-west corner of the space, set at an angle, and clad in salvaged horizontal timber planks. It houses the bathroom (including bath), clothes cupboard, and an oven and mini fridge, concealed to minimise clutter in the main room. A small L-shaped kitchen was created from Ikea cabinets clad with salvaged planks and an aluminium sheet bench top. The cabinets house the two-burner stovetop, sink and kitchen storage. The small living space is augmented by a vertical “light scoop” window that directs late afternoon light deep into the room.

Stairs lead up to the mezzanine bedroom with its triangular window, openable to vent hot air. According to Thomas, “the faceted ceiling, a unique feature of this building, guides warm air to the vent window”. Along with the horizontal planks and mezzanine, this feature also helps to draw the eye from one end of the space to the other and out.

Once finished, the studio apartment was a cinch to rent, with an industrial designer in his 20s snapping it up. The owners now have a regular income from a previously under-utilised part of their block, plus storage and a workshop – all for a modest budget of AUD\$40,000 (including sitework and materials; excluding labour). They can also boast an award – the shed recently won as “cutest tiny shed or building” in the Design + Architecture category of TreeHugger.com’s Best of Green 2011 awards.



IN CASE OF FIRE

THIS NEW HOME ON A BUSH BLOCK NORTH-WEST OF MELBOURNE MEETS NEW REQUIREMENTS FOR BUILDING IN BUSHFIRE PRONE AREAS, WITHOUT SACRIFICING SUSTAINABILITY OR LIVEABILITY

WORDS ANNA CUMMING
PHOTOGRAPHY YVONNE QUMI





A special flexible substrate called Flexene was used to achieve the curve in two directions (www.flexene.com). Artwork above fireplace by Annie Mertzlin.



WHEN THE NEW VICTORIAN STANDARDS for building in bushfire prone areas came into effect in 2009 following that year's devastating fires, Andreas Sederof of Melbourne's Sunpower Design already had the perfect project to take the new requirements through their paces.

Adjoining the Wombat State Forest near Daylesford in country Victoria, the 15 hectare block that clients John and Catherine had bought for their eventual retirement was completely treed, and their preferred house site was rated just under Bushfire Attack Level (BAL) 40 on the new scale [see boxed text on p46]. "We decided to build to BAL-40 requirements anyway," says Andreas.

This led to a choice of a concrete slab, walls of tilt-panel concrete, fire rated double-glazed windows with aluminium frames and a Zinalume roof. The design of the curved two-

level structure fitted into the slope of the site is deliberately simple to minimise opportunities for ember attack during a fire, and all external living spaces are paved rather than decked.

Happily, many of the material and design choices made for bushfire resistance also met the owners' requirement for low maintenance. "We want to be able to live in the house long-term as we get into our older years. The concrete means no external painting, and the guttering has been designed not to clog with leaves," John explains. If it became necessary, John and Catherine could live entirely on the upper level, accessible from outside without steps, and save the downstairs area for visiting family.

Sustainability and energy efficiency were also key parts of the brief. All of the rooms in the house face north to allow passive solar gain, and polished concrete slab floors provide

thermal mass to help regulate the internal temperature. Tall, narrow double-glazed windows are the full height of the house, and can be shaded with remote controlled external blinds. The main living area on the upper level features a set of large folding doors opening to a patio, a small kitchen at one end, and a slow combustion wood heater for use in the region's cold winters. The space is the full width of the house, and Catherine confirms that "the small low windows in the south wall and larger ones in the north ensure really effective cooling cross ventilation"; there's no need for air conditioning.

Rainwater is collected in three tanks totalling almost 80,000 litres, with a fourth tank located up the hill for firefighting. A chemical-free NovaClear aerated membrane filtration system treats both grey and black water to Class A standard. Inside, engineer

John's pride and joy is the combined hot water and hydronic heating system. Heated by evacuated tube solar collectors on the roof and boosted by a wood-fired boiler, hot water is circulated continuously through the four heating panels around the house and to the kitchen and bathrooms. This means that for the cost of a small amount of energy for the pump, hot water is available as soon as the tap is turned on, reducing water wastage. At the moment, the house uses grid electricity, but John and Catherine plan to add a photovoltaic system; the wiring needed has already been installed.

The finished house achieves an energy rating of 8-stars, and requires only metal mesh screens on the opening windows to bring it to full BAL-40 compliance. The owners are very happy with the result. "The house is comfortable in both winter and summer.

And with proper fire preparation and planning, I'd consider staying during a bushfire," John says, "although Catherine might be less keen!" With so many precautions against ember attack and radiant heat, the couple can be confident that the house has an excellent chance of surviving a fire even if they chose to retreat to safer ground.

John and Catherine were keen to find a piece of land that they could "take responsibility for and protect". The treed property adjoins the Wombat State Forest, effectively extending the refuge available to native fauna.

CO-HOUSING

THE CO-HOUSING MOVEMENT IS GROWING RAPIDLY, PARTICULARLY IN EUROPE AND AMERICA.

WORDS TIM BLYTH AND ANGELA CROCOMBE



➔ A view at sunset of the Frog (First Residents Group) at the Ecovillage at Ithaca in New York. Photo by Robert Nickelsberg/Getty Images

People usually buy into an ecovillage, off the plan or once it has been built, but those in a co-housing project go on a long journey together.

Most of us are familiar with the concept of the ecovillage, but co-housing is still relatively rare within Australia. Co-housing residents have intentionally chosen to live within a community and commit to sharing some resources. Traditionally, co-housing was primarily concerned with achieving social objectives, but these days sustainability is emphasised through ecologically sustainable design (ESD). The co-housing movement is growing rapidly, particularly in Europe and America, and there are many exciting examples sprouting like wildflowers around the world.

THE BASICS

Co-housing is traditionally set up as a community of between 10 and 40 households. Too few and there are not enough people for collective advantage or diversity of skills. Too many and people can no longer distinguish between neighbours and strangers, and decision making becomes too protracted. There are many larger examples, but smaller communities are often created within the whole to keep the group functional.

Co-housing first originated in the mid 1960s when Danish architect Jan Gudmand-Hoyer gathered a group of friends together to discuss housing options with the aim of “a more supportive living environment”. The first two communities, both completed in 1973, were Saettedammen outside Copenhagen and Skråplanet, near Hillerød.

Co-housing developments are considered “intentional communities”, but unlike communes they are not based around any spiritual beliefs and they primarily exist in an urban rather than a rural setting. Contemporary co-housing generally involves properties with individual title for residents but shared utilities like water and electricity and a much greater overlapping of everyday lives than a conventional housing estate.

Literally at the heart of most co-housing developments is the “common house”, which is a multi-purpose room that is large enough for communal meals, meetings, and other group activities. Most co-housing groups have a shared meal at least once a week and this is considered a vital part of community building.

Shared utilities may include a laundry, workshop, garden shed and guest rooms, avoiding repetition of facilities and reducing the footprint of individual dwellings. Separation of cars from residences is considered important, with car spaces located on the edges of the community, pedestrian walkways between houses, and high-use areas such as kitchens facing outwards to increase spontaneous interaction with neighbours.

CO-HOUSING VERSUS ECOVILLAGES

While ecovillages and co-housing projects have much in common, there are subtle differences between the two. On the practical side, the red tape of purchasing land and organising initial planning permits for an ecovillage is often done by a developer, whereas in co-housing the residents themselves usually establish their vision and design objectives and then find the land to build their dream. People usually buy into an ecovillage, off the plan or once it has been built, but those in a co-housing project go on a long journey together. And while an ecovillage usually features a common room, the residents have not spent as much time together building the dream so the sense of community is usually not as strong.

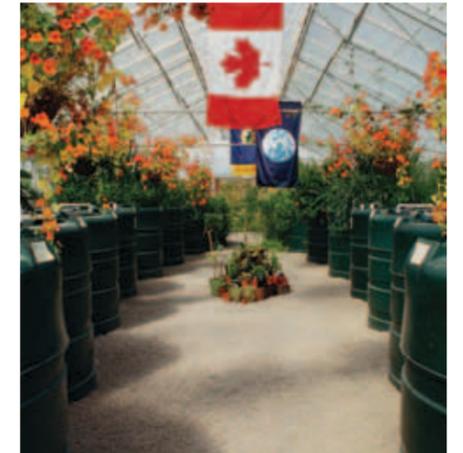
Mike Hill, founder of WestWyck ecovillage in inner Melbourne, highlights the difference between the two when he says, “At WestWyck we have taken a deliberate market-exposure approach in the belief that sooner or later a community will form according to who makes a decision to move in.”

While sustainability is usually at the core of both formats, in an ecovillage individual space is valued more, so houses can be quite diverse and spread out. In contrast, the goal of co-housing is to have houses close together to encourage interaction and fairly uniform in style to minimise costs.

FORMATION AND DECISION MAKING

It can take between four and ten years to set up a co-housing project, from setting up the basic structure to agreeing on a design, getting the plans through local council and finally, construction. People sometimes drop out during the long journey, allowing other people to join. There is rarely a screening process, but potential residents need to understand the basis for the community and the expectations regarding participation before they buy or rent. Homes are strata title so they may be sold on to other interested parties if someone wants to leave, and most communities have a waiting list, making finding new residents fairly easy.

Tony Kidd from Co-housing Australia suggests that the typical co-housing personality is one who wants to have control of their lives. Co-housing can be a way of making interactions easy and providing a decision making model that allows the community to make decisions about what suits their lifestyle. Most intentional communities use consensus decision-making, whereby everyone must agree before they proceed. This can work well for small groups but can be time consuming and participants can suffer from “meeting fatigue” as they thrash out the nuts and bolts from everything to what features they want in their



Clockwise from top left: A “Experience Week” group at Findhorn, Scotland; The Biological Living Machine at Findhorn treats sewage from the population of 500; Bungalows at Findhorn offer independent accommodation for residents’ guests. Photos courtesy Findhorn Foundation

