DESIGNING AN URBAN OASIS

Words by Megan Norgate Photos by Emma Byrnes

Eight years ago we bought a dilapidated 1940s Californian bungalow in Melbourne's inner northern suburbs. It was in a semi-derelict state, had a heritage overlay and flood level restrictions, and was on a long, narrow block. However, the site was extremely special, and backed onto the Merri Creek wildlife corridor.

The real value for us was not in the bricks and mortar, but in the proximity of the majestic gum trees, running water and the deep buffer of native vegetation on either side of the creek, creating a nature sanctuary in an urban environment. We began thinking about our home as part of a permaculture system that would integrate the built, interior and biological environments. I wanted to create an urban existence for my family that allowed us to connect with nature and our local community on a daily basis.

OBSERVATION

As we designed the renovation, it was important to observe the building over the seasons of a full year: to spend time on the site, noticing the patterns of the elements – sun, water and wind – in order to harness them for use in our home.

CAPTURING ENERGY

All buildings have some potential for passive function. To make the weatherboard home thermally efficient, we took the whole building apart, piece by piece, back to its structural frames. We then wrapped it in insulation and put it all back together again, sealing every little gap as we went. The extension was built on a suspended concrete slab which allowed us to introduce thermal mass. We located new windows to open up the home to the winter sun, while remaining shaded in summer and capturing cooling breezes. We reoriented the room layout so that all living areas faced north, flooding the spaces with natural light and allowing the winter sun to reach its long fingers inside.

PATTERNS OF USE

By reconfiguring the layout of the existing home, and extending it, we resolved the spatial design around patterns of use. This design solution creates healthy and resourceful living so that the home functions with the 'path of least resistance'. Our common utility areas are butted up against the social areas, so that no one feels like they're in purgatory while doing washing in the laundry. When it's raining, we can walk barefoot from the house under a clear roof off the deck to hang washing outside. Living in the new home, our daily tasks and rituals are now performed in an ergonomic, logical and enjoyable fashion. The best 'storage vessel' for the heat and energy of the sun is the human body. Ideally, we can wake up to the sun, eat breakfast with it streaming through the window, and then relax at the end of the day while watching it set.

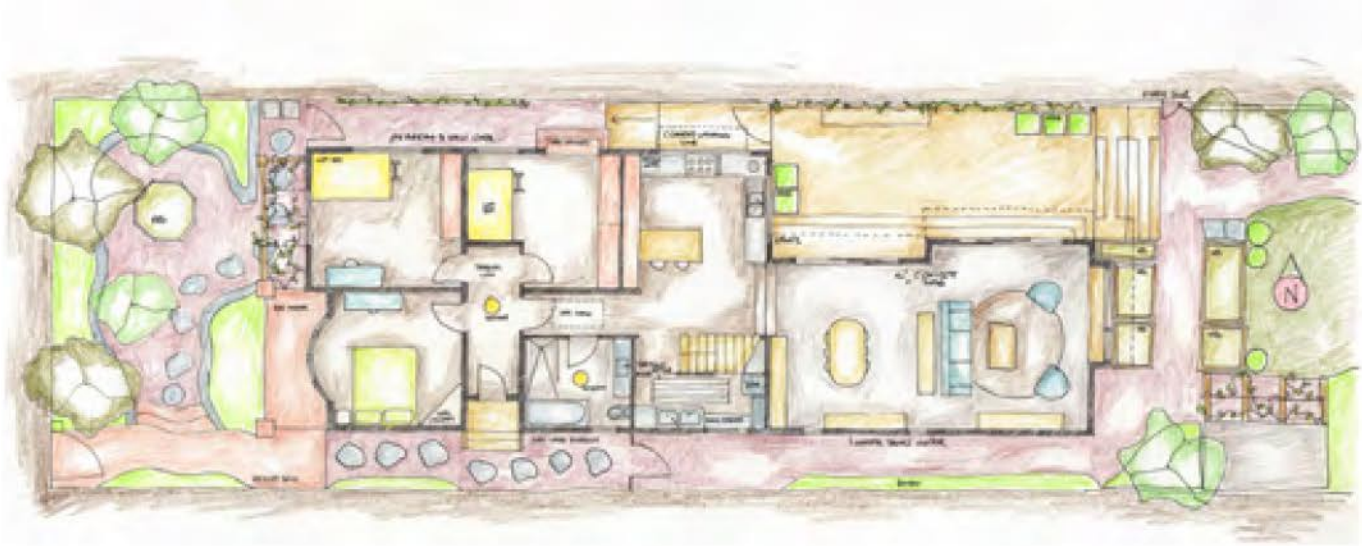
RESOURCEFULNESS

During the construction process we sought to produce the minimum amount of waste possible, by first looking at what we had around us, and then making the most of existing and discarded materials. Demolished materials, such as cabinetry and architectural features, were gathered and stored for reuse, resold, or collected for further recycling.

We repaired or partially replaced what we could, salvaged undamaged weatherboards, collected the old hardwood skirtings and architraves, and sourced additional salvaged timbers, doors and fixtures. We consistently placed value on the marginal – the little details and elements of a design that bring character and resourcefulness to our family home. Every cupboard handle, window winder and surface material is where you have the opportunity for the greatest change.

TIME

The design process requires great consideration, testing and evolution over time. For every week we spent in design con-



sideration, the project continued to improve. This also allowed for a nuanced design solution in direct response to our community relationships and collaborations. Clear and honest communication within the whole renovation team was so important, to ensure that we shared our vision and considered everyone's concerns. This slow and evolving approach to design reprioritises the experience and connection between people over the goal of a rushed completion date.

Our home has been allowed to 'cure' beautifully over time, retaining the potential for future adaptations. When using materials with natural patinas their effect is only fully realised over time; and it's then that our home starts to come alive. I try to choose special pieces that are worth keeping, as we appreciate the skill and materiality of highly crafted objects that ultimately become heirlooms.

BREVITY

I had to curb my enthusiasm for collecting things that take up more space. Our cupboards were intentionally designed not to be deep to avoid things disappearing into the out-of-reach dark zone. We created one large central space that opened up to the same amount of outdoor decking. Our home has become a place where we can welcome our extended community, a shared resource. This has allowed us to host community groups and events. We also welcome help-exchangers and the neighbourhood children at all hours of the day.

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Our bedrooms and utility rooms are modestly sized and shaped for their intended use. Bathroom and laundries are long and thin to maximise wall space and access to light, and to minimise unnecessary circulation space. High loft beds in the kids' bedrooms create more floor space for them to play. The hallway was made just wide enough to run a desk along its length, and to create an office area without dedicating a room to that purpose. The roof space has been lined and fitted with pull-down ladders to store seasonal gear. We also have cupboards that run to the ceilings, above normal head height, so that desks and beds can fit underneath. These design outcomes maximise the use of our precious vertical space.

LIVING ON THE EDGE

Edges in nature typically contain the densest diversity and activity, and this includes human-inhabited spaces. We paid special attention to articulating the spaces on the edge, from outside in, from public to private, from down to up. These transition spaces are where people interact the most with one another; and blurring these boundaries can create opportunities for dynamic relationships and communication.

We removed any high fences from the front yard, so that we could talk to our neighbours and passers-by on the street while working in the garden. We created a small door in the back-garden fence so that the younger children next door could come and go without needing to be walked along the street. Our delight never ceases when our littlest and most curious neighbours pop up into our garden and kitchen.

We created a pergola to reach the boundary, to: provide summer shade to the north-facing windows; and to house a vertical, recycled-hardwood screen, creating some privacy and a vertical surface on which to grow grapes, berries and honeysuckles. We took down the tall paling fence between the backyard and the creek, and replaced it with a low, open-wire fence. This allows us to observe the creek beds, native vegetation and wildlife. Another two houses in the area have since followed suit, and now our chickens forage periodically on the creek side, saving us from cutting back grasses and weeds, and providing them (and us) with an abundant source of food.

STACKING FUNCTION

We sought to integrate diverse design problems into one solution, maximising the use of available space. We created play-nooks under the loft and in the fireplace alcoves; these will later become study-nooks and bookshelves when the kids get older. We use the laundry as an indoor drying room as well as a bulk-goods store. We have located our solar hot-water tank inside, in an otherwise useless space at the top of the stairs, so that we can dry wet boots, make yoghurt and maybe even hatch eggs in the warm cupboard.

INTEGRATION

I sought out 'responsive' materials, finishes and furnishings, by selecting items with a tangible context, that relate to the

Front page, above to below: Living to north facing deck with recycled ironbark vertical screens; View of extension from the bottom of the garden.
This page, clockwise from top left: Window seat made from left over floorboards. Front garden from street, recycled brick path and timber fence; Kitchen with recycled timbers, light fittings and appliances; Disappearing through the kiddie trap door.

region or that have a historical or emotional relationship to us. This enabled me to explore an authentic regional and personal design vernacular. Our home is lovingly filled with hand-me-downs from our family, and objects that we have collected, made, salvaged and found over the years. This means that our home doesn't have a particular look, but is more a collection of personally significant things, gently curated into a pleasing combination of usefulness and decoration.

YIELD

Our home has produced outcomes far beyond aesthetic and economic results. We have fresh, healthy food, happier children and meaningful friendships and connection with our community. Everyone who worked on the house spoke warmly of their experience, despite having to carry everything down steep, muddy paths. We would sometimes stop work to gently relocate wildlife that kept moving into the building site, such as the little ringtail possum found asleep in the middle of a cloud of bulky insulation one morning.

The peripheral yields have been through the learning received from and between everyone involved in the project, the guests we have hosted in our home, and the open days and tours I've run. Our home design has fundamentally changed the way we all live and contribute to the community.

We are thankful that we live, work and go to school within walking distance. We are very privileged to live here, and to have access to abundant nature within the cultural amenities of the urban life. We get to experience a diversity of wildlife every day; we're visited by kookaburras, blue-tongue lizards, tawny frogmouths and the odd tiger snake.

This home has reiterated the importance of urban wildlife corridors and shared productive space. We have an opportunity to redesign our suburbs in a context of neighbourhood-scale resilience and autonomy, creating homes and landscapes that contribute to this end.

Megan Norgate is a permaculturalist, sustainable design consultant and interior designer who runs the cross-discipline design studio Brave New Eco in Melbourne. Megan is a passionate advocate for applying permaculture thinking to designing our built environment. For more information see www.braveneweco.com.au

ECOLOGICALLY SUSTAINABLE DESIGN FEATURES OF HOUSE

Passive Solar design

Building extension oriented along northern axis; Minimal southern glazing used and northern glazing to 80% rooms; Utilities on south side living areas to north; Eaves and pergolas on north facing windows designed to prevent summer sun from hitting the windows.

Thermal mass

30% fly-ash suspended concrete slab for extension to introduce thermal mass for passive heating and cooling capacity.

Renewable energy systems

2.5 kw photovoltaic array installed, providing 3x household power use.

Rainwater harvesting

2x 6500 L bladder rainwater storage plumbed to toilets, laundry and garden; Enclosed guttering to reduce blockages and maintenance;
Cold water reticulators on interior taps – diverting water to tanks; Evacuated tube solar hot water; Gravity fed greywater diversion from bathrooms to garden.

Lighting and power-saving features

Power monitoring device; LED light strips in bathroom and kitchen; Recycled timber custom light shelves; Vintage pendant light fittings used.

Windows

Double-glazing with two layers 4 mm clear glass (toughened where required) and 12 mm argon filled gap; Windows designed to be fixed securely open and to direct cooling SE breezes through building; Butinol spacers, for reduced heat transference; Solatube daylighting systems in darker rooms. Windows designed allowing for curtain mounting and stack-backs.

Insulation and sealing

Double timber frame staggered stud wall framing system to extension for increased bulky insulation capacity and to reduce thermal bridges by providing a continuous thermal blanket; Minimum 85% recycled content polyester thermal batts; two layers to walls and ceiling; Reflective foil under plasterboard behind hydronic heating panels; Vapour-permeable building paper used on whole house, all joins taped; Underfloor insulation installed under floorboards and concrete slab base and edges; Weatherboards removed and reused or replaced in original house in order to retrofit insulation to entire existing building; Original Baltic pine floor removed and recycled. Particleboard-flooring substrate laid beneath recycled black butt floorboards to reduce drafts and gaps; Bathtub recess filled with bulky insulation; Ceiling manholes insulated; Original fireplaces sealed and lined with insulation; Edges of window frames carefully insulated; Wall vents filled in and covered; House sealed and draught-proofed.

Ventilation, cooling and heating

Thermostatically controlled vents to ceiling spaces; Rain sensor fitted to high hopper window for overnight venting of hot air; Building designed to maximise crossflow and passive stack ventilation opportunities; Ceiling fans installed throughout; Hydronic heating condensing boiler installed with individually controlled thermostats to each wall panel; Floor vent installed beneath fridge to allow cool air to pass the back of the fridge.