

Low-carbon refresh

A lightweight, modest extension has transformed the living space of this inner Sydney house, and made entertaining much less awkward.

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PHOTOGRAPHY Thomas Kayser

LOUISE AND JOHN HAD BEEN LIVING IN their Federation home with its pokey 1970s lean-to for 14 years when they finally decided enough was enough. It was time to end the frosty bathroom winters and the need, when guests came over, to pull the table into the centre of the room right next to the bathroom. “You had to wait until everyone had moved into the lounge room after dinner so that you could use the bathroom in privacy,” recalls Louise.

It was time to replace the kitchen-dining-bathroom with something spacious, more energy-efficient and comfortable, tailor-made for entertaining.

The couple enlisted Sharon Hamilton and Darryn Parkinson from Your Abode to help them with their vision. As interior

designer, Sharon worked with Louise and John on the fitout. Having an expert assist with interiors wasn’t something they had set out to do, but it made a huge difference, says Louise.

Darryn’s task was to resolve the design challenges: most importantly, to accommodate the spatial requirements of the new structure while keeping the footprint of the addition small. He also needed to bring in natural light to the south-facing addition. His solution was to create a lightweight addition with an ensuite and walk-in robe connecting back to the original part of the home, and expansive open plan living, dining and kitchen opening onto a deck.

Despite the modest size of the addition,

at just 56 square metres, the home now “has a wonderful sense of space,” says Louise, “because we’ve got the large windows to look out and plenty of light coming in.” Lofty dual cathedral ceilings with north- and south-facing glazed gables draw natural light deep into the extension.

Alongside recycled flooring, low-VOC finishes, LED lights and other environmentally friendly features, the home benefited from some careful attention to detail. Insulation was installed underfloor – an area often overlooked – while all external windows and doors were weather sealed – another detail usually left to homeowners. Darryn also beefed up the insulation of the walls; instead of fastening the external Shadowclad cladding straight



Louise and John's new addition comfortably accommodates their dining table, rectifying a major inconvenience of the original home. A glazed, low-e north-facing gable above the kitchen permits solar gain, and ceiling fans with a reverse function help keep the living spaces at a comfortable temperature year-round.



← From the street, the 1.5kW solar PV system gives a hint of this renovated Federation home's new eco credentials.

→ The new kitchen features water efficient tapware, Greenguard certified Corian benchtops and E0 low-VOC materials for the cabinet joinery, with blackwood veneer. An east-facing window floods the space with morning light.



onto the timber framing, he first fixed it to timber battens, allowing the walls to ‘breathe’ more easily, meaning moisture doesn’t get trapped. It can also increase the wall’s R value by up to 0.5. “It’s a good option for lightweight construction like this,” says Darryn. “There’s only so much room for insulation, but with this method you can make the walls work harder and be healthier without needing to stack in more and more insulation.”

Your Abode commission a Life Cycle Assessment (LCA) for many of their homes. A building LCA looks at the embodied carbon in a new build or renovation over

the life of the building, comparing it with equivalent ‘standard’ homes. It looks at what goes into the home to build it, and what impacts these choices make operationally over the life of the home. An LCA includes data on materials, waste, transport, energy use and end of life management. The LCA findings for Louise and John’s home showed that its embodied carbon was 291kgCO₂e (kilograms of carbon dioxide equivalent) per person per year – a saving of 65 per cent compared with a ‘standard’ home. This is mostly due to the reuse of as much of the original building as possible and the use of lightweight

materials. The building’s operational carbon, which includes how much cooling and heating the home will need, came in at 1624kgCO₂e per person per year – a saving of 46 per cent.

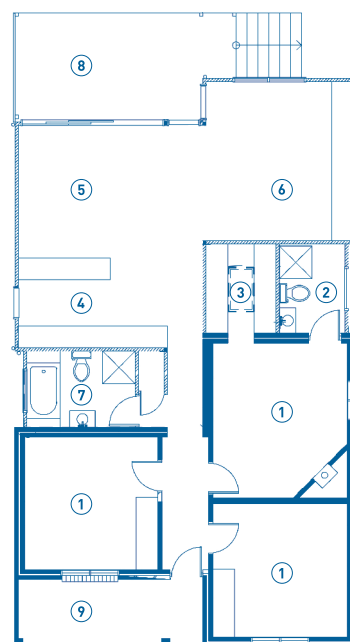
For Louise and John these figures translate into a comfortable home year-round, with the satisfaction of having minimised their carbon footprint. Louise estimates they’re paying about the same on their utility bills as they were before the addition – despite the increase in utility prices and in the size of the home. And now, they have a table that can extend to sit 12 – with no bathroom doors in sight. **S**



John and Louise found that having an interior designer on the team was particularly useful when choosing kitchen and bathroom components. Bathrooms feature 4 to 6 star WELS-rated efficient tapware.



FLOOR PLAN



LEGEND

- ① Bedroom
- ② Ensuite
- ③ WIR
- ④ Kitchen
- ⑤ Dining
- ⑥ Lounge
- ⑦ Bathroom
- ⑧ Deck
- ⑨ Veranda

West Ryde

—Specifications

Credits

DESIGN

Your Abode

BUILDER

Your Abode

PROJECT TYPE

Renovation

PROJECT LOCATION

West Ryde, NSW

Sustainable Features

RENEWABLE ENERGY

- Kyocera 1.5kW photovoltaic system.

WATER SAVING

- Two 3000L rainwater tanks collect from the entire roof area and water is filtered before being used in toilets, laundry and garden
- All gutters are leaf-screened to maintain water quality
- 4 to 6 star WELS-rated toilets, water fixtures and appliances
- EcoVerta diverters in bathrooms divert the initial cold water in hot water pipes to the rainwater tanks
- All hot water pipework has been insulated in excess of Australian Standard minimum requirements.

PASSIVE DESIGN / HEATING & COOLING

- Lofty dual cathedral ceilings with north- and south-facing glazed gables draw natural light and warmth deep into the extension
- Carefully designed eaves prevent heat gain in summer whilst allowing solar access in winter
- Insulation levels within the walls, roof, ceiling and floor all exceed minimum requirements
- External cladding has been fixed to cavity battens, providing an additional insulating layer within the wall system and improving the thermal performance of the external envelope
- All external doors and windows have been fitted with seals to ensure a tighter building envelope.

ACTIVE HEATING & COOLING

- Fanco Urban 2 ceiling fans in all living spaces have a winter setting which reverses the direction of the fan, aiding in winter heating
- Existing small split system air-conditioning unit retained for the new addition.

BUILDING MATERIALS

- Kingspan Kooltherm underfloor insulation with a total R value of 1.8
- Reclaimed Australian hardwood for flooring, deck, structural beam and pergola
- Many items from the previous house recycled into new house; e.g. salvaged blackbutt flooring was crafted into vanity and wall cabinet units
- External cladding is Shadowclad plywood, manufactured from plantation grown pine; the layout was designed to work to full sheet sizes where possible to reduce material wastage
- Recycled bricks have been used for the piers and recycled hardwood for the bearers and joists underneath the addition, reducing the environmental impact of the addition
- Kitchen cabinetry and joinery made with Laminex E0 low-VOC boards
- Corian benchtop chosen for Greenguard certification.

WINDOWS & GLAZING

- High level, low-e gable glazing means no artificial lighting is required during the day
- Well-placed windows and doors harness cooling summer sea breezes for cross ventilation

- Viridian low-e glass, which has an efficiency improvement of 20-30% over standard glass, with custom-made frames for all windows and doors
- Custom recycled hardwood slatted screen external shading fitted to over-exposed west-facing windows, reducing heat gain in the hotter summer months.

LIGHTING

- LED (including Brightgreen) or contemporary fluoro lights throughout.

PAINTS AND FINISHES

- Low-VOC Murobond Pure paint used for walls and ceilings
- Low-VOC Murobond Murothane clear finish used on internal timberwork
- Synteko Natural zero VOC floor oil used on timber floors
- Blackwood veneer kitchen cabinets finished with Briggs Veneer water-based polyurethane.

OTHER ESD FEATURES

- The house has had a life cycle assessment undertaken of its embodied carbon impact, which has demonstrated a near 50% saving over a 'standard' house
- High energy efficiency-rated appliances
- An Efergy energy monitor has been installed in the house providing the users with real-time information on their energy usage.