## MODERN GREEN HOMES

ISSUE RENOVATION & Retrofitting for energy efficiency; a strawbale Passive House; 54 RETROFIT SPECIAL design for bushfire & climate resilience; keeping backyard chickens

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### Old house »green house

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# Adding by taking away

LOCATION Paddington, QLD • WORDS Rebecca Gross • PHOTOGRAPHY Andy Macpherson



#### At a glance

- Thoughtful reconfiguration reduced the home's footprint while improving liveability
- Courtyard added for sunlight, breezes and connection to outdoors
- Energy rating improved to 6 Stars
- Passive solar design with minimal need for active heating and cooling

An airy renovation retained the distinctive characteristics of this classic Brisbane Queenslander, improving its passive solar design and internal arrangement while minimising demolition, resources and footprint.

The Queenslander is a distinctive style of domestic architecture that emerged in response to the subtropical climate of much of the state. Queenslanders were typically elevated to allow cool air to flow under the house; verandahs protected residents from the harsh sun and heavy downpours. Decorative timberwork, which provided privacy and shelter, was a key feature.

Homeowners Louise and Andrew wanted to maintain the classic qualities of their Queenslander home in the Brisbane suburb of Paddington, but were keen to make better use of its passive solar features and improve the internal arrangement without increasing the footprint.

When the couple purchased the house in 2006, it had been raised further off the ground by earlier owners and an outdoor laundry built underneath. Louise and Andrew enclosed the downstairs to create more room when their first daughter was born, but it was a dark and gloomy space. Upstairs there were problems too: a lean-to and deck had been tacked on, the kitchen was dark in the afternoon, and the front verandah 'sleepout' had been enclosed. The bedrooms opened straight off the living area and lacked privacy, and they were exposed to the hot afternoon sun.



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The reconfiguration has greatly improved the connection between the living spaces and the outdoors. "We love being able to look outside and see lots of green around us, which you wouldn't necessarily expect living four kilometres from the city," says homeowner Louise.



Andrew and Louise engaged local architecture firm Arcke to reconfigure and update their home, creating a more comfortable, liveable and energyefficient environment and giving their two daughters more separated space to grow. The team at Arcke worked with the existing structure and materials wherever possible to minimise demolition, resources, budget and footprint. "The most sustainable form of building is to build as little as possible," says director Matt Kennedy.

The facade of the Queenslander gives no clues as to what now unfolds behind it. "It's about quality of space, not quantity," Matt says. The open living, dining and kitchen are upstairs, extended onto the footprint of the old lean-to and deck. A courtyard was carved in where the old kitchen and bathroom used to be, providing an element of separation between spaces. Louise and Andrew's bedroom is upstairs, and their daughters' bedrooms and a large rumpus area downstairs. Redesigning the circulation through the house means that quieter areas are separate from primary thoroughfares, and the openness and transparency is conducive to both visual connection and cross ventilation.

"Cross ventilation is key for Brisbane's subtropical climate," says Matt. The back of the house has a desirable southern orientation, and opening up the old sleepout on the north-east corner allows cross ventilation through the house. The new courtyard also brings eastern and northern light and breezes inside, with louvres that can be left open without compromising security. "Taking advantage of the breeze and light makes such a difference to the liveability of the house," says Louise. "It's nice to be in a house that doesn't need to have air conditioning on to make it comfortable."

The kitchen, now on the western side, is protected from afternoon sunlight and heat by a tiled, insulated wall. It is now also connected to the backyard via a brick platform and steps that provide places to sit and socialise and that incorporate plants. Maintaining the existing footprint of the house – in fact, it was slightly reduced – means the backyard is still large, with a pool and grass for the kids to play soccer.

Downstairs is the coolest place in a Queenslander, which is why they are traditionally left open underneath. The two girls' bedrooms are modest in size and open to the rumpus area that provides plenty of space for different activities. Arcke used the existing concrete slab inside, but built up the ground level of the courtyard to create the feeling of a sunken floor. Full-height glass doors around the courtyard bring natural light and ventilation downstairs, as well as allowing for connection between upstairs and downstairs. "Subterranean spaces are often a challenge, so opening up walls to a courtyard works well to bring in light and breeze from above," says Matt.

A natural palette of materials, including recycled timber and plywood joinery, speaks to the traditional character of the Queenslander. Built-in furniture, such as the couch, desks and concrete





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When taking something away adds so much more: a courtyard was carved in where the old kitchen and bathroom used to be, admitting light and breezes into the heart of the house and providing visual connection between upstairs and the kids' zone downstairs. "The family can engage with the courtyard from all parts of the house," says architect Matt.



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Extensive louvres help with cross ventilation and mean that air conditioning is rarely required.



bench, optimise the compact floor plan and create a specific place for everything. The new bathrooms are modest in size, but have an improved quality of light. Upstairs, the ensuite and toilet are separate, allowing the latter to be used by visitors.

Before deciding to renovate, Louise and Andrew looked for a new house that suited their needs but couldn't find anything in their desired area. Living close to their children's school and the local shops means the family can walk almost anywhere they need, and they have gone down to a one-car family in the last year. They are very happy with their newly reimagined home. "The house did really well for the last ten years. Now it's in the perfect position for the next ten years," says Louise.

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Much of the storage and furniture is built in, including the couch in the living room that's integrated with a shelving unit and timber screen. "It's designed to create the right degree of separation between higher traffic areas and quieter spaces," says Matt.

#### UPPER FLOOR PLAN



#### LOWER FLOOR PLAN





LEGEND



#### HOUSE SPECIFICATIONS

#### HOT WATER

• Retained existing Rinnai instantaneous gas hot water system

#### RENEWABLE ENERGY

• Retained existing 3kW grid-connected solar PV system

#### WATER SAVING

• Australian-made brass tapware (WELS 3-5 star) from Astra Walker

#### PASSIVE DESIGN, HEATING & COOLING

- New courtyard to eastern side for breezes and natural light
- Openings and glazing to north, south and east to maximise cross ventilation and sunlight
- Minimal windows to the west
- Custom shading to courtyard windows using Heka Hoods
- Verandah to street frontage (north) and overhang to south for shading
- Insulated building envelope retains warmth in winter

#### **ACTIVE HEATING & COOLING**

- Big Ass Fans Haiku energy-efficient ceiling fans in main living areas
- Mitsubishi Electric ducted reverse-cycle air conditioning for heating and cooling

#### **BUILDING MATERIALS**

- Timber frame construction
- Lysaght Zincalume custom orb roof
- Newport Beechgrove blackbutt cladding from Urbanline Architectural

- Bricks from Lincoln Bricks to patio and external front stairs
- Insulation: Bradford Anticon 60 blanket to roof (R1.3); Bradford Gold batts to framed external walls and wet areas (R1.5)
- Blackbutt tongue-and-groove flooring to new areas only; existing floors on both levels retained and refinished
- Birch plywood for cabinetry and internal cladding from Revolution Plywood
- Recycled blackbutt for screens and cabinetry
- Blackbutt decking from Urbanline
  Architectural

#### WINDOWS & GLAZING

- Timber-framed external doors and windows with low-e glass, fabricated by Darra Joinery
- Breezway louvres

#### LIGHTING

- LED downlights D700+ from Brightgreen
- Glass LED wall lights from Artemide
- LED specialty pendants from Volter Haug and Cult Design
- External LED downlights from Havit
- LED strip lighting to cabinetry from Lumen8

#### PAINTS, FINISHES & FLOOR COVERINGS

- Dulux Wash&Wear low-odour, low-VOC internal and external paints
- Dulux Intergrain Enviropro satin finish to internal timber
- Cutex oil to external timbers
- Fiddes hard wax to timber flooring

#### OTHER ESD FEATURES

• One-car family (Toyota Prius hybrid)





#### **DESIGNER** Matt Kennedy, Arcke

BUILDER Chris Corbin Constructions

**PROJECT TYPE** Renovation

LOCATION Paddington, QLD

SIZE House 135m<sup>2</sup> Land 405m<sup>2</sup>

#### ENERGY RATING

6 Stars

#### ENERGY ASSESSOR

Green at Heart Energy Assessors

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The rumpus area downstairs opens directly onto the courtyard, with a multi-purpose concrete bench forming the threshold between inside and outside.