



This multi-award winning home combines affordability, liveability, and HIA GreenSmart principles.

story > Gabrielle Chariton

ZERO ENERGY, ZERO WATER, ZERO WASTE

The Net Zero Emissions Home is one of three innovative HIA GreenSmart display homes built for Landcom by Clarendon Homes at The Ponds in western Sydney, all designed to inspire consumers and challenge the building industry by combining affordability and liveability with GreenSmart principles.

'Consumers are becoming increasingly aware of the importance of living more sustainably,' says Steve Driscoll, director of sustainability and policy at Landcom. 'The opening of the Ecoliving display homes underlines Landcom's aim to further educate the public and project home industry about measures that can be taken to build more sustainable homes.'

Of the three homes, the Net Zero Emissions Home has the highest energy rating of eight stars, and is somewhat

revolutionary in concept and design for a project home. 'It has been designed to challenge conventional thinking when building a home,' Steve says. 'It will make people think more carefully about how a home is conceptualised and built.'

Dr Shaila Divakarla, former design sustainability specialist at Clarendon Homes, says the term 'net zero emissions' means that 'the home still takes conventional energy from the grid, but it puts back as much energy as it takes'.

At just 170 square-metres, the single-storey, two-bedroom home is quite small by today's standards. However, its flexible, well-considered floor plan is fully wheelchair accessible and it's built to be easily adapted to its occupants' changing needs as they age. 'In terms of design, it's targeted at empty nesters and retirees but could also suit young couples,' Shaila explains.

IDEAS ANYONE CAN USE

An adaptable or flexible design plan allows a home to accommodate its occupants' changing needs, or be closed off to adapt to varying temperatures. Another useful idea is a garbage bin sorter in the kitchen which can assist in separating organic and inorganic waste for garden compost.



CONSTRUCTION DETAILS

BUILDER Clarendon Homes NSW Pty Ltd
Baulkham Hills NSW t: 02 8851 5300
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DEVELOPER Landcom
Parramatta NSW t: 02 9841 8600
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PRODUCTS

- > Grid connected 4.5kW PV system.
- > High efficiency Toshiba wall mounted split system airconditioners (non-ducted).
- > Gas boosted solar hot water system.
- > LED lighting.
- > Gas cooktop.
- > Energy efficient appliances.
- > Dish-drawer dishwasher.
- > 10,000-litre rainwater tank.
- > Greywater recycling system.
- > Hot water diverter valves.
- > Sub-surface irrigation in the garden.
- > Green concrete (incorporating fly-ash).
- > Low-VOC paints.
- > Low-energy bricks.
- > Modwood decking.
- > Glosswood panelling to outdoor ceiling linings.
- > Recycled garden paving.

PROJECT COST \$302,850

TIME TAKEN TO CONSTRUCT 9 months

ENERGY EFFICIENCY RATING 8 stars

Achieving an eight-star rating while maintaining affordability was a priority for Clarendon Homes and Landcom. 'The first thing we looked at was to reduce energy demand within the home,' Shaila says. 'Photovoltaic panels that supply renewable power to the home are quite expensive, so if you reduce the demand for energy you can then keep the size of the PV system at a cost-effective level.'

The home is designed to allow northern sun in during winter, while providing protection from summer sun. 'We also chose a light-coloured Colorbond roof, which reflects more heat in summer than a typical dark coloured tiled roof,' Shaila says.

'From a construction point of view, we installed double glazed low-e windows and utilised a reverse brick veneer construction, with bricks on the inside and a lightweight cladding on the outside.' Other energy-saving initiatives include LED lighting, energy efficient appliances, and a gas-boosted solar hot water system. 'Once we had these demand

reduction measures in place, we then supplemented that with a 4.5kW photovoltaic (PV) system on the roof.'

Shaila says that the home's eight-star rating has been tested on two orientations, so it will suit blocks of land with an east-west orientation, i.e. the street to east or west, with the courtyard and PV system always facing north.

ACHIEVING AN EIGHT-STAR RATING WHILE MAINTAINING AFFORDABILITY WAS A PRIORITY

According to the HIA GreenSmart awards judges, 'the Net Zero Emissions home embodies GreenSmart principles ... and exceeds expectations in comfort and efficiency'.

Shaila agrees. 'I think this is a unique project because it's not just a demonstration home simply trying to educate people. It's out there for sale and is really going to make a difference in the housing market – and to the environment.' **gs**