Meeting the sustainability challenge

Late last year, Cameron Rosen moved his wife, three children and live-in nanny into a $1 million eco-home in Sydney's east.

It was the height of summer and the house, which has no artificial heating or cooling, was about to be put to the test. Without air-conditioning, temperature control on hot days would come down to the home's design.

The family survived well enough, but Rosen realised he had a lot to learn about "operating" his new home. On hot days, for example, blinds need to be closed, shading devices activated, windows opened and ceiling fans switched on.

Rosen's 8-star house (the residential star rating system is not the same as the green-star ratings used for commercial properties) was completed earlier this year.

In what became known as the Eco Challenge, the Rosens and three other families set out to design and build sustainable houses on adjacent plots in Rose Bay.

"I developed the Eco Challenge to showcase the sustainable building industry and to also provide a

tangible example to heighten awareness amongst industry and consumers," says Rosen, the founder of sustainable construction consultancy Australian Living.

Rosen says you can easily build a sustainable home on the same budget as a conventional one. It's just a matter of prioritising spending: principally on good architecture and design, and on quality building materials.

Thermal mass, the building's ability to store and release heat at appropriate times, is very important in a sustainable house.

In the case of the Rosen family house, the thermal mass is a prefabricated, hollow core wall filled with recycled concrete.

On the energy front, three kilowatts of photovoltaic cells on the roof offset all the household's energy consumption.

A two-storey courtyard in the middle of the house has a louvre roof that can be opened in summer and closed in winter.

The four-bedroom house – which has a pool – uses about 60 per cent less water than the average NSW home. The savings are achieved by using water from the 6600 litre tanks, a grey water diversion system and water-efficient fittings. Toilets are flushed with water from the rainwater tanks, while waste water from three showers, four wash basins and two baths is diverted to the garden.

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