SYDNEY'S ECO CHALLENGE

A SYDNEY DEVELOPER GETS SERIOUS ABOUT GOING GREEN

WORDS **JUDY FRIEDLANDER**

In these belt-tightening times, there is an inclination to ask whether the 'eco' in 'Eco Challenge' refers to 'ecological' or 'economic'. The pedants amongst us – and those who've been arguing the case for sustainable development for years – will say it is both.

In fact, the dictionary definitions of the two terms reveal common roots and meanings:

Ecology: Branch of biology dealing with living organisms' habits, modes of life, and relations to their surroundings.

Economy: Administration of concerns and resources of a community; theory of production and distribution of wealth; frugality.

Essentially, the root or source word 'eco' signifies the links we, as individuals, have with each other and our habitat. So, it is fitting that with the economic downturn upon us, a current Sydney project, involving four families, four architects and one set of builders challenging themselves and one another with their dream home aspirations overlaid with – it is hoped – deep green credentials, is called 'Eco Challenge'.

The project aims to demonstrate how we can rise to the challenge of being truly 'eco' – thinking of our pockets and mother earth.

The Eco Challenge's four sets of individuals are six months into designing their own homes side by side in Sydney's eastern suburbs. The 430m² plots of sandy shore near Rose Bay will eventually showcase uniquely distinctive homes that, it is hoped, have benefited from economies of scale, sustainable benchmarks and shared ecological lessons.

Says one of these home-owners and project manager/developer, Cameron Rosen from Australian Living, who came up with the concept: "This is a great opportunity to challenge us to build more sustainably, to rationalise costs and share valuable resources and knowledge. The building industry has a very important role to play in reducing our environmental footprint.

"Building is an expensive and time-consuming process and this Eco Challenge benefits from shared expertise. By sharing consultants and knowledge and employing economies of scale we are hoping to save money and go beyond the State environmental building requirements."

Each set of home-owners settled on their blocks of land in late 2008, the result of a sub-division of a site that previously housed a school.

With all four plans submitted to Waverley Council in February, DA status was granted mid-year and materials and tradesmen have now been organised to synchronise.

TOP Jankelowitz Residence north west perspective
ABOVE Tal Residence north west perspective
OPPOSITE TOP Rosen Residence north west perspective
OPPOSITE BOTTOM Rosen Residence internal courtyard perspective

Having undertaken a Bachelor of Building at the University of New South Wales, Rosen turned to that institution for information and support for his idea. "I felt it was important to consult a trusted source to lend a hand and validate what we could do," Rosen says.

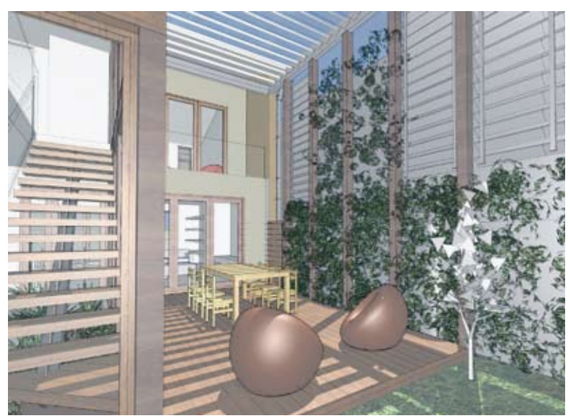
Professor Deo Prasad, Director of the Sustainable Development Program at the university, was interested in Rosen's idea and has developed an on-going support role in the initiative. "Contrary to what many believe, a sustainable home can end up saving the owner and the community money," he says. "When you take grants for photovoltaics, some banks' lower interest rates for green homes, subsidies for solar water heating and thermal insulation and the projected increase in electricity energy costs when emissions trading begins soon, a sustainable house makes sense in every way.

"There are a whole lot of things you can do at no extra cost to achieve good thermal performance which reduces greenhouse gases through limiting electricity use. Getting the orientation right, finding the right mix of glass and non-glass, capturing energy in thermal mass and shading are all important."

On Professor Prasad's recommendation, Rosen approached architect, Caroline Pidcock, immediate past president of the Australian Sustainable Built Environment Council, a past president of the NSW Chapter of the Australian Institute of Architects and an ESD (Environmentally Sustainable Design) champion.

Says Pidcock: "It was wonderful to meet Cameron who had already widely engaged with people who had knowledge about sustainability. He was almost infected by the concept." Pidcock says the sustainable building process sometimes requires a "leap of faith".

"It can be a big challenge to go down the 'eco' path. It requires an investment in time and initial upfront costs and it can be difficult to get other people to come along for the journey, especially when you're not preaching to the converted."



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>
> CAROLINE PIDCOCK

Pidcock says the collaborative process that has brought all stakeholders together twice, a workshop to kick-start the challenge and discussions along the way added about one month to the whole design process. Rosen felt compelled to share his knowledge with the other site owners and assist them in pursuing ecological and economic goals. "I felt it was my duty as a project manager to assist in informing, understanding and committing to BASIX."

BASIX is a NSW state-government scheme and requirement to assist residential applicants reduce their energy and water use.

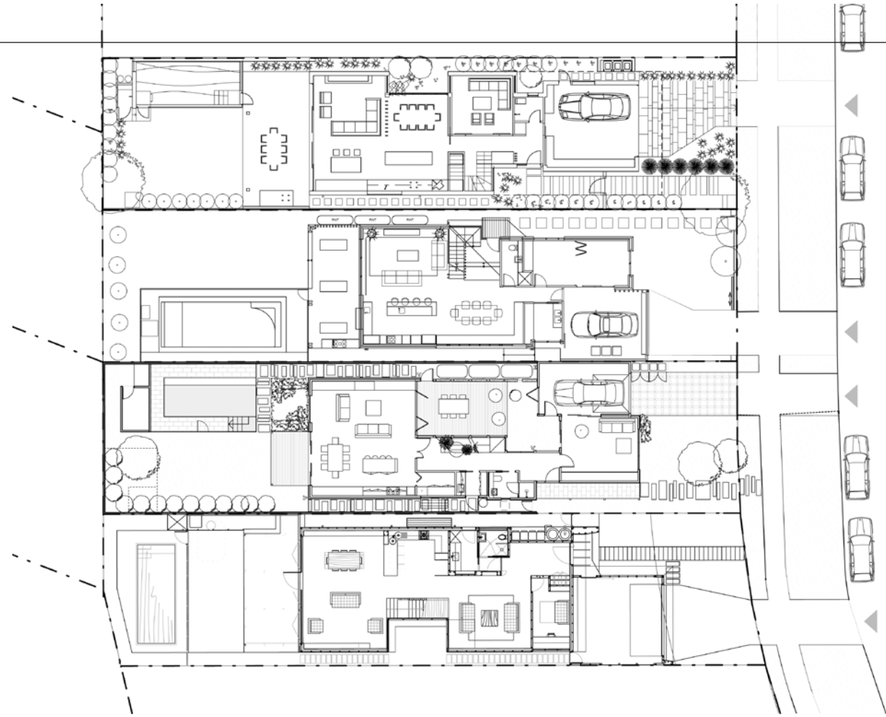
Although each set of home-owners works with different architects, Rosen has been acting as the official project manager for the four homes since building plans began. His input has not affected the style or aesthetic design of the other homes, but has influenced sustainable features, notably thermal or energy and water efficiencies. Hydraulic plans and thermal performances are required under BASIX, but Rosen and Pidcock's modelling aimed at the "above and beyond" principle.

Says Pidcock: "A pre-determined direction set by Cameron has helped make these houses more sustainable. We're trying in Cameron's home to achieve an equivalent 8-star rating for thermal performance where very little heating or cooling is required. This means the house will consume just over one quarter the energy of a BASIX-compliant house in heating and cooling.

"NSW only requires 4.5 stars minimum which, compared to international levels, is poor. All the other states and territories in Australia, other than the Northern Territory, have adopted five stars and an RMIT study in 2005 showed that project homes in the USA and UK range between 6.7 and 7.5 stars."

Pidcock and Rosen are also aiming for a BASIX score of 60 for water where the required score in NSW is 40. A score of 60 means the house will be 60% more water-efficient than the average house in NSW, and 50% more efficient than what would have been achieved with only the mandatory requirements. Thermal and hydraulics consultants identified specific ways efficiencies could be improved in the Pidcock-Rosen house and these consultants have assisted all four architecture practices involved in the Eco Challenge.

Architects often do their own BASIX assessments, but specialists can pinpoint areas where particular improvements can be made. Says Brian Meyerson of BMA, who is designing a house for Katrina and Chad Jankz: "Architects deal with many issues and constraints – for example, maximising views and light – but when you concentrate on environmental issues,



OPPOSITE BOTTOM
Cohen Residence north east perspective
LEFT Overall site plan of all four residences undertaking the Eco Challenge

the focus is on energy and heat loss or gain. It's a balance between competing interests of site opportunities and the constraints demanded by environmental sustainability.

"The thermal consultant suggested a number of adaptations to the design. Free open space in the living area is made adaptable by the use of sliding doors to improve thermal comfort. He also suggested solid masonry at the corner of the verandah instead of glass and gave advice on glazing and where to position windows that could be opened to allow cross-ventilation.

"Overall, our approach here, as always, is to maximise northerly solar access as well as cross-ventilation opportunities. We have used a courtyard to increase solar access and ventilation on a site where northern exposure is limited."

"There's a huge wealth of information out there," says Conrad Lowry of CDL Design, who is designing another of the Eco Challenge homes.

"As a sole practitioner, it is difficult to find time for everything. With this development, we are pooling valuable knowledge."

Graham Hunt, the thermal consultant, also recommended that all houses be built using a composite roofing structural system of metal and insulation, with a high R value which means it is a good resistor to heat loss.

Lowry says the more collaborative process of building has allowed technical information to be more "digestible". "Technical information is not always easy to communicate to clients, but this process has encouraged the owners to get more involved and see the benefits."

Martin Borg, who is building a house for Barry and Eve Cohen, agrees there is much better dialogue all round and the benefits are apparent: "We agreed relatively early in the piece to use the same building envelope of composite panelling. The pooling of resources meant I didn't have to do all the research.

"We have all designed different houses, but have employed similar environmental objectives. The Cohen house, for example, has a bigger garden at the back because there are three young children and a large outside play area is a priority. Because the house does not feature a courtyard, northern light will be directed into the rear living spaces through a two-storey 'light well' over the staircase."

Many of the owners are pragmatic about the environmental *raison d'être* for the project, explaining that functional, aesthetic and current economic priorities can overwhelm them when decisions are necessary.

But Rosen's sustainable stance is appreciated and has guided the project significantly. "Cameron is the voice in my head and the architect is my right hand," says one owner. "I have been aware of the Eco Challenge to an extent, but if it makes the house more efficient and it's part of my budget, I am happy."

"I have learnt a whole lot more about sustainable building practices with this house than with the previous renovation we did," says another owner. "The environmental thing has been brought more to our attention and awareness.

"If there's some cost saving and it makes a little more difference, we'll all be happy."

Judy Friedlander is a freelance journalist specialising in sustainability. She will continue to report on the Eco Challenge Project for Indesign *as it evolves.*

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