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MEETING A CHALLENGE

INDESIGN HAS TRACKED THE PROGRESS AND SUCCESS OF CAMERON ROSEN'S ECO CHALLENGE PROJECT SINCE ITS INCEPTION. HERE, JUDY FRIEDLANDER REPORTS ON THE FINAL CHAPTER IN THE STORY

Cameron Rosen, the manager and developer of Sydney's Eco Challenge project believes there's a fairly simple formula to being sustainable and cost-effective – go beyond the state building sustainability requirements. “The bar is not set high enough,” Rosen says. “People are discouraged because the savings aren't immediately apparent. If the building requirements were more stringent, people would soon see the great benefits environmentally and economically.”

The Eco Challenge project (see *Indesign #41*), which incorporates four homes in Sydney's Rose Bay, has been completed, and the challenge of going beyond state regulations has been expansive and rewarding, says Rosen. “It may have taken a little faith on the part of the owners but the thermal comfort, less impact on the environment during the building process and in the actual living in the homes is apparent.”

Rosen's own home, designed by Caroline Pidcock of Pidcock Architecture + Sustainability, is one of the four in the project. An 8-Star Green Star rating means that the house may not require any artificial heating or cooling and aims to be completely neutral in energy costs over the course of a year. Elements such as solar gas-boosted hot water, smart insulation strategies, photovoltaic cells and thermal performance glazing contribute to the energy savings.

The School of Photovoltaic and Renewable Energy Engineering at the University of NSW is taking an interest in Rosen's home, monitoring the energy and temperature performance to use as a research project.

Insulation plays a key role in providing the 8-Star Green Star rating. Graham Hunt, a thermal comfort assessor, assisted Rosen and his company, Australian Living, in developing an efficient and cost-effective insulation solution. “We determined what insulation strength we required to achieve our sustainable goal and where we needed to insulate. We decided this was to be done under the concrete slab, internal and external walls and under the first floor slab and the roof,” says Hunt. “We also isolated the crucial living areas – sleeping and living – that need to be kept at optimum

temperatures from service areas, such as bathrooms, that do not need such a high level of thermal comfort. The level of insulation used in this project is two to two-and-a-half times that used in most new homes. As a result, combined with other crucial factors, such as thermal mass and careful window design, the house should achieve optimum comfort conditions.”

Certainly, on a cool autumn morning earlier this year, the north/south facing family room was warm and welcoming. Glass walls and doors, which frame the central atrium, allow warmth and the regulation of warm and cool air.

Rosen says the insulation, zoning, and window treatments have resulted in optimum temperatures throughout the house and, on a scorching summer day where the temperature passed 40° Celsius, the hottest temperature in the house was 28°. “Everywhere else,” says Rosen, “it was between 22 and 25 degrees.”

Rosen says there are many misconceptions in the marketplace about sustainable building. “Building industry associations and the project home industry have a lot to answer for when it comes to sustainability.” He says that even with the use of innovative new materials in this domestic application, the cost of the Eco Challenge homes are comparable to similar-sized homes with corresponding quality in Sydney's east. “And we have the benefit of photovoltaics, a grey water system, a pool and a beautiful permaculture garden.”

Three water tanks store a combined total of 6,600 litres and the irrigation system feeds citrus, olive and banana trees, the lawn, herbs and a passionfruit vine. Minimising building material toxicity and using low-VOC paints and glues were paramount, and laminate veneers were utilised, which means no polyurethanes and sprays. In addition, all timber used is certified plantation (AFS) or recycled (columns in the internal courtyard came from a truss bridge in Coffs Harbour).

Daphna Tal, Cameron's partner and Australian Living's Sustainable Interiors Consultant, sourced many distinctive pre-loved items of furniture, such as the buffet in the living area, the outdoor furniture and TV cabinet. “The aim was to create a healthy



lifestyle environment for our family,” says Tal. “It is important for a house to be healthy so the residents aren't exposed to toxicity from the interior finishes. It is critical to choose interior products that reduce the impact on the environment.” She says the decision was made to include a green wall in the timber internal courtyard both for aesthetics and environmental benefits.

“This house is a powerful case study in demonstrating the importance of an integrated team in delivering well designed sustainable homes, the value of which has been carefully developed through the contribution of all,” says the architect, Caroline Pidcock. “Every decision on the design and materials for this home was guided by aesthetics, intelligent research and knowledge on buildability and cost.”

Judy Friedlander is a freelance journalist specialising in sustainability.