

Project: Eco-Challenge Project

Products: 500PLUS® REBAR
ONEMESH®

Recycled steel provides a sustainable choice for Eco-Challenge house



The Eco-Challenge project is a development by Australian Living, a company specialising in the design and construction of sustainable residential housing.

Situated in Rose Bay in Sydney's east, the development involves the construction of four houses designed by four independent architects specifically for the homeowners, of which Cameron Rosen, owner of Australian Living, is one.

"The goal is to build the most sustainable housing development possible," says Cameron, "And utilising steel reinforcing mesh and footings from OneSteel Reinforcing has contributed to the environmental properties of the houses.

"Under the Building Sustainability Index (BASIX) certification, these homes are very high performing," Cameron said.

"OneSteel Reinforcing have been very enthusiastic about being a part of the project. Over 60 per cent of the content in its steel products comes from recycled material. This, in addition to Boral Envriocrete 60, equates to a concrete slab that's 60 per cent recycled.

Left: Architectural impression of Eco-Challenge project houses

Above: Prefabricated 300 mm x 400 mm stirrups with N12 500PLUS® REBAR used for the footing beam with SL82 ONEMESH® used in the slab.

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“The inclusion of recycled material is becoming increasingly popular with builders and homeowners in residential housing design and construction. Builders are utilising steel with a high percentage of recycled content, such as that from OneSteel Reinforcing.”

Cameron Rosen, Australian Living.



- Suited to most residential and commercial projects
- Full cut and bent service available
- Pickup or delivery to site
- Extensive range of accessories
- Quality assured certification by ACRS
- Advice on GreenStar and other rating tools compliance

“Working with OneSteel Reinforcing has enabled me to make the right decision when it comes to material choice,” Cameron said. “OneSteel Reinforcing opened up my world to information not only about the products they’re supplying but also about the company itself.

“It’s very satisfying to know that a company as large as OneSteel Reinforcing has such high goals in the supply of sustainable products,” he said.

In the initial design stage Australian Living sought assistance from the Green Building Council of Australia (GBCA) and Good Environmental Choice Australia (GECA) regarding material choice and suppliers such as OneSteel Reinforcing.

“Although these Associations are set up mainly for the commercial construction industry, they have provided excellent support as they understand what we are trying to achieve,” said Cameron.

“The inclusion of recycled material is becoming increasingly popular with builders and homeowners in residential housing design and construction.

“Builders are utilising steel with a high percentage of recycled content, such as that from OneSteel Reinforcing, concrete, stone and other non-toxic demolition debris that would otherwise become landfill,” he said.

As an alternative to concrete piers, the ground slab for each house is suspended on 20 screw piles 3.7 metres deep with a load capacity from seven to 20 tonnes. The piles can be installed in a single day and eliminates the displacement of ground waste material.

The use of screw piles also reduces the slab thickness and the amount of concrete and steel reinforcing required.

“The houses have a 350 mm footing beam with 135 mm slab, which equates to half the thickness when applying conventional building techniques,” explained Cameron.



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Cameron Rosen, Australian Living.



500PLUS[®] REBAR

- Available in N12, N16, N24, N32 and N40 sizes for all construction requirements
- Supplied loose or in prefabricated forms
- Quality certified by ACRS
- Design and engineering services available
- Advice on GreenStar and other rating tools compliance

The reinforcing supplied to Australian Living from OneSteel Reinforcing is prefabricated 300 mm x 400 mm stirrups with N12 500PLUS[®] REBAR to create the footing beam with SL82 ONEMESH[®] used in the slab.

To achieve its objective of building the most environmentally friendly homes possible, Australian Living has adapted several construction techniques normally reserved for commercial construction.

The walls are a RITEK[®] walling system, which are hollow casings. Once the formwork deck is built, concrete is poured into the panels. This creates a pre-finished facia and eliminates the need to render the walls. Within each walling section is OneSteel Reinforcing N12 500PLUS[®] REBAR at 400 mm centres.

“Dealing with OneSteel Reinforcing has been excellent, both from a product supply and promotion of sustainable building point of view,” Cameron said. “Every component is labelled for easy identification and delivered to site on time and when needed. This makes the whole project easier to manage.”

Another unique aspect of the two storey homes is the use of a concrete slab for the flooring of the second level instead of timber.

Cameron explained that the second level of the houses has been designed by the engineer to be as light as possible.





Cameron Rosen - owner of Australian Living

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"To meet this requirement several different sizes of 500PLUS® REBAR from OneSteel Reinforcing was used, the majority being N12 set at 400 mm centres in a dual layer in opposite directions," he said.

"Larger N16 and N24 500PLUS® REBAR are utilised for the cantilevered sections of the upper level slab.

"The Eco-Challenge is exactly that, challenging the way residential housing is developed in Australia," said Cameron.

Over the last few years there has been increased awareness and eagerness from home owners who want to know more about sustainable building using a high proportion of recycled material.

The Eco-Challenge project has really started to gain momentum. As the development has progressed, builders driving past have stopped to talk about the use of non-traditional building products being used on the site and gathered information so they can use those products themselves.

"Local residents have also been very interested in the Eco-Challenge project and wanting to know more about sustainable building," Cameron said.

According to Cameron, the most appealing aspect of sustainable construction is the immediate and long-term financial savings for homeowners.

The homes are north facing to capture as much light and solar energy as possible. It then permeates throughout the less frequently used areas, like the upstairs bedrooms.

When the houses are occupied and functioning as family homes, they require very little energy for heating and cooling, saving homeowners hundreds of dollars on power bills annually.

"The use of recycled material means that when the houses are demolished in the future, the material can be recycled into an alternative product or used in another house. This rounds the holistic principle of sustainable building," concluded Cameron.

To follow the progress of the Eco-Challenge project visit www.australianliving.info

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