

Architecture

Moving Toward Sustainable Housing Design

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Australian architect and Environa Studio director Tone Wheeler is trying to do nothing less than completely reinvent the way housing is designed and built.

★ Add to favorites At the University of Sydney, Wheeler designed and assisted in the construction of the "autonomous house," a working example of a low energy house constructed entirely from recycled materials.

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He has also worked for the government in Canberra, where he designed a range of low cost social housing.

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His current work at Environa Studio, which he runs with his wife and fellow architect Jan O'Connor, looks at revolutionary designs that

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seek to reinvent housing design. Environa's projects include a display home designed to be sustainable and affordable and a prefabricated house that can go completely off the power grid.

In a recent interview with a community radio station in Melbourne (3WBC 94.1FM), Wheeler spoke of creating a better, cheaper, and more sustainable way to live.



The E3 Logic House by Environa Studio.

"Green building is more expensive, we know; how much more expensive is an argument we can have another time. Because we have a track record of being interested in sustainability, there is a parallel understanding from clients that you are interested in social issues and affordable housing," he said.

"It is the kind of thing that in design is still on the left. So that the people who are interested in green are often left leaning, more libertarian, more interested in social issues, 'small liberal.' People who come to us as clients have social issues in their minds. And in order to address that, the idea is we should build smaller housing and it should be cheaper."

Environa's display home design looks similar to a traditional house but boasts a few distinct differences, the most important of which is the roof. Rather than a flat roof, the house is built with a skillion roof that opens up a world of possibilities.

"It is a Colorbond product that is more durable than corrugated steel and you walk all over it," he said. "You can build a green roof on it, put photovoltaics on it."



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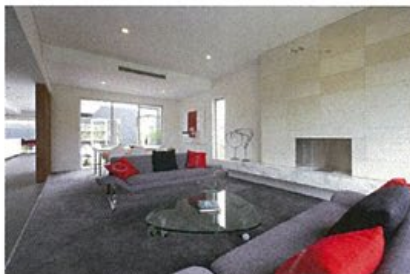
The E3 Logic House features several outside "rooms" –such as courtyards or kitchen garden spaces.

The ceiling is also sloped and showcases exposed brickwork. All the materials used contain low volatile organic compound. While standard building techniques were used – such as timber frames – high levels of insulation and reverse brick veneers were applied on the outside.

This construction system, often used in environmental design, helps to keep unwanted heat out of the building and conserve the thermal mass on the inside, resulting in more stable and comfortable internal temperatures.

The house is divided into different zones to make it flexible and to allow up to three generations to live in the house at once. The fact that it is not open planned allows it this flexibility and makes it more environmentally friendly.

Wheeler said zoning, as seen in the design of the E3 Logic House, provides more efficiency than open planned homes as rooms can be shut off, lessening the demand for heating and cooling. It also provides more privacy for families, who can find their own space in separate rooms.



Interior of the E3 Logic House by Environa Studio.

The most important characteristic of

The most important characteristic of Environa's display homes is their size. They are smaller than traditional homes, and feature several outside "rooms" such as courtyards or kitchen garden spaces.

Environa is also working with prefabricated homes. The company's "Supremo" design can go off grid.

Three prefabricated models have already been built and five more are under construction. The model can be built using a tractor instead of a crane, making it easier to be transported and built, reducing costs.

"You pull it off the back of a truck and position it on the ground. You can have a home delivered from one truck, with a maximum size of 65sqm, so that is a one bedroom home with everything in it, enough for two people or a young couple with a child," Wheeler explained. "When the family grows you can add another module."

In addition, a separate module can be added providing solar water heating electricity, batteries for backup power, and sewerage capabilities, allowing the house to be self-sustaining.

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