

## Transforming a beachside semi into a sustainable showcase



A Sydney semi on a small Clovelly lot previously described by its owner as “dark and pokey” is now a light, bright home.

The renovation, which involved most of the original structure, is a groundbreaking environmental design and features many of the elements required by the NSW Government’s BASIX tool.

Although the work was completed prior to the implementation of BASIX, the house has been retrospectively rated as using 54% less water and 25% less energy than the average NSW home, thus exceeding the BASIX targets.

Designed by Kennedy Associates Architects, the Clovelly house boasts innovative water and energy saving features integrated throughout the house.

Skylights, doors and windows allow natural light to flood the once dark home. A ‘Sun Lizard’ solar heating and cooling system, solar hot water system, wall and ceiling insulation, good cross ventilation and energy efficient lighting greatly reduce electricity demand. Extensive rainwater and greywater recycling systems meet most of the home’s water needs. On-site metering shows the home is already achieving a 75% reduction in mains water use.

“I wanted to be environmentally responsible and it seemed a bit silly wasting money on water and energy that we don’t need to use,” said homeowner Ann Wansbrough. “BASIX is really good because it sets out very clearly the sorts of things we need to do to have a sustainable home.”

While mains water is used for drinking and cooking, rainwater tanks and a unique plant-based greywater system take care of all other water needs. Three rainwater tanks, a design feature of the ultra-modern garden, collect and store 9,000 litres of water for showers, baths and a small jetstream pool/spa. Filtered greywater is used to meet toilet flushing, washing machine and garden irrigation needs.

“The water recycling system is a very clever design that takes water from the bath, basin and shower through a “green wall” of planter boxes in the back garden. There, the water is filtered through a biological process and ends up stored in a tank underneath for use in the laundry, toilet and garden” Ann said.

Ann left no stone unturned in her bid to build a cutting-edge sustainable home that uses less water and energy and reduces her utility bills.

In addition, she chose sustainable building materials throughout and low toxicity paint and floor finishes were used to reduce toxic materials in the home.



*The greywater filtration system*



According to Chief Architect Steve Kennedy, the water recycling system, developed in association with environmental engineering consultants ENVDS, could easily be adapted for other city or regional homes, although each installation would require a specific design by an environmental scientist. "It is not yet an off the shelf product," he said.

Kennedy says he hopes that BASIX requirements across NSW will encourage more greywater and rainwater use and therefore promote better systems and greater acceptance at the development application stage.

"We have used BASIX on a number of projects since its introduction and found it very easy to use," Steve Kennedy said.

The Clovelly home won a Gold Medal at the NSW Green Building Awards for architects Kennedy Associates in 2004 and is being considered for a number of other design and environmental awards.

#### For more information:

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BASIX Help Line  
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#### Sustainable Features:

- "Sun Lizard" solar powered heating and cooling system
- 9000 litre rainwater tanks connected to shower, bath, bathroom taps and pool/spa
- Solar hot water system
- A "green wall" plant system uses greywater for the toilet, washing machine and garden irrigation needs
- Solar heating for small pool/spa
- Skylights reduce the need for electric lighting
- Strategic window placement for cross ventilation and natural light
- High quality wall and ceiling insulation
- Shading over western-facing glazing to reduce cooling needs
- Ceiling fans for low-energy cooling
- Energy efficient fittings and appliances
- Low voltage compact fluorescent lights
- 3A-rated tap and shower fittings, dual flush toilets and a water and energy efficient washing machine
- Low water consumption native garden
- Sustainable building materials
- Use of low toxicity paint and floor finishes
- External clothes line

#### About BASIX

The first of its kind worldwide, BASIX is a web-based planning tool that requires new residential developments to reduce water consumption by up to 40% and energy by 25%, (increasing to 40% in 2006) compared with the average home.

The BASIX tool requires new home builders to enter information such as site location, dwelling size, floor area and landscaped area and rates the home design against the required water and energy saving targets.

