

# Homes of the Year entry

The two-storey solar home in Minora Road, Dalkeith.



## Comfort assured in solar concept

By FRANK PLATELL

**T**HERE was no need for compromise in the design of a solar home on a block in Minora Road, Dalkeith.

An existing old building could not be effectively recycled and was demolished to create a near perfect solar site with a north orientation to the rear.

This allowed for all the living spaces to be at the rear and integrated with outdoor patios and gardens. Also it was easy to include an exercise pool extending right across the back of the block in a landscaped surround.

"We had to work within fairly tight budget constraints for the two-storey concept," explained Garry Baverstock, of Tecto Solar Homes, the architects. "The brief from the ex-farmer was explicit in room sizes and their relationship.

"He wanted all the bedrooms upstairs to promote the theme of family togetherness. Living spaces all had to be to the rear downstairs, including a laundry sewing area.

"There also had to be a sunny activity area for children. This plus the big family and formal zones had to be integrated with the solar veranda and rear patio.

"Winter sunshine had to penetrate as much as 3m indoors at this time of the year. Concrete floors were to act as thermal storage areas and radiate the heat back into the open areas at night.

"There is a significant heat gain with the terracotta tiles in the family area, enough for people to be able to walk round on them barefoot at night, even in the depth of winter."

The heat gain to these main areas was optimised with a glass-roofed veranda. A solar pergola overhead has louvre boards angled to permit maximum sun penetration in winter while keeping it off the glass in summer.

A clerestory window to the gallery upstairs is another source of solar warmth and natural light to the kitchen below. The winter sunlight also creates a bright introduction to the home in the entry foyer.

Cross ventilation was important for comfort in the summer, especially with the two-storey concept. The south elevation to the street has screens and recesses to trap the cool sou-westerly winds and direct them indoors, and a breeze courtyard does the same for the family zone.

Windows to the east and west have been minimised. Where natural light was required the glass brick panel was introduced, the cavity blocks minimising heat gains.

Not only have the ceilings been insulated but the wall cavities as well. With the solar hot water included the energy savings have been calculated to be in the order of 60 per cent over 12 months.

It is a house where year-round comfort is assured without heaters in winter, or air conditioning in summer.

"We believe it is cheaper to build a house with all the solar benefits right off, rather than have to try and adapt a conventional house to weather extremes as you live in it," said Mr Baverstock.

"Correcting problems afterwards with awnings, air conditioning and space heaters can be costly, not only with installation but with running costs. Trees can take a long time to provide essential shade. "This house gets a high social responsibility rating because of the minimal dependence on energy from fossil-fuel burning power stations. We predict that this design philosophy will have to be adopted by the whole cottage industry if we are to minimise the greenhouse effect and protect our environment."

The Homes of the Year entry is in a contemporary style to blend into the street scape. It has clay-brick walling with beige zincalume, corrugated roofing, a split roof ridge introducing a saddle effect.

The staircase projects forward and features vertical apertures to add to the street appeal. The double garage is link to the house by a protective walk-way embracing a bicycle park and store, and is an alternative entry that children use to go straight into the family zone.

The main bathroom upstairs is in three segments to ensure minimal holdups of a morning. Bathroom facilities downstairs are for guests as well as family.