

Energy Efficient Houses



Design dispels a myth

Solar tag more than a name

By Dr Bill Parker Solar Energy Information Centre.

WHEN is a solar house a solar house?

A recent experience at the Solar Energy Information Centre showed that correct design is crucial when it comes to low energy solar homes.

A home owner came into the centre with a problem. His so-called solar house was overheating. When it was 38C outside, it was 42C inside.

When a consultant went through the home with a list of design essentials, it became apparent that the home had serious design faults. It was solar in name only.

The house had the correct orientation, but instead of being two rooms deep to ensure good ventilation, it was, in part, five rooms deep.

Natural summer cooling by night ventilation was impossible.

Was the ceiling insulated? No. An absolute essential for a low energy home was ignored. The glazing was a major problem.

Instead of the ideal 50 per cent on the north side, this house had 70 per cent and just as much on the south side. To make matters worse, there were large unshaded corner windows on the west, receiving full-strength afternoon sun.

To complete the catalogue of problems, an ineffective pergola had been installed.

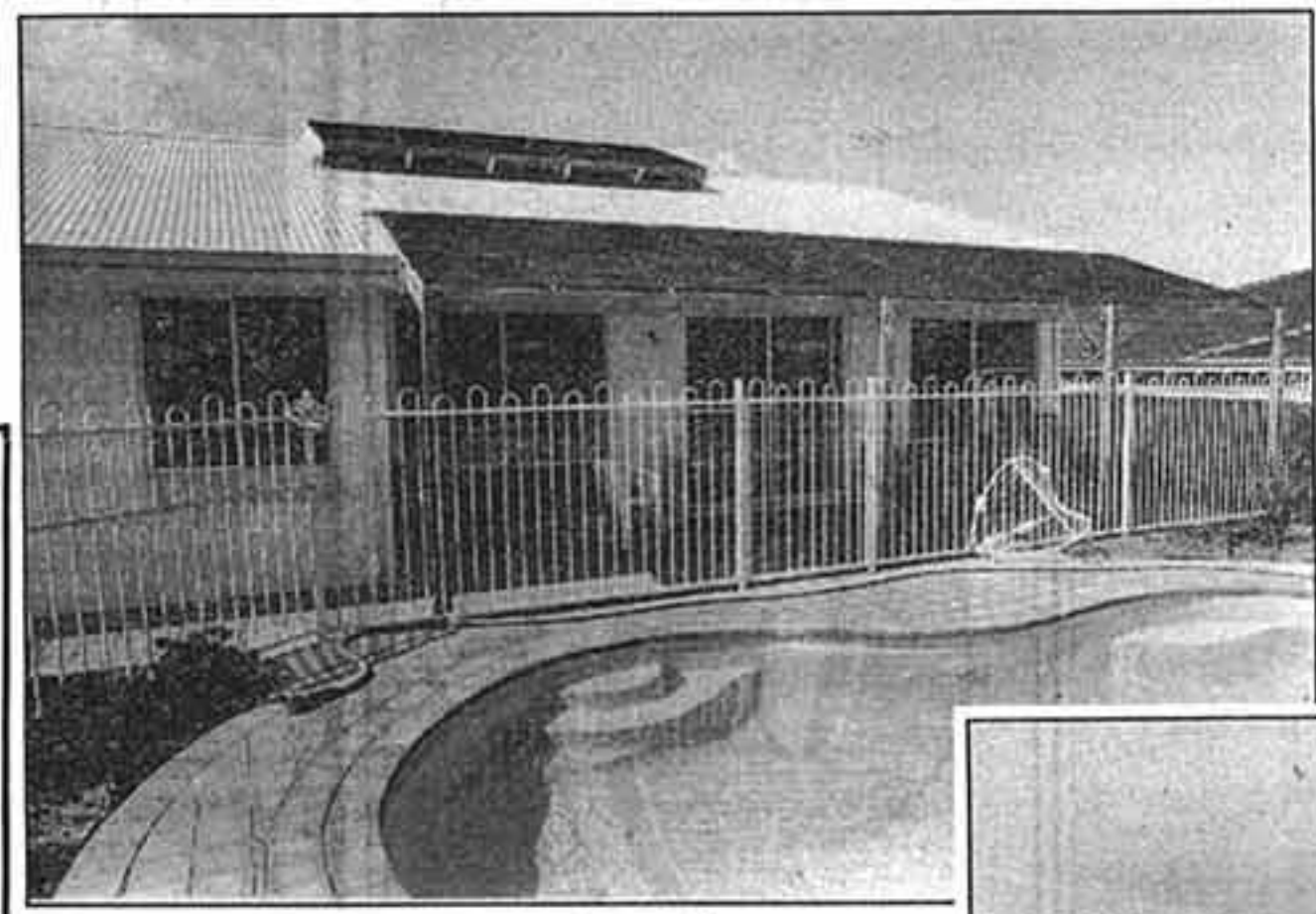
Correcting poor designs can often be costly but in this case insulation, heat absorbing/reflecting blinds and a roof ventilator — either breeze driven or solar powered — was recommended.

It was possible to rebuild the pergola to provide an improvement in the amount of shade.



□ ABOVE: The modern elevation is elegant and functional.

□ Above the dining area is a pergola which shuts out the sun in summer but allows it to penetrate into the room in winter.



□ BELOW: The northern aspect features plenty of glazing.



□ A pergola off the living area provides extra protection in summer.

By BEV WILCOX

PERCEPTIONS that energy-efficient homes fall down in the style department should be swept away by houses like this one in Stoneykirk Loop, Kingsley.

Designed by Gary Baverstock, of Tecto Solar Corporation, it is a picture of post modern elegance, inside and out.

The elevation is Mediterranean in style with a central portico supported by stylish columns. Glazing has been kept to a minimum on this side and the emphasis is on capturing as much as possible of the south-west breeze.

A breeze funnel has been created between the portico and the garage to channel the prevailing air-flow through a private courtyard into one end of the main living area.

The double-front doors open into a hall which also acts as a channel for the wind and provides flow-through at the other end of the living room.

Inside, the entry hall opens into a bright open-plan living room with high ceilings. This zone incorporates the lounge, dining area and kitchen and although unobtrusive, energy efficiency is everywhere.

The open-plan means that energy can be distributed throughout several rooms, rather than isolated in one room, for example, in winter.

Above the dining room is a solar pergola which allows the sun to penetrate during winter, but in summer blinds can be released to cover the pergola area to give added protection.

On the western wall in the lounge there is only one small window to help with flow-through, otherwise the wall is solid and ensures no direct heat flow into the rooms during summer.

On the northern side there is plenty of glass — about 50 per cent of the elevation area.

The pleasant outlook to the north is into the pool entertaining area. Once again a pergola provides shade in summer but allows for direct sun to flow through during the winter months.

The home is a good example of how to include features which keep the home cool in summer and warm in winter without resorting to huge expenditure on cooling and heating facilities.



□ RIGHT: The western wall is virtually devoid of glazing.