

# LIBRARY

Department of Biodiversity,  
Conservation and Attractions

This PDF has been created for digital preservation. It may be used for research but is not suitable for other purposes. It may be superseded by a more current version or just be out-of-date and have no relevance to current situations.

## Designed for arid Australia

### A conducted tour of design features at the Milyering Bicentennial Visitor Centre

To be lost in the desert on a summers day would be a frightening and dangerous experience. With temperatures in the high 40s, little shade and no water, few people would consider arid Australia hospitable.

The design and construction of buildings which provide comfortable living and working conditions presents a considerable challenge in hot, arid environments. Architects and engineers of the Milyering Bicentennial Visitor Centre accepted this challenge and by harnessing natural resources they have created a building which is designed not only to withstand cyclones, but is attractive, comfortable and has minimal impact on the environment.

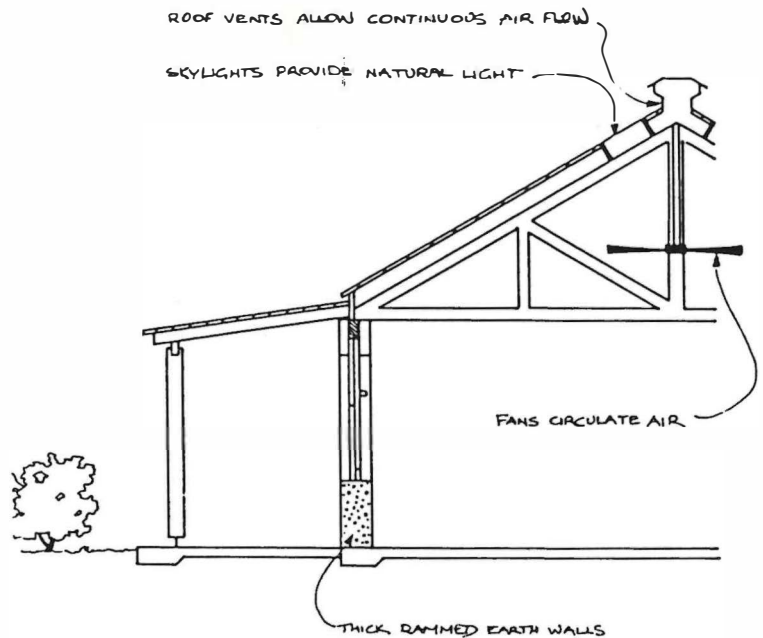
#### Heatsinks, and ventilation

Running and maintaining a large air conditioning system in isolated localities is expensive and energy intensive. A policy of energy conservation was adopted for Milyering. Evaporative cooling requires only low levels of energy and is normally appropriate in desert environments. However, humidity levels precluded its use at Milyering. Instead, the building includes structural design features which facilitate natural cooling.

Thick rammed earth walls reduce fluctuations between day and night temperatures. Shaded externally by wide verandahs, these walls are made of a mixture of local soil and cement. They not only act as an effective heat sink, but also blend well with the environment.

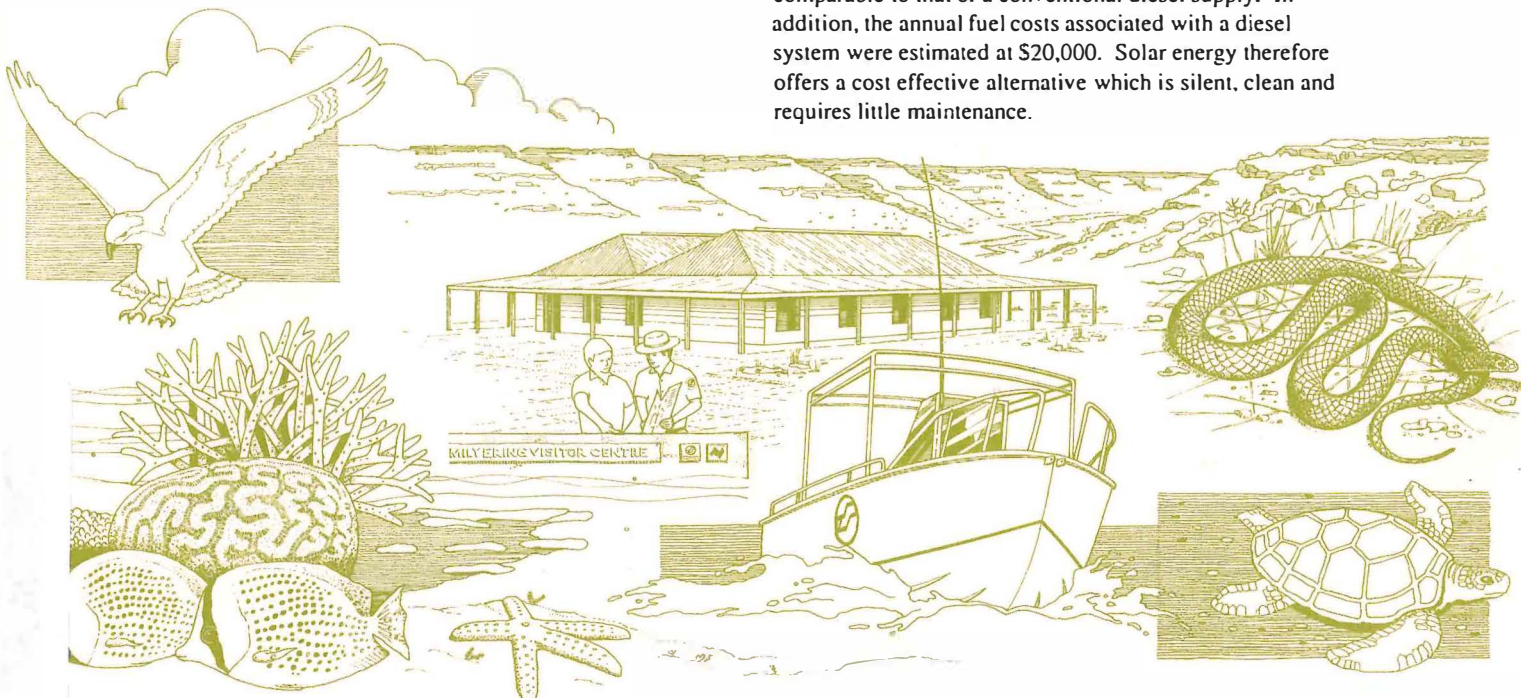
The corrugated iron roof, so typical of colonial homesteads, reflects the heat of the sun. Inside, high ceilings are insulated by foil backed fibreglass, while skylights save energy by eliminating the need for daytime lighting.

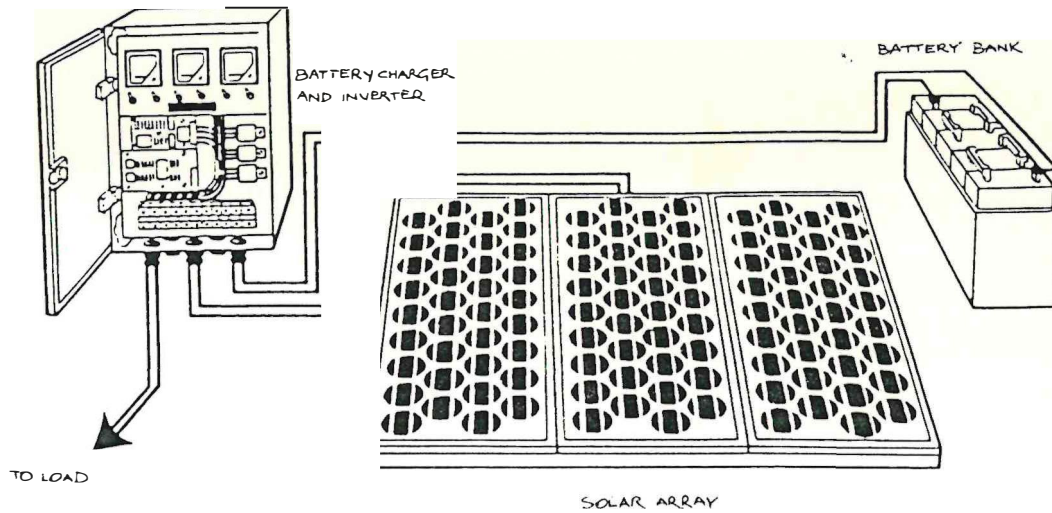
Good ventilation is essential for comfort. The Milyering Centre is situated in an area which is renowned for strong winds. Added to this, ceiling fans, roof vents and a large number of screened windows ensure continuous air flow through the building.



#### Energy from the sun

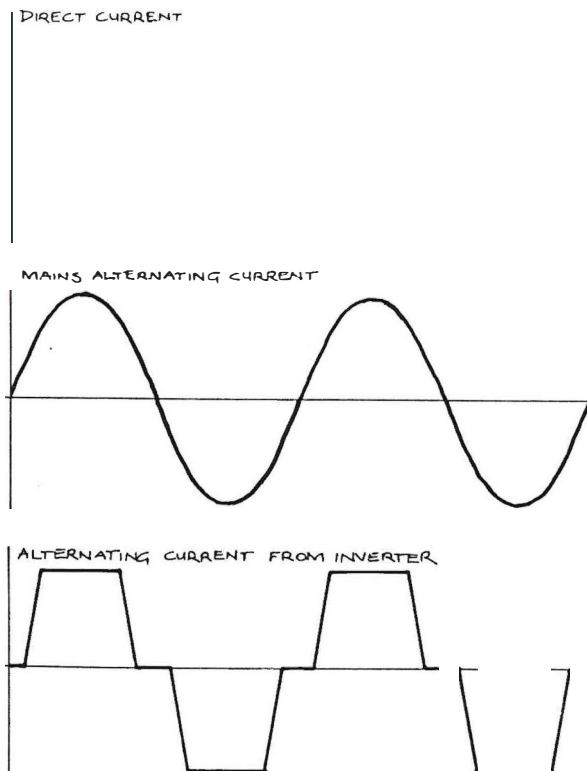
All too often the peace and tranquility of idillic locations is spoilt by the incessant throb of generators, the smell of diesel fumes and the unsightly view of fuel tanks. By minimizing power consumption (low energy lighting, no air conditioning, gas powered refrigeration, and a gravity fed water supply) the capital cost of solar installation was comparable to that of a conventional diesel supply. In addition, the annual fuel costs associated with a diesel system were estimated at \$20,000. Solar energy therefore offers a cost effective alternative which is silent, clean and requires little maintenance.





The Milyering Centre has dual circuit systems which are powered by solar panels. Solar panels convert light energy into electrical energy which is stored in large battery banks. A conventional electrical supply is then generated by devices known as inverters. Inverters convert direct current (d.c.) voltage from batteries into alternating current (a.c.) power at the standard household voltage of 240 volts, 50 Hertz.

Unlike mains power supplies, the a.c. current produced by inverters has a modified square wave form. Although this does not effect the operation of electrical appliances, it is sometimes noisier. You may notice that the ceiling fans growl a little, but you soon get used to it.



### The new "dinkum dunny"

An average family of four uses about 55,000 litres of water per year just to flush the toilet. Water is precious in the desert, far too precious to waste on flushing toilets.

At Milyering, the limited rainwater runoff from roofs and carparks is used to promote the growth of native vegetation around buildings while the installation of Clivus Multrum toilets has eliminated the need for large quantities of water for flushing.

The Clivus Multrum system consists of a chamber in which organic wastes decompose without the addition of extra water. Located directly below the toilet, a multitude of micro-organisms slowly break down the waste material to form a compost which is not unlike top soil in its final colour and composition. A ventilation system supplies a continuous supply of oxygen to the micro-organisms and also flushes away odours through a vent in the roof.

At the Milyering Centre, toilet wastes are processed in this way, but in a household situation, kitchen wastes could also be added to the Clivus Multrum system.

All too often human wastes pollute the environment. The Clivus Multrum system allows us to recycle some of our most distasteful wastes. The end product of decomposition is a safe and rich fertilizer which grows delicious vegetables!

