

# COOBER PEDY HOSPITAL

## Solid construction defies traditional Coober Pedy trends

AT A time when it seems that the majority of new buildings in outback Australia are based on lightweight transportable or prefabricated units, the Coober Pedy Hospital's solid construction represents a pleasant and significant change.

The solid construction certainly defies the long-lived tradition of either ramshackle iron buildings or underground "dugouts" that are so typical of the settlement.

Before construction began a major review was undertaken of the comparative advantages of solid construction and transportable modules, and the costs were found to be quite comparable.

Even a partly or wholly underground hospital was considered, but was rejected on several counts. It would have provided limited outward aspect for patients or staff, and it would have been costly and difficult to provide all the service so essential to a hospital.

The ultimate test on which method was environmentally correct proved solid construction superior. The result is a solid square hospital with a large roof tied down by wide veran-

dahs to surrounding protective retaining walls, providing extensive shading to the walls.

Basic construction is steel framing, concrete block walls and metal deck roofing. Internally the solid walls are plastered and vinyl clad to dado height, or full height in theatres.

While that may sound rather traditional, the building and its materials have been carefully adapted to the environment.

"Originally the design allowed for the erection of the steel frame and roof first, to provide protection from direct sun for the workmen while the remainder of the work was done," said architect Brian Riches.

Concrete block walls with sealed air space for improved insulation were chosen. A bag of dust was flown from Coober Pedy to brickmakers in Adelaide to ensure that concrete bricks for the hospital could be

color-matched to blend with the local environment. Thus any dust deposited on the walls by the wind will not show.

The combination of heavy mass construction and verandah shading is intended to delay the transfer of heat through the walls to the interior. The solid walls also make the fixing of services considerably easier. However, the verandahs are of lightweight construction to cool quickly. Reflective insulation is used to reduce radiant heat below the verandah.

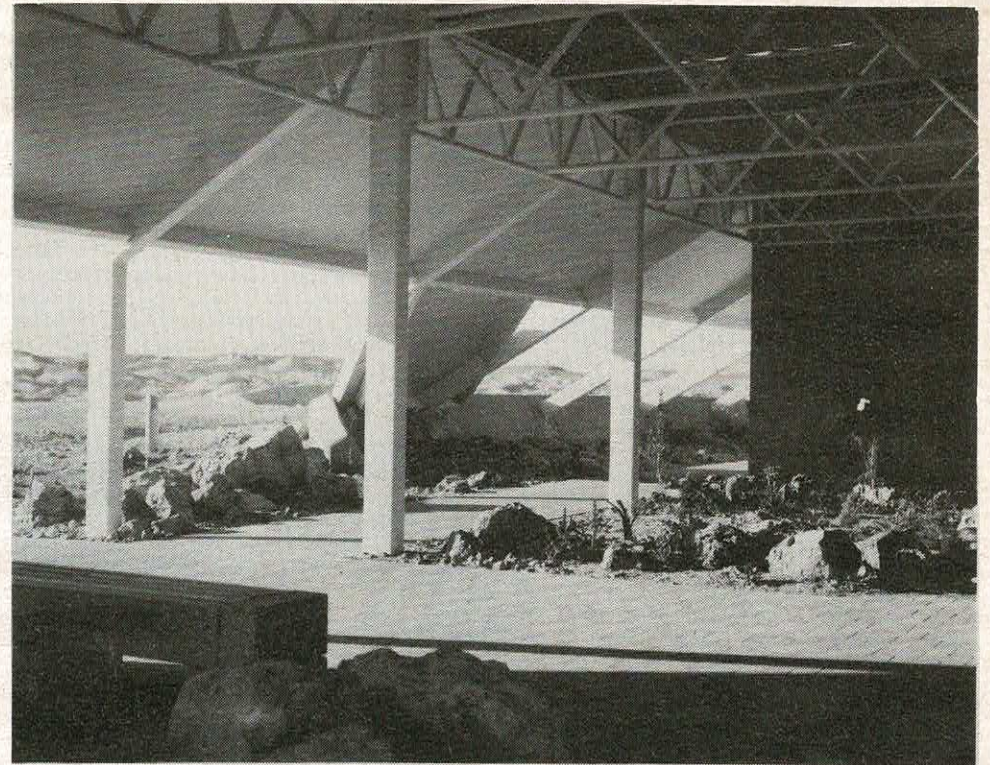
Many of the windows are fixed, double glazed to improve insulating performance. However some opening sashes are provided for use during favorable weather conditions. Integral venetian blinds are used in the theatre/casualty areas, while curtains are used elsewhere to reduce glare.

White painted Colorbond ribbed steel roof decking is used for reflectivity, low maintenance and strength.

The roof is heavily insulated directly under the metal cladding, and the internal space is well sealed. Suspended ceilings were selected for low cost, and are insulated with 100mm fibre insulation in PVC bags. All ducting in the roof space is also insulated.

Opting for high density floors, a concrete slab was laid on the ground and is founded below natural ground level to take advantage of lower and more stable temperatures.

The wide sloping verandahs,



The space-frame protected area at the entrance to the hospital.

which are extensions of the roof, extend to 5.6 metres from the wall and are covered for half their width. At corners and other strategic points such as adjacent to entranceways, the covering extends to ground level to provide further protection from wind and adding a visual strength.

The verandahs are surrounded by a low concrete wall and mounded landscaping to further protect the building from wind and direct heat.

Packaged reverse cycle ducted airconditioning was chosen for the interior, except for the kitchen and laundry which are cooled by an evaporative system. All incoming air is carefully filtered to exclude dust.

Somewhat surprisingly, space heating and/or cooling by solar energy was found not to be economical. However provision has been made for solar energy collectors to be integrated with an oil fired boiler for domestic hot water supplies.

The landscaping is so

designed that it binds the ground surface, catches and preserves any water, and protects the plants which — although desert species — fight for survival at the best of times in the harsh environment.

Each plant was selected for its ability to survive with very little water or attention. They are irrigated by treated and recycled sewage which both feeds and waters them.

The internal courtyard landscaping with its water feature, shadecloth and exotic plants contrasts dramatically with the inhospitable desert just metres away.

The regular forms of the stepped pool, chunky cool concrete and timber seating and protective latticed space frame create an area which was not only intended to serve as the heart of the hospital but to contrast vividly with the rugged surrounding environment. This is enhanced by the refreshing sound of water falling from pool to pool, the lazy motion of fish, and even bullrushes.

## Quality X-rays

IN small X-ray departments such as in Coober Pedy, where skilled personnel are not available, it is difficult to produce a good, diagnostic quality result.

With so many variables in setting up the X-ray exposure (KV, MA, time and distance) plus the variables in processing (temperature, time and correctly mixed and maintained chemistry) it is always difficult to assess exactly where the deficiency lies when results are below an acceptable standard.

Bill Haines, managing director of Paramedical Supplies, said that in his 30 years of experience in the X-ray field, he found that incorrect processing of X-ray films was the largest single contribution to poor results.

When a film is too dark, it is difficult for the untrained to tell whether it is over-exposed or over-developed. If the problem cannot be accurately defined, then to attempt to upgrade the result by taking further films, becomes a hit-and-miss affair which is costly to the department and results in unnecessary radiation to the patient.

David Lyons, paramedical supplies' radiographer, said that with the introduction of the Ecomat NE2400 Bench-Top Automatic X-ray Film Processor, the processing variables have all but been eliminated.

Mr Lyons said the machine would be a great asset to small departments since the developer temperature and time are accurate and the replenishment rates for both developer and fixer are precisely metered.

The Ecomat NE2400, imported by Paramedical Supplies, is simple to install and is mechanically reliable. Skilled personnel are not required to operate the machine.



The Coober Pedy Hospital, with Hospital Hill in the background.

## Ranking patient comfort

AN increasing number of hospital administrators and hospital architects are considering alternatives to traditionally 'institutional-style' hospital furniture and decor.

The influence hospital surroundings have on patient recovery is now more widely recognised, and it has become accepted that the patient can benefit from an environment which is soothing, restful, and more homelike.

Namco Industries (SA), a leading manufacturer of hospital furniture manufacture quality hospital furniture that also reflects modern decor trends, and was the chief supplier to Coober Pedy.

The company produces a complete range of hospital beds, tables, chairs and other hospital furniture accessories; all quality designs that are

practical and workable to provide for patient comfort and nursing convenience. Furniture that offers easy maintenance, allows for flexibility and promotes safety, the company believes. And Namco furniture is produced in a wide range of appealing colors, fabrics and finishes.

The Namco research and development team creates the company's innovative furniture designs. The experienced interior design team then offer a service which carries the furnishing concept to completion. Namco's interior designers will advise on decorating themes to create pleasant hospital settings and meet the highest standards for patient care.

Time and motion study techniques are applied to co-ordinate a pleasing and workable environment. Which is what the Namco "total concept" theme is all about; a better working environment

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# Unique concept for hospital in the Outback

By IAN HAMMOND

**THE new \$2.9 million hospital at the opal mining settlement of Coober Pedy, in South Australia's Outback, sets a new standard in hospital design for remote areas.**

Opened last month, the building was specially designed and built to cope with and blend into an extraordinarily harsh environment with its unique location, arid climate, strong wind and dust storms.

It is claimed to be one of the best outback hospitals in Australia and certainly compares favorably with any country hospital in South Australia.

Owned and operated by the Coober Pedy Hospital Board, the building was designed by architects Berry Polomka Riches and Gilbert, and funded by the SA Health Commission.

## Extreme

More than perhaps any other factor, the extreme local environment had considerable impact on the design and construction of this building. The results are a lesson in sensitivity to the hospital's unenviable location.

In summer the day temperatures are constantly in the 35 degrees-47 degrees C range, while during the cooler months, day temperatures are usually in the 20s, but drop to six to 10 degrees at night. The rainfall is highly irregular, with a low mean of 140mm per annum. Dust storms are frequent and strong winds are a constant nuisance. From December to April, dust bearing winds from the east and south gust to 30 km/h but maintain a mean of 11-20 km/h.

The surrounding country is almost barren, relatively flat, and pock-marked with hundreds of mounds of rock and dirt, each marking the presence of an opal mine.

## Ramshackle

Miners generally live in underground "dugout" homes, while any above-ground buildings are ramshackle, galvanised iron structures lacking any semblance of permanence or pride.

From the outset, emphasis was placed on ensuring the new building was both appropriate to, and compatible with, its surroundings.

"The prime objectives were to establish an efficient, low cost, compact hospital which was environmentally efficient and visually responding to climatic conditions", architect Brian Riches told "Australian Hospital".

"In so doing it was necessary not only to explore different methods of construction but also to explore the inter-relationships between departments and adapting them for use in a smaller hospital.

"We set out to design a building which, at the same time as effectively providing hospital services, would be perceived as being relevant within its physical setting. It was necessary to create a symbol of quality, permanence and respect never before seen at Coober Pedy, while capturing the feeling of an underground location so typical of the area," he said.

One of the objectives was to develop a well

## with patient care

Continued from page 6

for the staff, combined with a more restful, appealing environment for the patient.

The Namco team can co-ordinate settings to suit varied budgets and meet special requirements — from VIP rooms to general ward facilities; from canteens to waiting rooms to administration offices.

As a leader of the field, Namco Industries places great importance on new product research. The company continues to investigate new product designs. Discussions with professionals in the hospital industry and analysis of the special requirements for health care play an important role in the origins of Namco furniture designs.

The Namco Baroness Care Chair (Geriatric Chair), Birthing Bed, and Tilt-top Overbed Table, three new products Namco have recently

controlled, easily-recognised building in marked contrast to the majority of the buildings in the town. As the buildings will be as commonly seen from the air as from the ground, the architects wanted it to stand out as a crisp whiteness shining through the red dust, whether seen from a distance or at close hand.

Thus the exterior details were chosen to appear clean and sharp in contrast to (and emphasising) the rugged surrounding landscape.

The eventual design concept was as unusual as the locality itself.

The building seems to grow from the ground, a feeling enhanced by wide sloping verandahs and landscaping which has been built up around the base. The overall effect of the entrance is not dissimilar to the entrance to one of Coober Pedy's dugout underground homes, while the overall shape cunningly reflects the trapezoidal outline of Hospital Hill in the background.

It all adds a feeling of "permanence" to the structure.

The wide protective verandahs to shelter the walls from the vicious sun, screaming wind and blasting dust, produce a cool pleasant relief for staff and patients alike.

## Series

Entry into the building was planned as a progression through a graduated series of carefully controlled spaces, firstly from the dusty road to a boulder-edged carpark and through mounded landscaping which draws the visitor into the shaded entry. This provides the first sense of enclosure and moderation of the environment. Once into the building, the style becomes that of airconditioned comfort and efficiency befitting a hospital, but carefully utilising cool and bright colors so rarely seen in the outside environment.

The wards are sited on the southern side, away from the strongest influence of solar radiation and partly protected by mounds which deflect the wind over the building. Likewise, the ambulance bay in the north east corner is cut into the site and protected by mounds. Storage and secondary function areas not requiring glazed windows face west — thereby eliminating a source of significant heat transfer.

## Important

An important aspect of the concept was the central courtyard, designed as a tranquil outdoor space sheltered from sun, wind and dust. Internal windows throughout the hospital provide glimpses of this courtyard, and curtains may be opened without fear of the intense glare usually encountered.

The Coober Pedy Hospital clearly demonstrates that Outback people can now expect something better than a transportable or a city building lobbed onto a remote site without regard for the locals or their environment.

made available to Australian hospitals, are examples of innovative furniture designs which are the results of Namco's research into the changing trends and requirements in health care.

Namco has produced an audio visual presentation on its product range, showing the product designs installed in real hospitals.

The audio visual is available on free loan to chief executive officers, directors of nursing and hospital architects anywhere in Australia.

It enables purchasers of hospital equipment to see the Namco products demonstrated, and allows for architects and ward designers to evaluate layout and design concepts in line with equipment required for hospital facilities.

Information about this service can be obtained from any Namco distributor throughout Australia.

## BEHIND THE SCENES

Architects and Interior: Berry Polomka Riches and Gilbert Design.

Building contractor: J. H. Evins Industries Pty Ltd.

Suppliers: Adelaide Floor Coverings Pty Ltd; Macmont Pty Ltd — kitchen; Noyes Bros Pty Ltd — kitchen; Namco — hospital furniture;

Comalco Wunderlich — windows; Glenwood Graphic Designers — signs; Langdon Badger — curtains.

Consultants: Pryce Goodale and Duncan Pty Ltd — mechanical and electrical; Kinhill Pty Ltd — structural and civil.

Landscaping: Ron Holliday.

## Comprehensive services

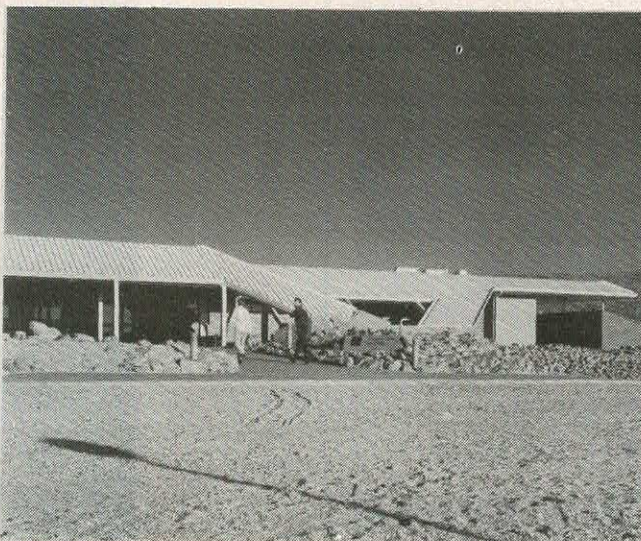
### for remote area

WITH the commissioning of the new hospital, Coober Pedy has become an important health centre for the north-west of South Australia. The town is strategically sited on the Stuart Highway, the increasingly busy route linking SA with the Northern Territory.

The 20-bed hospital includes an operating theatre suite, an obstetric unit and outpatient/casualty facilities with full support services.

### Wards

— Virtually self-contained, the building houses an administrative section, single and double wards, a children's ward with play space, kitchen and staff dining room, a mortuary, laundry, central sterile supply department, and even a Meals on Wheels distribution kitchen.



The Coober Pedy Hospital entrance boasts wide protective verandahs.

There is also an X-ray and treatment room, consulting rooms and a well protected ambulance bay.

Large storage facilities are provided in deference to the hospital's remoteness.

### Compact

The compact building occupies about 2240 square metres.

The internal hospital fittings are fairly standard, but special consideration was given to color and furnishings to provide stimulation and stark contrast with the exterior environment.

Colors are bright yet cool — greens, yellow and light ochre mainly.

Due to the extreme scarcity of water at Coober Pedy (water has to be carted in from a bore at a cost of \$45 per 1000 gallons) all

effluent water is recycled and stored for use in watering plants, and the waterfall in the internal courtyard recirculates its own water.

Fresh and recycled water is stored separately in large underground tanks.

The former seven-bed hospital is being retained for use as a community health centre for paramedical work.

Staff accommodation has been improved by moving the sisters' home closer to the nurses' home and incorporating them into a separate screened area for privacy and protection from wind.

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