

WARP & WEFT

MEMBRANE STRUCTURES ASSOCIATION OF AUSTRALASIA NEWSLETTER



Fine Example of Contemporary Membrane Structure Technology

One of the most advanced new Air Structures has been installed at the North Sydney Olympic Swimming Pool, by Vesl Membrane Systems of Brisbane.

The curved red and white portable enclosure provides winter protection for the 50 metre Olympic Pool, Toddlers Pool, Change Rooms and Amenities, and is removable during summer.

Special features were developed to meet operation requirements of the pool complex. They include: An 8 m wide Bubble Entrance, Revolving Door, Four (4) Emergency Exits, Removable Clear Portholes, and probably the most striking — The Logo Panel, which is 10m x 10m, in colours of red and white. Attached to the exterior, it is able to resist full wind loading and yet still be easily removed for repair and/or repainting each season.

North Sydney Pool

(From Page 1)

The air structure has a clear span of 26.5 m x 66 m long, an overall height of 8.5 m, and is designed to withstand 42m/sec wind load. The inflation system includes Four (4) Fans, Heaters and Diesel Auxiliary.

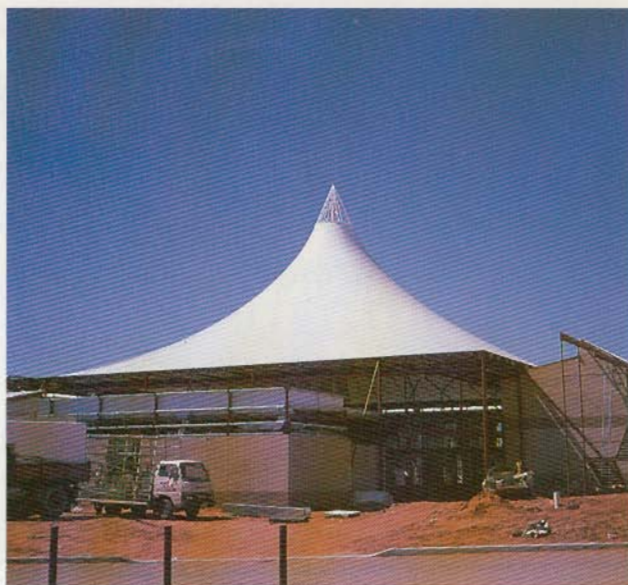
The fabric supplied by VESL is a high strength PVC/Polyester with self-cleaning top finish. Its weight was 1050g/sq.m. and translucence 6%.

The membrane was fabricated in three (3) sections the largest being some 800 sq.m. Two field joints employing clamp plates and Stainless Steel Bolts enabled easy disassembly and storage for the summer season.

The requirement for complete clearance of the site each summer necessitated the use of a simple catenary attachment along the edge. Catenary cables at 1.0 m centres in Stainless Steel were used for this purpose.

The North Sydney structure is visually appealing which is emphasized during the day by the striking red and white striping.

This has attracted so many new patrons to winter season swimming, that the centre has proven to be a real success story - due in no small way to thoughtful use of a modern membrane structure.



Roxby Downs Motel Atrium Roof

Brisbane Design & Construction firm Vesl Membrane Systems has recently installed a tensioned membrane structure for the Roxby Downs Motel.

It is a high peak semi-cone, very popular with Architects for achieving an economical and attractive effect.

The membrane roof is 34 m square with 23 m high mast. The fabric is SHELTER-RITE high strength Tedlar coated PVC/Polyester, (1000 GSM) translucency 6-8%, to achieve good lighting conditions over the forecourt and pool area, adjacent to motel units and restaurant.

The high temperatures and dusty conditions at Roxby Downs necessitated the use of the highest quality self cleaning surface finish on the membrane.

The membrane was erected in one week using a 50 tonne crane for the main lifts, the tight clearance at the corners of the motel courtyard requiring careful handling of both membrane and steelwork.

Other features of the structure include a vented central opening (possible because of low rainfall) and powder coated steelwork to the crown ring and central mast.

The membrane was fabricated in Brisbane, and at some 1600 sq.m. is believed to be the largest one piece permanent Tedlar clad structure in Australia.

This is yet another of a growing number of projects employing high grade architectural fabric.

Editorial B. O'Flaherty, M.S.A.A. President

Your incoming committee has come into a period of high optimism in the industry, with several major projects just completed or in the process of completion, and most companies reporting an unprecedented level of enquiry.

It seems that all the early pioneering work by a few, and the efforts over the last few years of your Association are beginning to bear fruit. This form of Architecture is at last being seen in Australia as the viable form that has long been recognised overseas.

Whilst the whole industry looks forward with enthusiasm to the future it needs the full participation of all involved to ensure its healthy growth in the Country. Unfortunately, for too long only a few have

given their time to promoting the industry via the Association.

A foremost priority should be to maintain quality of all work at the highest level; less than perfect detailing is the quickest way to kill any new industry. There is no doubt that we do have the expertise locally, and the industry should be encouraged to develop this further.

Two key activities of the Association's work this year will be in obtaining sponsorship to further promote the industry, and, organisation of the biannual MSAA Awards to be presented at the annual convention June '88. We would recommend that you reserve this date now as it promises to be a memorable event with so many world class structures to be entered.

In our last issue we mentioned the Alice Springs and Rockhampton Mall projects. Well, these two membrane roofs are of such high standard we just had to include photos of them.

Full marks to both Spacetech Pty. Ltd. for their classical hypar forms at Alice Springs, and to Covertex (Qld.) Pty. Ltd. for their refined cone roof on a well detailed concrete frame.

Lets have more of work like this.

Mall Structures Complete



Australian Building Code Draft

After decades of proposals and discussion the Building Industry in this Country is within sight of its first uniform 'book of rules'.

The first draft of the proposed 'Building Code of Australia' is now out for comment, and hopes are high that, when it finally passes through all its stages it will find its way into legislation in all States.

This is important to the Membrane Structure Industry, and the Association has established a special

Sub-Committee to review the document and submit strong comment to ensure membrane structures are adequately represented alongside the 'more noble' structure systems, and, above all, not disadvantaged through ignorance.

The 'Code' warrants a careful study by all of us.

Copies can be obtained from AUBRCC Directorate, c/- Dept. of Housing and Construction, P.O. Box 111, Dickson, ACT 2602, Phone (062) 43 6111.

Value of Wind Tunnel Testing Recognised

Once considered too erudite for day to day engineering, the practice of wind tunnel testing is growing apace as our structures become larger and more complex.

This has prompted the following note from our Technical Sub-Committee:—

“Over the last several years a reasonable number of wind tunnel tests have been performed on a variety of structures designed in this country.

As the Association's aim is to further the understanding of these structures through distribution of information, the Chairman of the Technical Sub-Committee asks for all members to co-operate in the collation of available data on structures built in Australia which have been wind tunnel tested.

In particular we would like to have drawings of the structure showing co-efficients derived from the wind tunnel tests and background data if any on assumptions used in deriving these co-efficients and any other relevant information.

The Committee propose to colate these for the Association and to publish a series of these in some form at conferences held annually.”

A great deal of valuable information has been derived over the years, and the Committee's invitation is to be commended.

Comment

While we are thinking of events in 1988, the second Australian Building and Construction Exhibition, 'CONBUILD 88' will be held in Sydney in September next.

What is significant about this is that stressed membranes will be ranked equally alongside steel, concrete and timber structural systems.

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Reference Specification

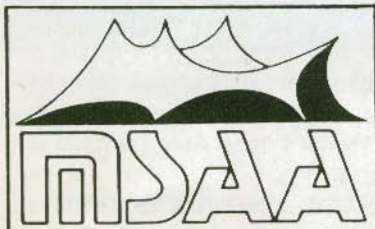
Work is to commence shortly on a 'Reference Specification' for Membrane Structures which will be issued as part of an update of the Association's 'Guidelines for Design and Construct Tenders for Membrane Structures'.

This is planned to be ready for issue at our Convention '88.

Membrane Structures are really making their mark in the construction field!

It behoves our Industry to take advantage of this opportunity to show the whole world just what we can do.

Refer to Editor for details.



This Newsletter is produced by the Membrane Structures Association of Australasia.
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Convention '88

What a big year 1988 is going to be! The Bi-Centennial Exhibition will flaunt its Membrane Structures all over Australia, Expo will be visited by hoards who can't fail to be impressed by its vast sails, and many new noteworthy membranes will appear highly visual in our cities and towns.

And in the middle of this we have our Annual Convention. The organisers have promised something

special and have booked the Holiday Inn at Surfers Paradise for July 14-16. Mark the dates down now!

1988 will also be an Awards Year and details of both events will be sent out in the coming months.

Like we said, 1988 is going to be a big year for Membrane Structures in this Country.

Club Extension at Gladstone



As membrane structures continue to be used for extensions to existing buildings this little classic by Covertex (Qld.) Pty. Ltd. shows yet again just how effective they can be.

The Club has turned an unused paved area into a pleasant outdoor garden bar and activities centre shaded against the strong tropical sun.

Architects were Phillips, Smith Conwell of Brisbane.

Did You Know . . .

The 1976 Montreal Olympics opened with the main stadium incomplete - the structural membrane roof being put on hold by the city Fathers.

Well, now its in place, and two interesting features you may like to know about the fabric are that it is a Kevlar base cloth with PVC coatings and polyurethane top coat and that it was stored for eight years before finally being put to use.

This was a controversial structure from the beginning and maybe it hasn't yet yielded all its surprises.

Yes! but Membrane Structures don't last long? Do they?

How often did we hear this in the early days?

Well, the Editor would like to know what the oldest surviving contemporary Membrane Structures are

both here in Australia and Overseas. How about it you historians!

This should make for an interesting report in our next issue.

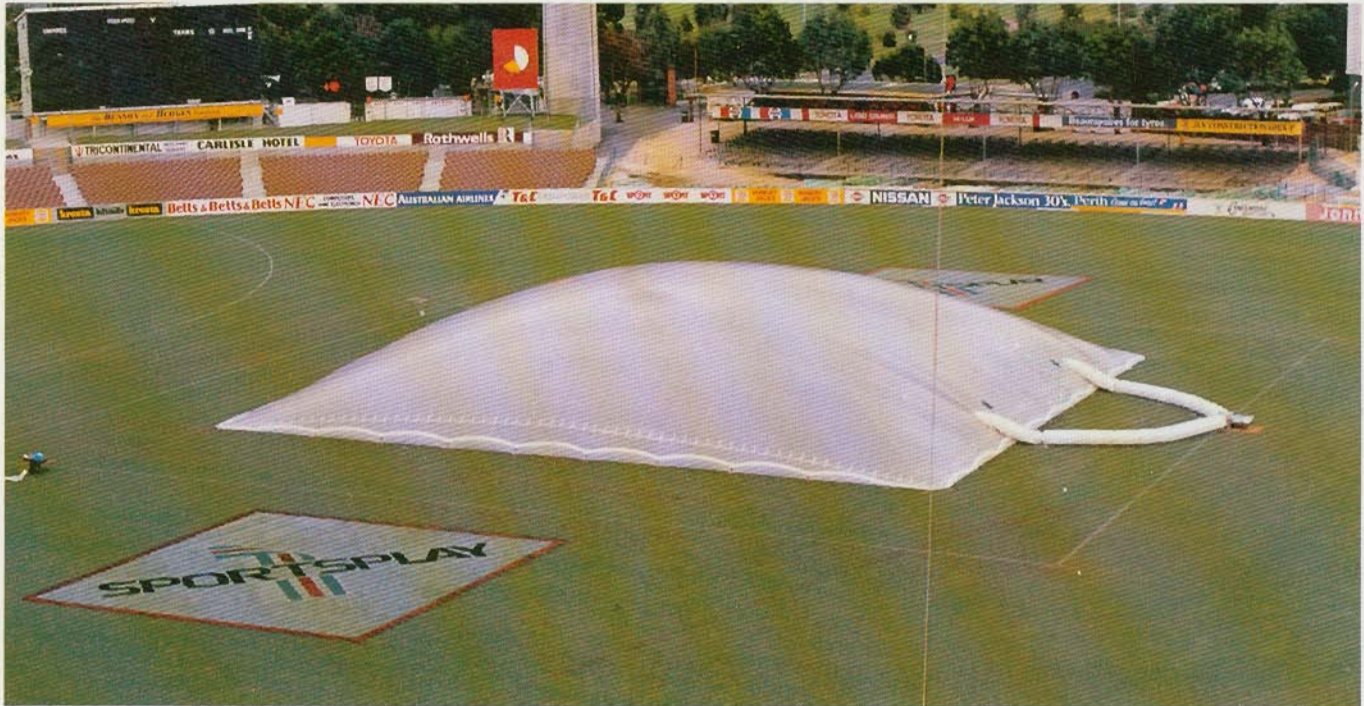
Another Air House

June this year saw the installation of a small but significant air-supported roof in Western Australia.

Referred to in our last issue the WACA central wicket area cover shown below is 34m square and is used for temporary weather protection of the hallowed turf.

One notable feature visible along the sides is a novel 'pneumatic' gutter system developed by contractors Covertex (Qld.) Pty. Ltd. with McWilliam and Partners Pty. Ltd. fabric consultants for the job.

Laying out the structure and bringing to full inflation takes just on an hour.



Recent Projects Announced

New projects about to start are as interesting as they are varied.

Thiess Contractors will be adding a further large sail structure on the Expo site in Brisbane. With buildings, services and landscaping all by now well established in the area in question this will be no mean feat.

The redevelopment of the Sydney Cricket ground incorporates numerous membrane wind barriers along the back of the grandstands. These will be installed by McNeill Fabric Structures of Brisbane amid a complex space frame roof structure. Architects are Phillip Cox & Partners with Arup Engineers.

Chemfab Pty. Ltd. of Sydney will soon provide a 550 sq.m. teflon/glass roof for a hotel atrium in

Beijing, China. Fabrication has been carried out by Covertex, Melbourne.

Space Structures Pty. Ltd. of Canberra have won a contract to erect an outdoor theatre roof as part of a bi-centennial development in their home town.

In Brisbane, Shade Structures Pty. Ltd., a firm specialising in high class modular membrane structures will extend its range shortly with a group of 8 free-standing pointed arch units for the Cathedral Square Project.

These projects show yet again the capacity of Membrane Structures to meet the challenges of complexity, scale and distance posed by any building program.