

# WARP & WEFT

MEMBRANE STRUCTURES ASSOCIATION  
OF AUSTRALASIA NEWSLETTER



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1989

## **AUSTRALASIA'S ONLY ARCHITECTURAL FABRIC NEWSLETTER**

Membrane Structures Association of Australasia Newsletters keep you informed and up to date with the latest in fabric materials, projects, conferences, company news and technical information.

# PRESIDENT'S ADDRESS

We are looking forward to a productive period for the association after the successful conference in Canberra during July. At the conference A.G.M., new executive members were elected and congratulations to all of them. They are as follows:

PRESIDENT	David McCready
VICE-PRESIDENT	Bernie Davis
TREASURER/SECRETARY	Brian O'Flaherty
TECHNICAL SUBCOMMITTEE - CHAIRMAN	Brian Dean
PROMOTIONS COMMITTEE - CHAIRMAN	Mike Lester
EXECUTIVE MEMBER	Chris Tattersal
EXECUTIVE MEMBER	Les Thorogood

The conference was informative, lively and interesting. I am sure that it achieved the aims of the association in dissemination of information and as a general meeting for groups within the industry to come together to exchange ideas.

This year we introduced a new commercial segment which attracted more people to come and talk about the technologies which their companies offer. It was more informative than usual and I think we have found a successful formula for involving both commercial and technical aspects of the association's sphere of interest.

A list of the persons who contributed to the commercial segment of the conference is enclosed, including their products.

The conference was held over two days at the Pavilion Hotel, Canberra, a recent development which contains three fabric structures. We had not a minute to spare in the packed agenda of technical papers and other presentations.

A small number of the proceedings are available for sale.

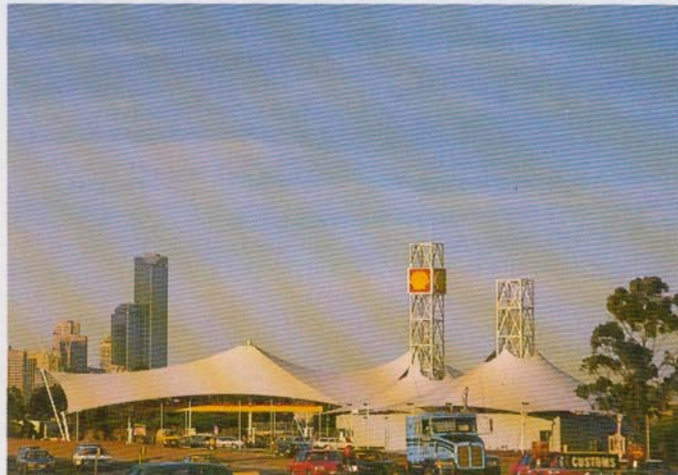
The forthcoming conference is to be held in Melbourne in 1990 at a venue to be determined and we announce in advance that it will be a two day conference including the bi-annual awards program for structures built recently.

## SHELL STRUCTURES

The western approaches to Melbourne are largely funnelled across the spectacular long span Westgate Bridge, a bridge which is to Melbourne what the Harbour Bridge is to Sydney. Now sitting astride the freeway and framing this approach, five membrane structures of exquisite elegance have been designed and built for the Shell Company of Australia to shelter and roof their driveway areas, Shell Shops and Restaurant complex.

The freeform structures comprising approximately 7000 square metres of plan in entirety, embrace the best aspects of membrane structure design and construction in their detail and fabrication and as a bonus, the long span structure echoes the cable stayed configuration of the Westgate Bridge.

DESIGN:	Connell Barrow McCready Pty. Ltd.
CONTRACTOR:	Spacotech Pty. Ltd.
FABRICATOR:	Covertex
ENGINEERS:	Connell Wagner



## LOGAN HYPERDOME

Brisbane Design and Construction firm, VESL MEMBRANE SYSTEMS have recently completed the Entry Membranes for what is claimed as the largest shopping centre in the southern hemisphere, the Logan Hyperdome.

A total of six (6) Membrane Canopies (2 Major and 4 Minor) were installed.

The fabric was Seaman Tedlar PVF/PVC-Polyester, designed to form tensioned arch forms. The edge tensioning system was the sliding clamp plate type fixed with stainless steel bolts.

An interesting detail was the perpendicular intersection of the full arch shape with a semi-arch of much smaller radius, against the rear wall. This was patterned with a cable element, however a good result was achieved in reality without fitting the cables.

Due to the usual time pressures of Shopping Centre development, the steelwork was manufactured by other contractors in parallel with the membranes. Dimensional errors in steelwork due to H.D. Bolt locations were up to 15mm.

Fortunately the accuracy of membrane fabrication and adjustment of the tensioning system was able to compensate most of the steelwork errors and produce a smoothly tensioned membrane.

## Overseas

## LARGEST MOBILE EXHIBITION HALL IN EUROPE

In Dusseldorf, Carl Nolte GmbH have just finished the largest mobile exhibition hall ever built in Europe. The project was completed in the record time of only four months and is a fine example of modern textile architecture. The hall is expected to remain on its present site for about two years. Afterwards, it can be dismantled and set up again somewhere else.

The planning concept, developed by IPL, was the result of a design competition. The hall complex measures 145 x 64 m overall and the floor area of 9400 sqm is equal to about one and half football pitches. It is 15 m high but, despite its giant size, is still light and remarkably elegant in appearance.

Most of the shell and its support were prefabricated in the factory. A total of 30 tons of textile membrane 180,00 kg of steel and 2000 m of steel rope was used.



## PROMINENT FABRIC DESIGNER PASSES AWAY

The innovative world renowned fabric engineer David Geiger died of a heart attack while on a trip to Korea.

Co-founder of the Geiger Berger Associates, his career achievements are outstanding. His design of the U.S. Pavilion in the Osaka Expo in 1970 lead the way to the fabric super domes which are now numerous world wide.

His most recent works were in a new area of structure termed 'cable domes', a system which utilized an intergrated cable and strut network known as 'tensegrity' to support a dome shaped surface broken into relatively small membrane panels. Ironically it was in Korea where the first large version of this structure was built for the recent Olympics.

The M.S.A.A. regrets his passing.

## NEW PRODUCTS

# QUADOME<sup>®</sup> ROOFING SYSTEM

Brisbane Design and Construction firm Vesl Membrane Systems have recently introduced their new QUADOME<sup>®</sup> Recreational enclosure, with the first installation in Wollongong.

A square based dome 30.5m x 30.5m x 14.2m with 2.5m high vertical glass walls and doors was developed and integrated into the existing amenities structures. Over 1600sq.m of high quality Seaman Shelter-Rite Tedlar PVC/Polyester Fire Resistant architectural fabric of 8% translucency was fabricated into a one piece membrane, fitted and tensioned to the curved and horizontal truss systems. The fabric is inert to the chlorinated atmosphere.

The tubular steel trusses were protected by the dual system of galvanizing and thermoset powder coating. Sidewalls were constructed of heavy anodized aluminium suite and 6.5m laminated glass, all fixed with Stainless Steel fasteners. Ten sets of 2.4m wide doors provide maximum access to the outdoor areas.

The translucency of the membrane fabric provides high levels of diffused light without heat load and importantly no sharp shadows across the water. Economical lighting using the internal reflectivity of the fabric, turns the dome into a well lit night facility with the added benefit of back lit exterior effect. The overall design provides the optimum balance of weather protection, outdoor access, brightness and feeling of open space, and high quality durable finishes to ensure long life.

## NEW SURFACE FINISH FROM HAKU — "FLUO-LAC"

Haku has just released a new improved surface finish (over the already well proven acrylic lacquers) for its range of POLYMAR architectural grades. The new fluorinated lacquer, or "Fluo-Lac", exhibits much improved cleaning characteristics, allowing removal of accumulated dust and grime more easily than the standard acrylic finish. This finish will initially be available in Types I and II.

Importantly, for Australia's hot climate, Types I and II have passed the high temperature (70°) seam test, considered essential for hot climates to avoid seam creep. (Other grades are currently under test.)

The "Fluo-Lac" finish will be available ex-stock Melbourne on Types I and II as standard on the already well proven high UV resistant (TROPICALISED) grades specially formulated for Australian conditions.



## A BUSY TIME FOR CHEMFAB

Following a high level of business activity in 1988 CHEMFAB Pty Limited reports completion of a further 14 SHEERFILL Teflon coated fibreglass projects so far this year including the prestigious Oasis on Broadbeach and Logan City Shopping Centre in Queensland, Warringah Mall in New South Wales and Pakuranga Shopping Centre in Auckland.

The company, which assumed full operating responsibility for its fabrication facility in Melbourne in July this year continues to make strong progress in the development of overseas markets with its first Singapore project fabricated and on the water for installation in March 1990.

# TECHNICAL INFORMATION NEWS

## INDUSTRY MAINTENANCE MANUAL

Many interesting issues relating to fabric structures were discussed at the July M.S.A.A. Conference in Canberra, but none more important than the need for a formal maintenance program. As with other building facade and roofing elements exposed to weather (i.e. Queensland's sun or Victoria's rain!) premature degradation or structural damage can result if regular inspections and rectifications are not carried out.

As discussed at the Conference, there is a major need throughout the industry to better inform our clients and encourage ongoing inspections by way of an industry standard Maintenance Manual.

The newly elected M.S.A.A. Technical Sub-Committee comprising Brian Dean (Chairman) and Malcolm Barr of Connell Wagner and David McCready and Peter Lim of Spacotech have addressed this matter as a high priority. We are therefore circulating to all M.S.A.A. members for comments a draft Industry Maintenance Agreement based on a document kindly supplied by Chemfab Pty. Ltd. with comments added by Spacotech Pty. Ltd.

There is no doubt that maintenance programs involve upfront costs which some clients may be reluctant to pay, however, the

Sub-Committee consider it is in the best long term interest of both the client and the contractor that formal inspection agreements be entered into wherever possible. This will tend to raise the standards of the whole industry and reduce the risk of premature failures. M.S.A.A. members are encouraged to forward their comments to the Sub-Committee.

## Toxicity of Fabric Fumes

A second issue raised by M.S.A.A. members in recent times is that of toxicity of fumes given off by certain fabrics during a fire.

The debate centres around the results of laboratory fire tests on samples of certain fluoro-polymer fabrics. Correspondence has been received from a number of M.S.A.A. members and the Technical Sub-Committee is continuing to monitor the situation. The Committee's view is that the data should relate to full scale tests which more realistically models the real situation rather than small scale closed situations.

We request that comments on both these issues and any other technical matters M.S.A.A. members may wish to raise be forwarded to the Technical Sub-Committee C/- Mr. Brian Dean — Ph: (03) 697 8244.

## M.S.A.A. CONVENTION 89 OVERVIEW

The M.S.A.A. 1989 Convention was held in the Pavilion Hotel, Canberra in July. This venue was particularly appropriate, with its new membrane roof transforming the grey winters on Canberra to a light and airy sub-tropical garden in which the conference was held.

This year's themes: "Fabric Structures, Performance and Building Development" — was supported by a large number of technical papers presented in expert manner by the cream of the industry from Australia and Europe. Papers ranged in content from the technical and advances in materials to Case Studies and Project Reviews of fifteen years worth of fabric structure experience in Australia.

A new and special feature of this conference was a commercial segment in which new products and services were put on display by companies supplying to the membrane structures industry. This segment, though over subscribed, was well received by the audience and will be enlarged at future conferences.

The Annual Dinner attended by all delegates was addressed by Senator Austin Lewis.

We have listed below participant companies on products and services pertaining to the membrane structure industry.

A. NOBLE & SON PTY. LTD.  
Cnr. Princes H'way and Garden Road,  
Clayton, Vic. 3168

VESL MEMBRANE SYSTEMS  
62 Commercial Road, Fortitude Valley. 4006

INDTEX AUST. PTY. LTD.  
Suite 11, Sans Souci Bldg,  
860 Nepean Highway, Moorabbin, Vic. 3189

HOECKER STRUCTURES (AUST) PTY. LTD.  
8 Fairbank Crescent, Lower Templestowe. 3107

DAVID J. HEFFER & ASSOC.  
22 Hicks Street, Lara, Vic. 3212

W.L. GORE & ASSOC.  
98 Old Pittwater Road, Brookvale, N.S.W. 2100

BULLIVANTS LIFTING GEAR  
P.O. Box 136, Brisbane Market. 4106

VERSEIDAG INDUSTRIE TEXTILLIEN GmbH,  
Dept. Coated Fabrics  
Industriestrasse 56, D-4150 Krefeld 1, West Germany

PETER KNEEN PTY. LTD.  
50 The Glen Road, Arncliffe. 2205

CHEMFAB AUSTRALIA  
259 Pacific Highway, North Sydney. 2060

KEVIN ESSING  
03 546 5211  
F. 547 8191

KEN LAMBERT  
07 854 1900, F. 252 1252

BRIAN O'FLAHERTY  
03 555 9911  
F. 555 8893

ROGER MAKIN  
03 850 6271

DAVID HEFFER  
052 82 1337, F. 82 1003

WAYNE McLEOD  
02 938 5755

ROB O'CONNOR  
07 277 9855, F. 277 2182

HANS WUTTKE

PETER KNEEN  
02 59 8119

LESLIE THOROGOOD  
02 929 8199, F. 929 0643

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PVC/Polymar polyester  
architectural fabrics

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services

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Supplier of Norslay cables  
and rigging equipment

Supplier of Duraskin  
architectural PVC polyester  
fabric

Specialized computer  
software

Supplier of TCFG  
architectural fabrics



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