KZ-NIA Journal · Issue 1/2000 · Volume No 25 · ISSN 0379-9301
JOURNAL OF THE KWAZULU-NATAL INSTITUTE FOR ARCHITECTURE

MONUMENTALITY+TRANSIENCE

Spire maintenance access stair
Hydraulic tidal spire indicator
Spiral roof access stair
Cowl support struts
Wind direction indicator
Enclosed radar dish
Revolving walkway
Movable sun screen
Microwave links
OPERATIONS ROOM
SEARCH AND RESCUE ROOM
Spire hydraulic mechanism
RESTROOM
Cable tie members
Offshutter concrete lift shaft
Structural service shaft
ENTRANCE LEVEL

Flagpole with yard-arms and gaff
bay window
workstation
SEARCH AND RESCUE
VERTICAL DUCT
LIFT
EQUIPMENT ROOM
LOBBY
VTS equipment
STAIR
12 x 1/2 height lockers
Double bunk beds
Hydraulic tidal spire mechanism
KITCHEN
REST-ROOM
WC
CIRCULATION RING

SECTIONAL
AXONOMTERIC 1:100

DURBAN'S MILLENNIUM TOWER

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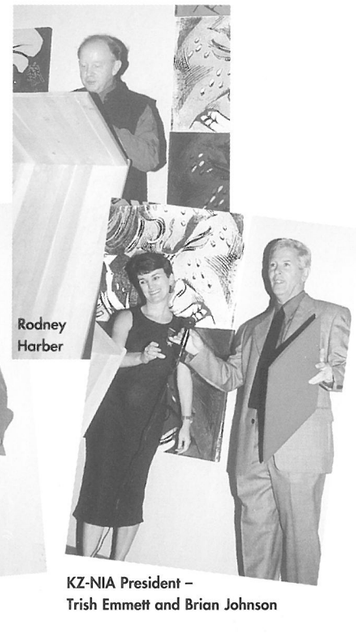
KZ-N Institute for Architecture

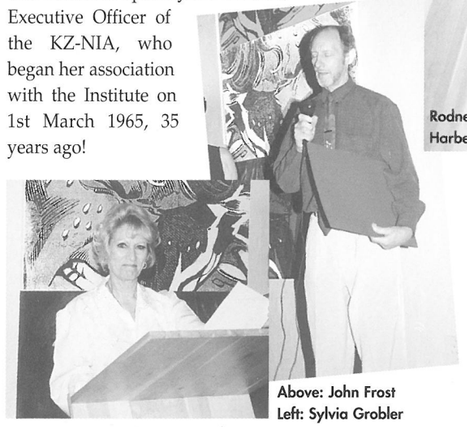
KZ-NIA Honours

At a function held at the NSA Gallery on 30 March, **John Frost**, **Brian Johnson** and **Rodney Harber** were honoured with certificates in recognition of their service to the profession over many years.

At the same function Honorary Membership was bestowed upon **Sylvia Grobler**, Executive Officer of the KZ-NIA, who began her association with the Institute on 1st March 1965, 35 years ago!



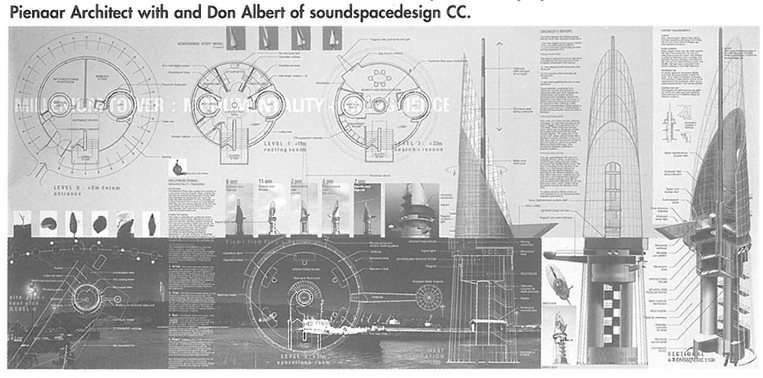
Rodney Harber



Above: John Frost
Left: Sylvia Grobler

KZ-NIA President – Trish Emmett and Brian Johnson

COVER Presentation detail of the Millennium Tower Competition entry by the winners: #74 – Alex Pienaar Architect with and Don Albert of soundspacedesign CC.



The millennium celebrations are over. Only the costs and sustainability of the video *Durban: The Millennium Experience* remain questionable. But, in an architectural journal, it might be appropriate at the birth of the new century to put the cliché and ask: is KwaZulu-Natal architecturally 'Y2K compliant'?

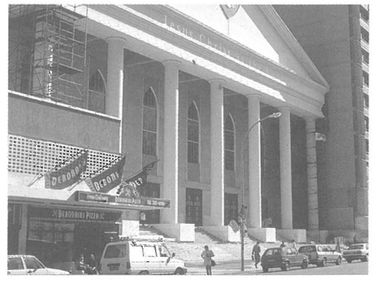
Judging by the inaugural design event, the Millennium Tower competition, and the 52 entries it drew, one can certainly say architecture is 'Y2OK'. Some entries are stunning as the coverage in this issue demonstrates.

But, other landmark structures in Durban do raise interesting questions, for example, why are Roman icons again being stamped on the cityscape?

Forum, temple and basilica – these were the basic components of the Roman civic centre – and, as Barrie Biermann used to tell students, Durban is a Roman Town. It has its forum in Francis Farewell Square, a rectangular space with clear architectural definition, it is dominated by a temple on one side and a basilica on the other, and the square itself is populated with statues of prominent personages.

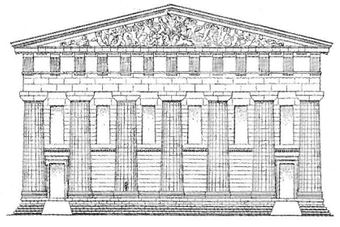
Barrie would elaborate: the Roman temple which frames Durban's forum is provided by Phillip Dudgeon's Central Post Office, the former Town Hall of 1885; and the basilica is the City Hall of 1909 by Woolacott, Scott & Hudson replete with ribbed dome modeled on Michelangelo's dome to the basilica of St Peter's in Rome!

To pursue the analogy, to the established Roman repertoire of a century ago, arrived



Left: Cathedral for the Universal Church of the Kingdom of God, 473 Smith Street, Durban, 1999. Architects: Salles Arquitetura, Rio de Janeiro, Brazil.
Below: Temple of Poseidon. Paestum, c.460BC.

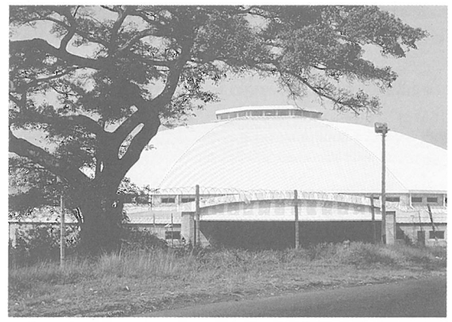
TEMPLE OF POSEIDON



Editorial

Welcome to the Romanised Durban of the 21st Century

from the passing of 1999 into 2000 a major new temple in Smith Street, and just beyond the Berea hills on the N3 Western Freeway, a pantheon, or, as others have it, Durban's own Millennium Dome!

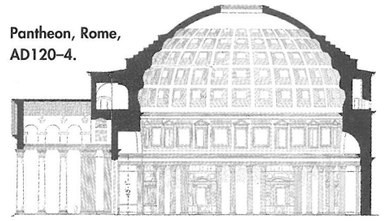


Durban Christian Centre, 39 Galway Road, Sherwood, 1998–9. Architect: Koos Senekal, Pretoria.

Hemmed in between towering residential flats in Smith Street, to which the term tenement, which the Romans used, certainly applies, stands the frontally approached temple of the Universal Church of the Kingdom of God. It is raised on a high podium, elevated from the world around it, and entered by means of flights of stairs between the odd-numbered and therefor unusual, heptastyle or 7-column portico. Besides this Roman architectural oddity, which number is possibly scripturally determined, to boot, the 6 classical entrance doors are surmounted with gothic lancet arch windows! Then similar to the Pantheon, the portico with entablature and pediment, backs against an attic block which in Durban contains the enormous, 25m high volume of the cella or sanctuary. This is also coffered but, with concrete lintols suspended from the steel trusses!

THE PANTHEON : ROME

Pantheon, Rome, AD120–4.



The Pantheon is the building which best symbolises the Roman enclosure of space, built as a temple to all the gods, and representing the earth as a flat disc covered by a heavenly dome as the universe. The dome is constructed of concrete and lit exclusively by the oculus overhead which suffused the space with even light.

Unlike its Roman predecessor, Durban Christian Centre is dedicated to the triune God, and despite its concentric conception, the space is actually directional with the seating fan of the auditorium focused on the stage, set against the western side of the octagonal space.

The proportions of Durban's pantheon are squat. The structure of 65m diameter measures 16m height at the apex – as opposed to the perfect cylindrical and spherical space of the Pantheon which rotunda is 43.4m in height and diameter – and the portico fits rather less comfortably than the prototype. But like Hadrian's Pantheon the Durban pantheon too is structurally distinguished. While the hemispherical concrete dome of the Pantheon of approximately 5000 tons of weight is built with 5 diminishing rows of coffers tapering towards the oculus; the dome of the Durban Christian Centre is an umbrella dome resting on an octagonal reinforced concrete frame. From this base a series of expanded aluminium alloy rib trusses and girders reach to the oculus and define the segmented dome – which weighs only 20 tons over a clear span area of 3000 sq m and a seating capacity of 3500.

To this Roman collection of temple and pantheon will now be added a variant of Trajan's Column, the column with a band which winds spirally up the shaft. It is the spire of the Millennium Tower on Durban's Bluff which by the rotation of the spiral on its shaft is to communicate to the public tidal ebb and flow.

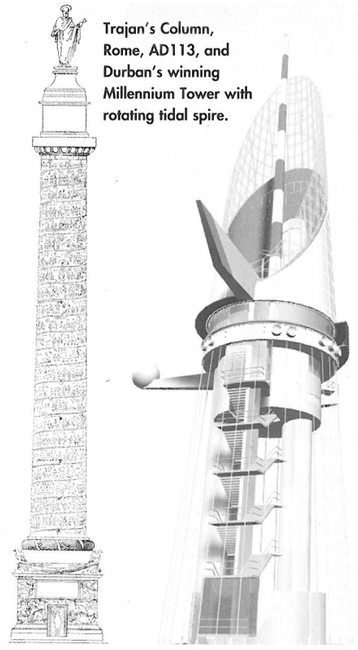
But the Millennium Tower has no overt Roman precedent, it is inspired by natural phenomenon and high-tech, and conceived by two rising stars and *form•Z*.

Why emulate Roman models? The earliest Christian churches were based on the Roman typology of the basilica, a court of justice, a secular and not a religious building. One can thus understand the discomfort of early Christians worshipping in buildings symbolically inappropriate and the welcome reception given to Leon Battista Alberti's experiments of combining the antique temple typology with the Christian church façade in the 1460s and 1470s. These experiments with the revival of the Roman past then went on to mark the Italian Renaissance architecturally.

Over a century ago the 'battle of styles' declared Roman appropriate for civic architecture and hence the style for Durban's original Town Hall, currently the Main Post Office. Churches chose Gothic except non-conformist churches eg Metropolitan Methodist Church, Chapel Street, Pietermaritzburg, which chose the typology of the classical temple. But, why the sudden resurgence of Roman buildings in Durban at the turn of the 20th century?

This question continued to puzzle me until I recalled the aspirations of our State President, Mr Thabo Mbeki. Could such buildings which marked the Italian Renaissance now be harbingers of another Renaissance, the African Renaissance perhaps?

Walter Peters, Editor



Trajan's Column, Rome, AD113, and Durban's winning Millennium Tower with rotating tidal spire.

Durban's Millennium Tower

Some Comments on the Competition

PATRONS AND IDEAS

There are many significant aspects about architectural competitions: not least the way they bring together patronage and ideas. For a new port control tower for Durban, the *patrons* – the Port authorities, abandoned the safe and conservative path which they might well have sought. They threw open the process to seek ideas from the architectural profession. Since the subject marks the commencement of the millenium (depending on one's understanding of historical arithmetic), the act of providing patronage for new *ideas* for a port city seems highly credible. The port authorities thus recognised the significance of the tower and their patronage accordingly extends into the future.

PROFESSIONAL RESPONSE

In turn, the profession responded with overwhelming enthusiasm and energy. Many minds set to work to develop and explore ideas about towers, about control, and about image, icon, Durban, Bay, shipping, port and millenium. The net was cast wide and ideas came in a flood. In the words of Derrick Cooke, the Port Captain of the Port of Durban, the response represented a powerful synergy which bodes well for the future relationship between port and community and the port and the profession.

THE BLUFF

For most of the past 150 years the Bluff headland has enjoyed an important status in the city. It has an easily recognised profile curving down into the Indian Ocean, which represents the sense of the place where the Bay meets the sea, and thus geographically symbolises Durban. But the assortment of port-related structures which have crowned its summit has also provided locals and visitors with a good deal of information about the port (the signal station from 1850); the condition of the sandbar at the entrance (the cone signal system); the dangerous situation of the harbour the lighthouse from 1867 to 1941); and the time (the Timeball from 1905). And to that assortment we can add more recent uses such as the present control tower and the (unfortunate) strike craft base.

THE BUILDING

Besides the adequate and obvious provision of suitable accommodation for the proper uses of the tower, the Port authorities also recognised in their written criteria that the building would need to go well beyond these parameters and become a symbol of the port and place; a celebration of the arrival and departure of shipping; a creative structure with responsibilities to a highly sensitive environment; and a long-lasting statement easily built. So the challenge issued in searching out ideas involved the making of a tower which would be recognised as a fitting symbol, and a dynamic exploration of environmental and technological opportunities.

THE RESPONSE

In its essentials the problem then was one of suspending an operations room and other related functions some 27 meters above the ground to control the shipping in and out of the harbour. How then would gravity be defeated? And with a design occupying such a conspicuous position on a prominent skyline what would its form be like? What would it symbolise – what would it mean?

The essence of the response was thus how to keep "a shaded eye in the sky" poised above the ground with all the attendant requirements of suitable surveillance and related accommodation and hi-tech support. What would this look like and how would it be built?

Several species and sub-species of solutions were proffered. The groups of species included the **patriotic** (52) and the **ethnic** (38, 57, 70); **indigenous architecture** (8, 75) and **indigenous crafts** (44); **lighthouses:** a tower of light (49); an ethnic lighthouse (with shield & assegai) (36); or an Indian Ocean cultural icon (18); and **such which sought local environmental inspiration:** the bio-ethnic (pod, shell or drum) (63); purely animal (65); or biomorphic (48);or **human reference:** anthropomorphic (80, 68, 62); then **the structural solutions:** an object on a column (81, 13, 34, 30, 71) an expressed structure (4, 66); a dynamic structure in an angular form (53, 56); a set of eyes on a structure which could get closer (22); a dynamic structure in a curvilinear form (6, 12, 26, 69, 79, 73); a sculptural form (1, 5, 14, 27, 55, 36); or one waiting to be launched (83); and **those which sought reference from the maritime and nautical world:** a nautical piece (35, 39, 2, 19, 33); a spinnaker or sail (31); or an environmental messenger (74).

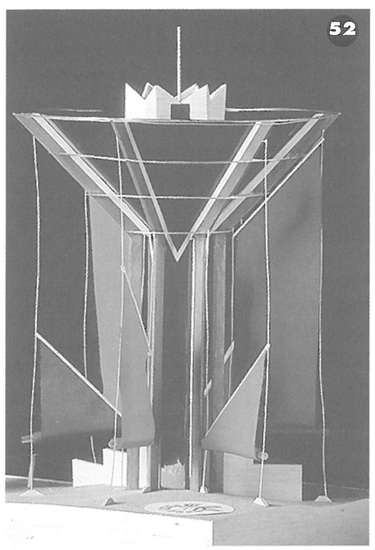
THE WINNERS

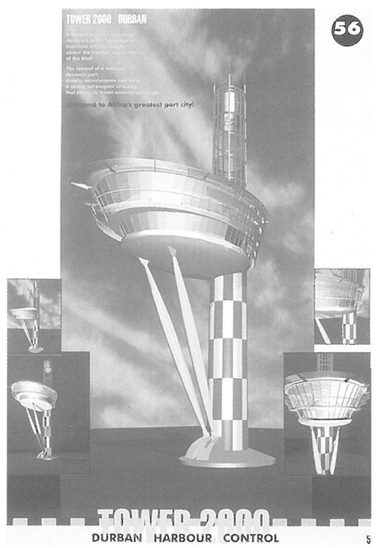
The assessors found eleven submissions to be noteworthy: 5, 12, 33, 39, 44, 55, 58, 69, 71, 74 and 31*.

The three winners explored three fundamentally different departure points. The scheme placed third (31) chose to use the idea of a rotating spinnaker to control low level solar radiation; that placed second (58) chose a leaning, but balanced, sculptural form in a nautical language, harmonising with the Bluff profile; the first placed design (74) went back to the essence of a Bluff tower – a structure which goes beyond the control and surveillance requirements and becomes a environmental messenger embodied in a form representing the Bluff profile in a microcosmic way: rotating, responding and transmitting.

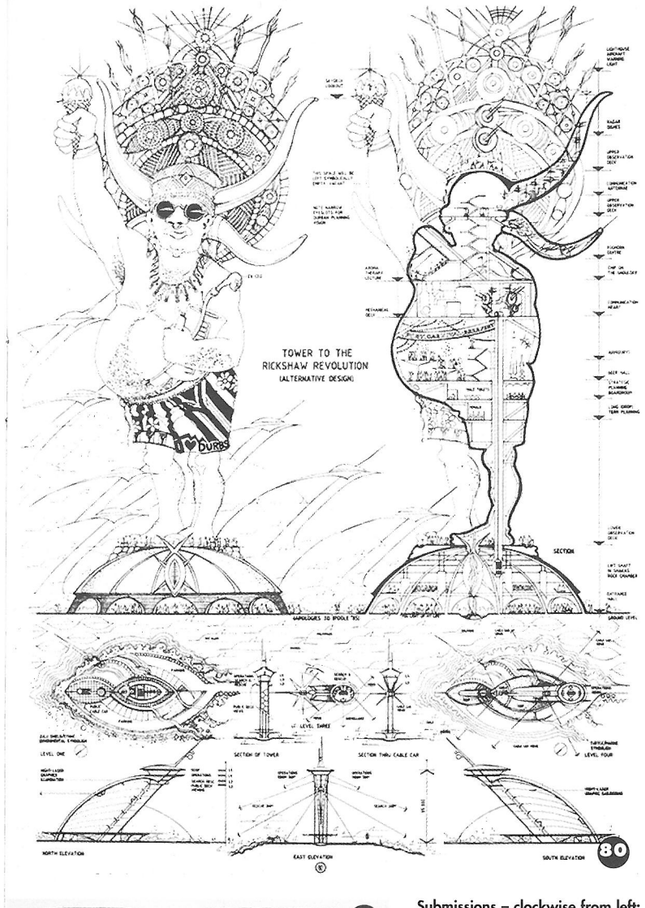
Brian Kearney

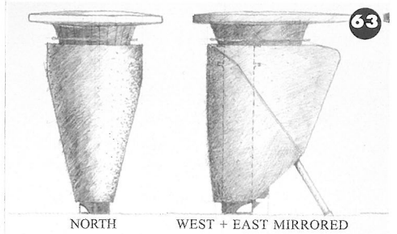
*Due to space constraints, no visual illustrations could be included of:
5 Johnson Murray Architects
12 ZAI Consultants (Pty) Ltd
39 FGG Architects
44 Datum Architects
69 Basil Vogas Architect
71 Paton Taylor Associates





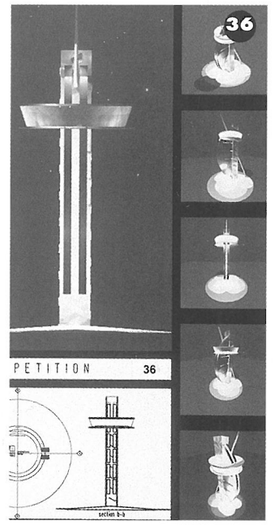
Photography by Angela Buckland

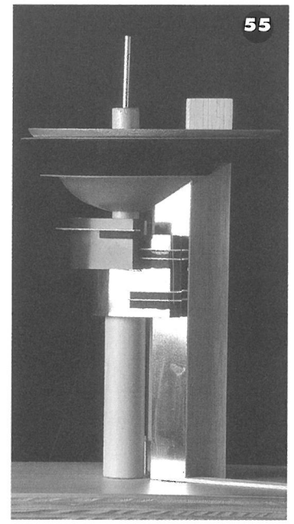


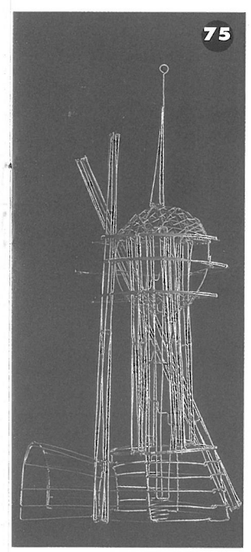


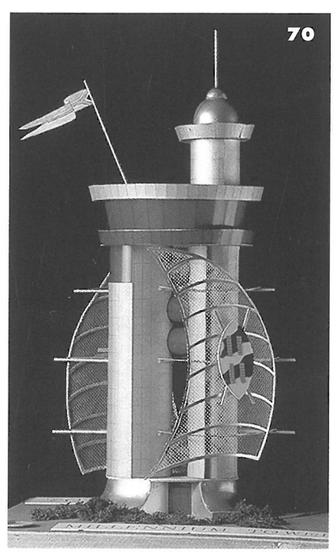
Submissions – clockwise from left:
63 OMM Design Workshop
80 Derek White
66 Elphick Proome Architects
65 Tennant + Tennant
36 Michael Tod Architects
55 Stauch Vorster Architects
33 DuRand Huizinga Architects
49 Leach & Van der Walt
70 WD Architects
75 PGA Architects
56 Johnson Murray Architects
52 Architects Collaborative

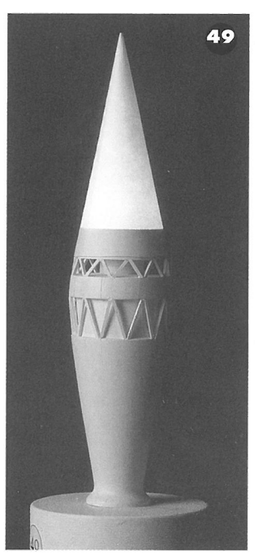
◀ This submission was driven by two deliberations: highlighting the demise of the tradition of the Rickshaw Puller, an industry widely associated with Durban and an icon for the City; and a concern with the isolationist brief for the competition which excludes the public from enjoying the spectacular views provided by the tower, positioned as it is on the proposed Bluff Heritage Park.
This proposal was submitted with apologies to Ian Poole whose entry to the design competition for the "Feel of Durban" pavilion for Durban Expo '85, was similarly conceived (See *NPIAJ* 3/1985).

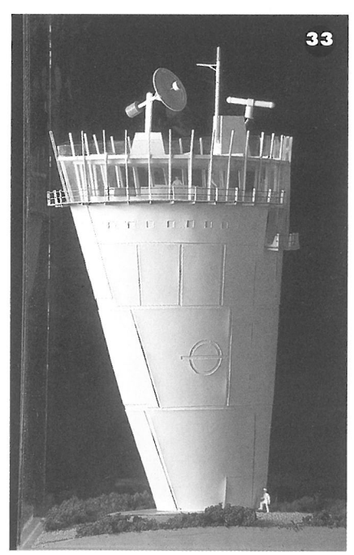








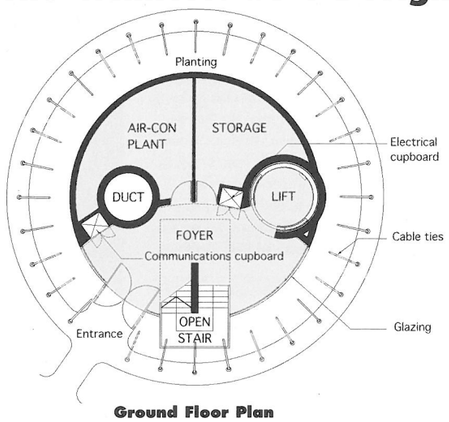




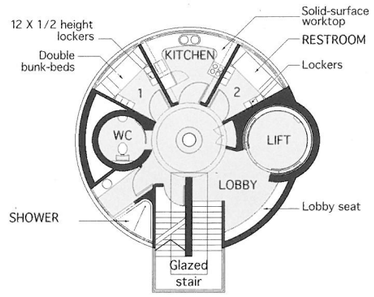
MONUMENTALITY + TRANSIENCE

Durban's Millennium Tower

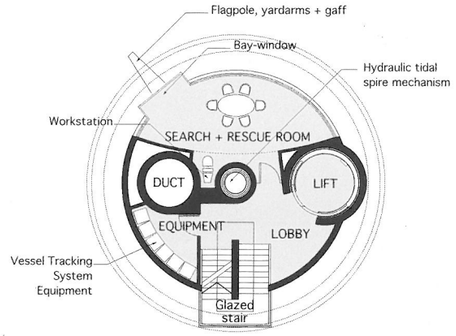
The Winners: #74 Design Placed First



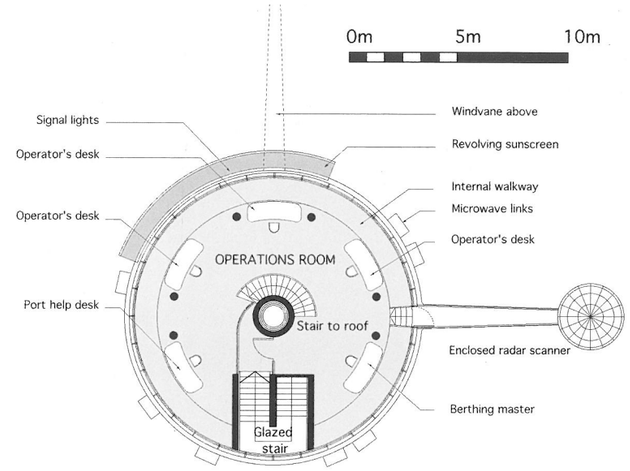
Ground Floor Plan



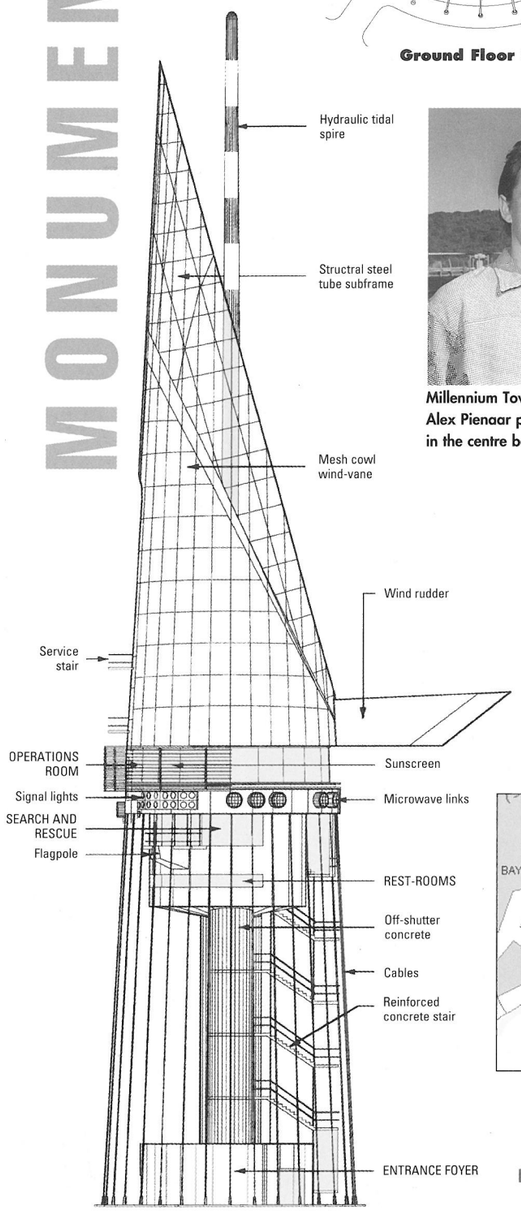
Rest-Rooms

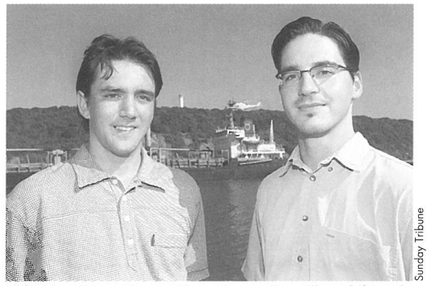


Search and Rescue Level



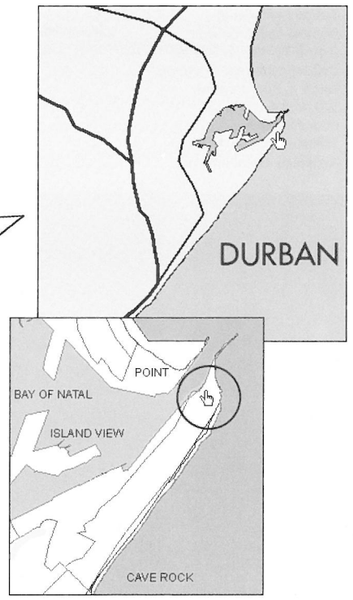
Operations Room





Millennium Tower Competition winners: Don Albert (left) and Alex Pienaar photographed with the existing signal's tower in the centre background.

Sunday Tribune



MONUMENTALITY + TRANSIENCE

The Millenium Tower site is ideal in its potential as a true urban focus for Durban. Views towards the site from the beachfront, Esplanade, Berea, Bluff and Umhlanga Rocks are spectacular and since the tower has little competition in terms of height, it is a natural choice for the location of a new symbol. With little cost, the positive aspects of the site can be amplified into a powerful identity for Durban, with the tower itself operating as a functional entity for Africa's busiest port.

Symbol for Durban

The tower is conceived of as a politically-neutral abstraction of local forms over time affected by forces of nature. Deriving organic inspiration from the land (a budding sugar-cane shoot), the sea (shells and fish), and nautical imagery (sails, masts, cranes and funnels) the Transient Monument synthesizes the above into a functional, forward-looking architectural expression for the port of Durban. A barometer for the city, it will communicate fluctuations of sun, wind and tide, while symbolizing the growth and transformation of our city into the third millennium.

Environmental Response

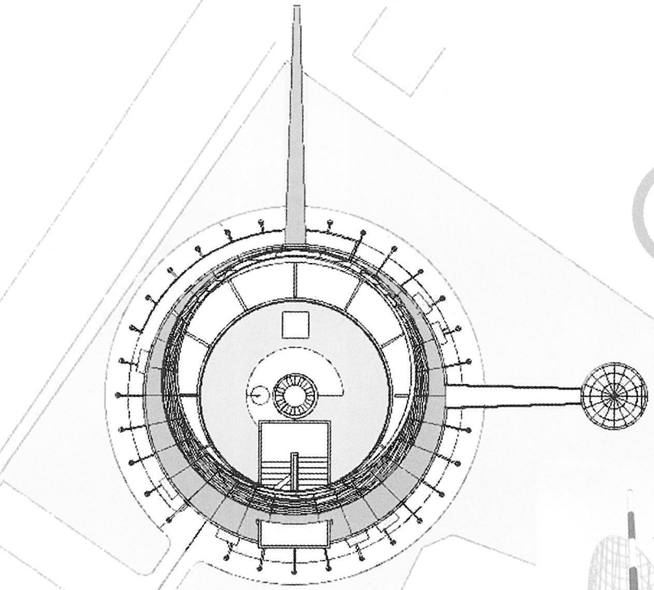
The TRANSIENT MONUMENT is a 75m high kinetic sculpture – a giant indicator that continuously responds to environmental changes and weather conditions. The significance of this information to Durban's surfers, sailors, fishermen, workers and holidaymakers is of practical as much as symbolic importance. These are the functions:

1. Wind: The mesh-clad cowl element acts as a wind vane, and revolves in response to the prevailing wind direction. The wind appears to push on the rudder, swiveling the cowl around its rotating track so that its curved front faces in the direction of the wind. The costing of the tower is based on a mechanical system which interprets the wind direction and rotates the cowl accordingly, however a freely running system as explored in the aerodynamic model could also be engineered.

2. Tide: The 50m central spire moves up and down as an indication of the ocean tide. The variance between high tide and low, is proposed at 16m for the effect to be visible from all around Durban. The tide level is monitored at the harbour mouth and instantaneously conveyed by radio to the hydraulic system driving the spire. The spire is striped in a spiral and rotates to indicate whether the tide is incoming or outgoing.

3. Sun: A computer driven sunscreen – with horizontal and vertical blinds – tracks the movement of the sun and moves around the operations room (providing screening when and where it is needed). This feature constantly changes the external appearance of the tower through the day and effectively becomes an indication of the time-of-day. The sunscreen is also used as the window cleaning gallery and is accessible from the operations room.

4. Night: Lighting colours within the cowl change according to a random algorithm driven by the tide, wind-direction and humidity. This luminosity would provide Durban with an ever-changing spectacle. A searchlight beam could be attached to the spire for special occasions, and warning strobes on the spire and cowl would further the tide meter reference.

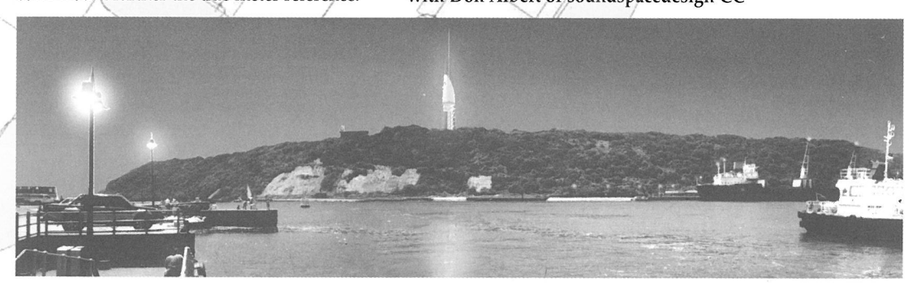


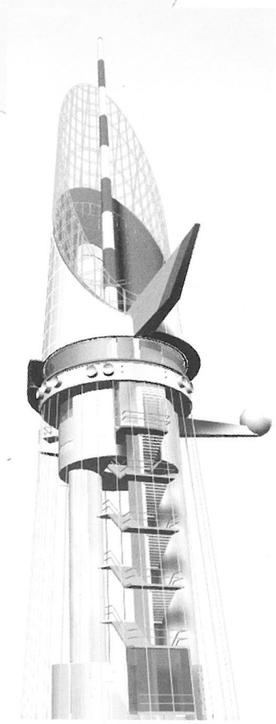
Roof Plan

By combining these animated functions into the pure abstraction of the tower, a transient monumentality, appropriate for Durban's change and growth into the new millennium may be achieved.

Don Albert & Alex Pienaar

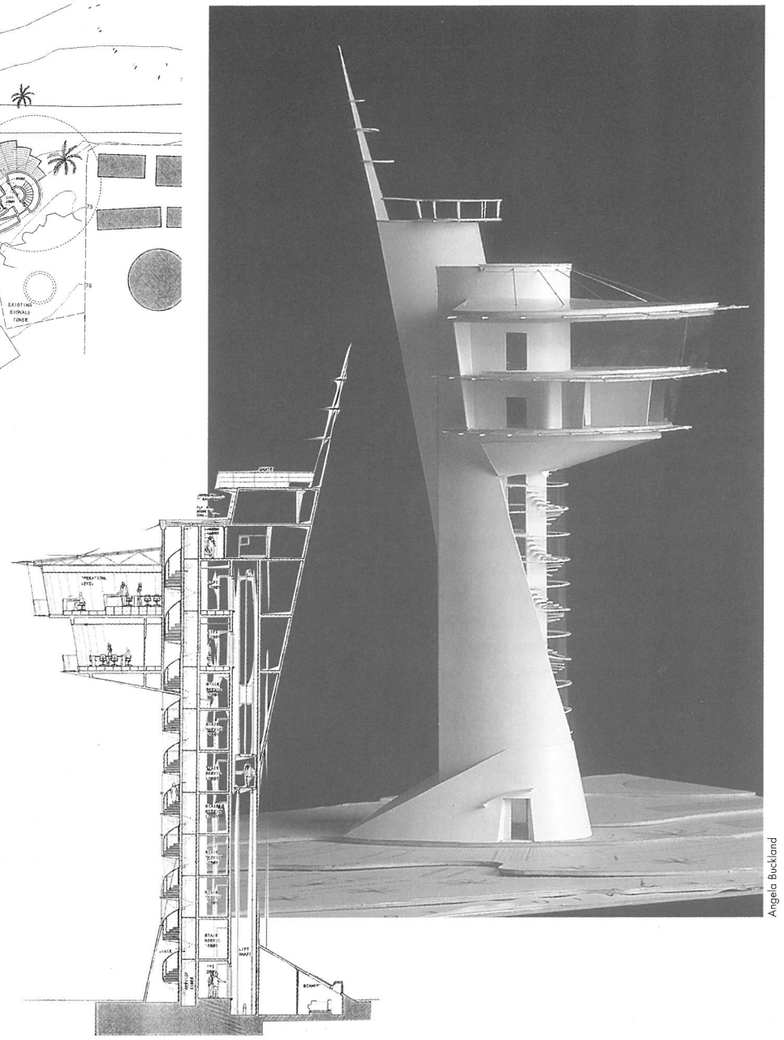
Alex Pienaar Architect
with Don Albert of soundspacedesign CC





Durban's Millennium Tower

#58 Design Placed Second



Angela Buckland

The design developed along the following two principles:

Symbolism: I wanted the tower to be a symbol of the importance of Durban harbour, not only in Africa, but also on the world stage. The tower was to appear dynamic, to represent the new millennium and the progress of technology – a symbol of the progress of the Port of Durban.

Form: Due to its prominent position on the Bluff, the profile of the tower is very important. Its form is sculptural with references to marine architecture and ship design to represent Portnet and its function as a shipping control centre.

To emphasise dynamic form and symbolism, the shape is streamlined and 'uncluttered' giving it an appearance of being in motion and about to set sail into the future.

Its clean lines assist its visual impact from a distance.

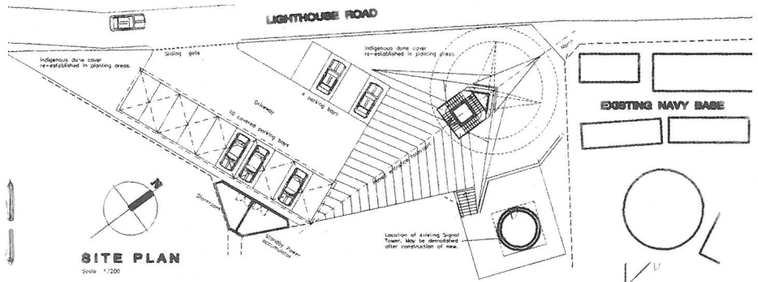
The glazed staircase would act as an illuminated beacon at night and was introduced as a 'visual trick' to make the structure appear more lightweight and to further highlight its dynamic form.

Trevor Blanchard

Fridjhon Fulford & Partners

Durban's Millennium Tower

#31 Design Placed Third



Our entry elaborates sun screening and power collection devices into a kinetic sculpture at the harbour entrance to provide a memorable symbol for the port, with nautical imagery recalling a yacht's spinnaker, and from the front, a Zulu shield. In plan the structure forms the five-pointed star of the Millennium.

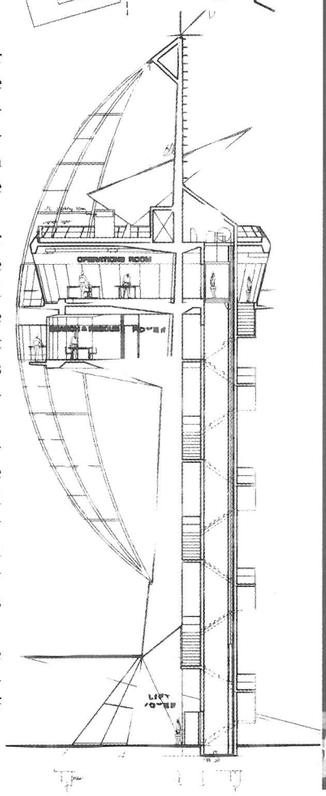
The design is based on the premise that solar shading of the Operations Room could not be successfully achieved by any louvred or slatted screen without compromising views out. These devices shade by obscuring direct lines of sight towards the sun and there will be occasions when ships have the sun behind them, particularly out to sea in the early mornings.

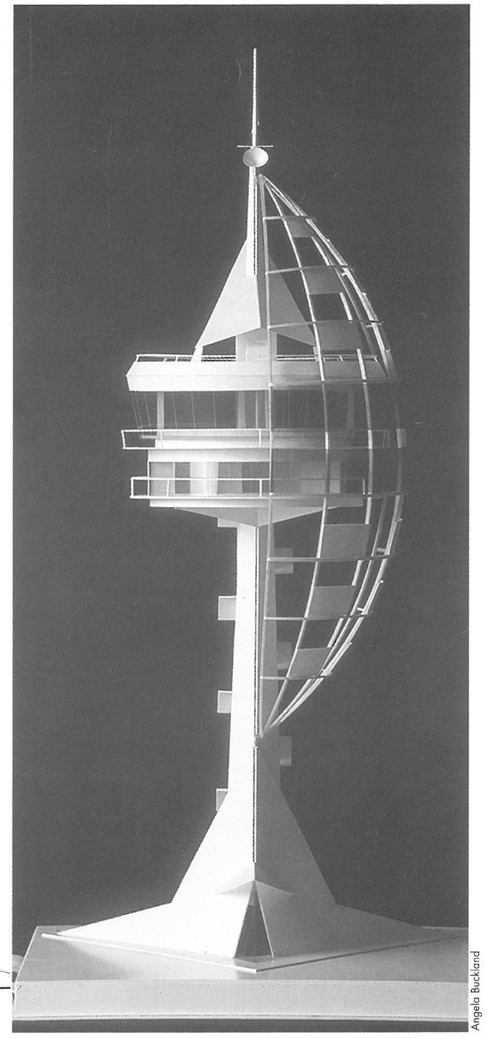
We therefore proposed a tinted heat-absorbing glass screen, mounted on a pivoted lattice that can rotate to follow the path of the sun and be moved out of the way at night or on rainy days. Photovoltaic cells on the lattice feed power to an accumulator replacing the standby generator and providing power to lifts, lights and the sunscreen motor.

The roof space is partially covered to give some protection to rooftop equipment and provide a controlled silhouette concealing roof clutter.

Neil Murray

Myles Pugh Sherlock Murray Architects





Angela Buckland

PORT OF DURBAN: MILLENNIUM TOWER COMPETETION

The Concept: This competition was conceived by Port Engineer Pat Raw and Port Captain Derrick Cooke and co-ordinated by Protekon KZ-N and Dave Stromberg in particular.

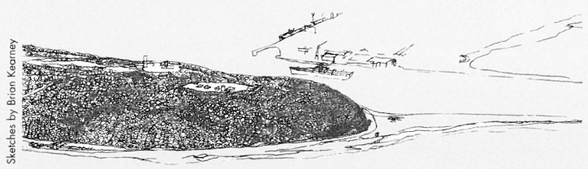
Competition Brief: The brief called for the design of a tower to accommodate the Vessel Traffic Management facility of the Port of Durban on the established site of the Natal Command military base on the Bluff. The existing signal's tower (built 1955) could be retained, modified, or incorporated into a new proposal. But, because of the military siting, the Millennium Tower will be inaccessible to the public. The new tower, which will consolidate signals functions of the existing tower and those at the T-Jetty, is to have at least 2 floors. An open-plan Operations Room of 13m diameter, is to be elevated 27m above ground level (102 above MSL), offer 360° unrestricted visibility yet be screened from the effects of insolation, and be provided with both a lowered internal walkway and an external perimeter cat-walk.

Communications equipment would be installed on the roof above and a Search and Rescue Room, to co-ordinate all maritime rescue operations off the eastern coast of SA, should be placed on the floor beneath.

Eligibility, Criteria & Jury: The competition was restricted to registered architects practising in KwaZulu-Natal and the tower should be conceived of as a symbol for the Port and City for the new Millennium.

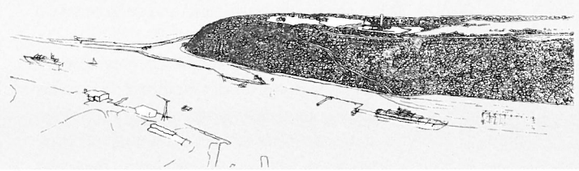
The criteria against which entries were judged was listed as follows:

- symbolic appropriateness for City and Port
- environmental responsibility
- satisfactory accommodation of all user requirements
- structural creativity
- long-lasting, durability and low-maintenance qualities
- ease and speed of construction
- adherance to the stated budget of R6,9m



Sketches by Brian Kearney

The jury comprised Port Captain Derrick Cooke; Port Engineer Pat Raw; Emeritus Professor of Architecture at the University of Natal, Brian Kearney; KZ-NIA Vice-President Themba Mtetwa; and Durban Central Council's Director of Architecture, Jonathan Edkins, and Manager: Urban Design, Nic Webb.



Responses: Competition documents were released on 26 November 1999 and submissions were due on 31 January 2000. Eighty-three documents were collected and fifty-two submissions were received. The request for the submission of models was heeded by thirty entrants. Significantly the winners built no model but used computer generated *form•Z* visuals.

All submissions were on exhibition at the function held at the Ocean Terminal on Thursday, 10th February 2000, when the winners were announced and the prizes presented by Portnet General Manager, Marine and Technical, Mdu Nene.

First Prize was R20 000 with R10 000 each for the 2nd and 3rd prizes. Somewhat "snoep", winning the competition brought only the appointment as the reward. Prestige yes, but not a prize as such, for the document states that prize money "...shall be deducted against the first fee claim submitted ..."! But a young team has landed a springboard. And the expectations are high. *Editor*

Durban's Millennium Tower

The Emerging Influence of Digital Tools on Design

The winners of the competition used form•Z. *Michael Mullins asks what effect does* form•Z *have on the work produced by architects, and to what degree does the software influence design?*

INTRODUCTION

As South Africa gradually reintegrates with the rest of the world, architects face the search for meaningful forms, where there is no common agreement either among themselves, or among the public at large, what that meaning may be. On the one hand we search among local cultural expressions of identity, while on the other, globalization becomes increasingly influential on our thinking and behaviour.[1]

The winning Millennium Tower was prepared entirely on the computer, with no recourse to the traditional architects' tools of sketches, drawings or physical models whatsoever. Where the design process incorporates digital tools from the outset, we are bound to see its effects on the conceptual design, which in this case was prepared using *form*•Z software, relatively unknown in South Africa. What effect does this have on the work produced by architects, and to what degree does the software influence design?

THEORETICAL CONTEXT

Before considering the implications of this question, it may be useful to place the winning design in the context of current theoretical discourse.

Following the collapse of the Modernists' 'universal solution' and in the context of the mass-consumerism which characterises Western society since the second half of 20th century, the created image, and its meaning or reading, for the architect has become an important design task in itself. An emphasis upon image over content is distinctive of the postmodern movement as it has been interpreted by architects.

The inherent graphic bias of architectural representation gives rise to an aesthetic formalism in image making; it stems from the visual thinking employed by architects in the cognitive manipulation of graphic elements in creating these representations. The role of 'glossy' architectural magazines in portraying well lit, skillfully photographed and often unpeopled images reinforces a view among architects, students and designers in which 'good' architecture is visually successful architecture with a high rating in impact potential, and where imagery is the chief currency of architectural discourse. To anyone who has seen the winning proposal's presentation, collaged red and black posters conveying a depth of nuanced meaning, there can be little doubt that it was highly successful in the area of creating an 'image' identity in the minds of the jury.

While this aesthetic bias is unlikely to be dropped from the architects' most treasured values for (at least) the forseeable future, there are indications that a less static view of form is gaining ground. In his forthcoming book, (still in preparation and eventually to be published as four volumes entitled 'Nature of Order'), Christopher Alexander[2] develops a comprehensive theory of how matter comes together to form coherent structures. In parallel with development in the field of complexity theory[3], he argues that the same laws apply to all structures in the universe; from atoms, to crystals, to living forms, to galaxies. Alexander's theories, amongst others, are indicative of an increasing momentum in the body of architectural theory which accepts that, like living organisms, design is the product of a complex communicational and informational process. This standpoint maintains that a building cannot be separated from its physical, climatic, cultural and political contexts: its meaning is integrally dependent on context. The process is valued as highly, if not more so, than the product or outcome. A building is thus not considered as an 'object-in-itself ', but as an entity which engages dynamically in a wider context of other buildings and spaces of an increasingly global and electronic dialogue. It is at once physical, and a system or set of objects in dynamic relationships, a multimodal environment that constitutes an "event".[4]

Where buildings are intended as "events", they are to be experienced in time as well as in space. The act of moving through the building, or the building itself moving, is to unfold its potential for imparting experience. The introduction of time as the 4th dimension into the consideration of a building is related to the recognition of dynamic process in the environment. A building has a life-span in which it must function flexibly, be provided with energy and communications, be maintained, produce income and so on, in addition to its more spatially determined context.

The winning design reflects these theoretical strands in that it envisages a continually changing form and varying colours in direct response to tide, wind and harbour traffic, It is in this sense a dynamic building, and differs markedly from the formal and static statements preferred by most other entries.

DESIGN PROCESS

The design process in architectural creativity may generally be defined as an activity which attempts to adapt available means to an implied or expressed purpose. Where, as in the case of the winning millennium tower entry, computer software has been used exclusively as the means of expression, we may enquire as to the effects of these digital tools on the proposals.

Mahalingam[5] argues that the distinction between *design-product* and *design-process* becomes blurred where the products are both the media employed and the result of the processes themselves. The blurring he discerns is particularly pronounced where digital media are used in the design process as an early means of developing, visualizing and representing concepts.

In the early times of CAD, in the '60s and 70's, design was considered to be primarily a matter of problem solving, and the computer was supposed to be the instrument to create the most rational solutions to those problems. It was, and largely still is, chiefly used as an analytical and production enhancing tool. However, more recent developments in 3D software have added solid modelling[6] to the range of tools available. Much of the widely available 3D modelling software is delivered complete with scalable parametric objects such as cubes, cones, spheres and even the 'platonic solids', their mathematical formulae pre-programmed into the code. These later-generation programmes differ from the earlier ones in that assemblies of elements have evolved into assemblies of objects. The architect is offered the choice of expressing the required concept or form-type in terms of 'primitive forms' or what may be called 'software geometry'[7]. While this represents to some an apparent limitation in choice, the options offered by most software of any degree of sophistication in 3D modelling, are generally more numerous than the architect would normally have considered, or indeed, may ever need. Furthermore, through Boolean[8] operations, solids may be combined or subtracted from each other, as well as being meshed, modified, distorted etc., thereby creating wholly original shapes, solids and free-forms, with no known precedent in the 'real' world.

form • Z

form•Z software is among the most popular of these emerging tools available to the architect. It is a general-purpose solid and surface modeller with an extensive set of 2D/3D form manipulating and sculpting capabilities, including support for 3D digitising. It may be used as a modelling component or complement to other rendering and animation programs, as it has a large number of import/export formats which have made the interchange of model to rendering easy and which make it possible to carry out the functions of shading, texture mapping, transparency, ray-tracing, and radiosity solutions[9] etc from within *form*•Z itself. No particularly onerous requirements on hardware are made, and the program will run on Windows as well as Mac operating systems.

The reason for *form*•Z's widespread acceptance outside of South Africa is not only in its advanced modelling capabilities and relative ease-of-use, but also in the university "Joint Study Program" which has run world-wide since 1993, and currently comprises over 250 schools of architecture from around the globe, more recently including the School of Architecture, Planning & Housing in Durban. This Program aims to facilitate the use of *form*•Z in academic departments which are interested in educating their students to use 3D modelling tools. Licences are provided at economical rates against an agreement by the academic department to report (by an appointed "principal investigator" at each school) on the educational experiences while using *form*•Z. Results are published annually in the form of graphics from the various participants. Undoubtedly, this strategy on the part of the software developers has been hugely successful in academic institutions, particularly with students. The software seems to have less acceptance in professional offices at the time of writing, possibly due to its limitations in terms of production-efficiency in the workplace. Its strength lies however in concept generation, its powerful visualisation tools and numerous tools for object manipulation, and it can be anticipated that this software will increase its popularity in the years to come.

IMPLICATIONS FOR PRACTICE

The field of architecture has been generally slow to accept the use of computers in the conceptual design process, despite the widespread use of digital tools in graphic design, engineering and scientific professions. Arguments raised against the use of computers in architecture have included their unsuitability to the areas of proportion, harmony and form making, and the perception that the functionality of computers is restricted to representational media only. There seems little doubt however, that architects' attitudes are now in a process of rapid change.

Scientific researchers using early digital representations and animations of weather patterns soon recognised that quality renderings of their information could: " provide a clarity of detail as well as a complexity in the sheer amount of information that can be displayed...at one time"[10]. It was moreover quickly recognised that the advertising potential of high-end graphics to supplement research-funding processes was of great benefit (Bajuk 1995). The 'seduction' of the well-rendered image is (and has traditionally been) widely used by architects to convince others of the excellence of their designs, and by implication, of the final building product. The benefits of the 'slick computer image' are already well-recognised in design circles.

The availability of 3D modelling and other recent digital additions to the architect's palette offer a means of developing the 'envelope' within which he/she may express conceptual abstraction. There is little doubt that the tools will in turn have further profound influence on what is designed in the foreseeable future. Like the pervasive influence of reinforced concrete on the architecture of the early 20th century, digital tools are likely to forever change the forms that populate our environment.

Michael Mullins, Senior Lecturer,
School of Architecture, University of Natal

REFERENCES AND NOTES

1. Castells, M. *The Power of Identity / The Information Age: Economy, Society and Culture.* Volume 2. Oxford: Blackwell, 1997.
2. Alexander, C. *A New Vision of the World* (forthcoming book), in Salingaros, N. http://www.math.utsa.edu/sphere/salingar/Chris.vision.html , WWW, 1998.
3. Charles Jenks has defined this as follows: "Complexity is the theory of how emergent organisation may be achieved by interacting components pushed far from equilibrium to the threshold between order and chaos". Jencks, C., Complexity Definition And Nature's Complexity, *Architectural Design Profile* No.129, 1997, p.8.
4. See also Peter Eisenman's description of the Wexner Center: Eisenman, P. Project Descriptions, http://prelectur.stanford.edu/lecturers/eisenman/projects.html , WWW, 1998.
5. Mahalingam, G. Representing architectural design using virtual computers, *Automation in Construction* 8 (1), 1998, p.26.
6. 'Solid' in computer modelling terms refers to an object containing a volume and completely bounded by surfaces. Solids may be sectioned and their mass properties may be calculated.
7. Mullins, M.F. *Aspects Of Digital Tools In The Design Process : Towards The Integration Of Computers Into The Architectural School Design Studio.* Unpublished M Arch. dissertation, University of Natal, 1999.
8. 'Boolean' refers to operations which can be applied to solids (see note [6] above), in order to create new shapes through joining, differencing or intersecting the originals.
9. Radiosity techniques were first used in thermal engineering to simulate the transfer of heat energy between surfaces. With the advance in computer graphics in recent years, radiosity has also been used to simulate the transfer of light between surfaces through reflection. A 'radiosity solution' thus describes the accurate distribution of light across all surfaces in a scene, and which is subsequently used to render the scene by, for example, raytracing procedures. Refer also *form*•Z Users Manual.
10. Bajuk M., Aesthetics and Nature, in Marchese, F. (ed), *Understanding Images*, New York: Springer, 1995. pp.243–261.

UNIVERSITY OF NATAL: SCHOOL OF ARCHITECTURE

Geoffrey le Sueur Scholarship

This prestigious travel scholarship for 2000 has been won by **Brandon Robertson** who graduated in 1999. Brandon will be pursuing a study of matured mixed-use urban formations in Europe.

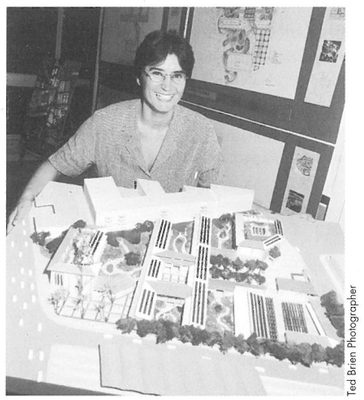
Graduation 2000

At the graduation ceremony of the Faculty of Community & Development Disciplines, held in the Durban City Hall on Thursday, 6th April, the degree Doctor of Philosophy was conferred on **Ora Joubert** for her thesis 'A Contemporary Assessment of the Genesis of the Modern Aesthetic – The Impact of Modern Art on Modern architecture'.

The degree Master of Architecture was conferred on **Kelle-Jayne Aspinall** for her dissertation 'Great Zimbabwe: Wall of Ancient Wisdom' and also on **Michael Mullins** for his dissertation 'Aspects of Digital Tools in the Design Process: Towards an Integration of Computers into the Architectural Design Studios'.

Among the 8 graduates for the degree Bachelor of Architecture (Advanced), both **Natalie Stead** and **Greg Townsend** were awarded the appelation *cum laude*; while among the 14 receiving Postgraduate Diplomas in Architecture, **Paul Nel** achieved his qualification 'with Distinction'.

Of the 44 graduates for the degree Bachelor of Architectural Studies, **Leonie Mervis** achieved the singular appelation *summa cum laude*.



Ted Brien Photographer

1999 *Corobrik* Regional Student of the Year

Maria Nomico was the winner of the above award for her design Dissertation entitled "An Ecological Resource Facility for Durban". Second prize went to **Brandon Robertson** with a Dissertation on an office building, and Third Prize to **Tejal Manjee** for a Resources Centre.

KZ-N Institute for Architecture

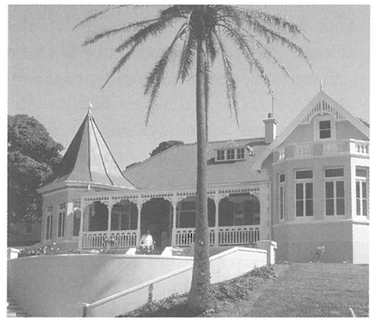
News • Letters • Obituaries

NEWS

1999 DURBAN CONSERVATION AWARDS

On 2nd November 1999, Conservation Awards were conferred by the North Central and South Central Local Councils upon the owners of the following buildings:

Bellevue, 159 Cowey Road. Recycled by Emmett:Emmett Architects



Edwardian Villa, 543 Musgrave Road. Recycled by Emmett:Emmett Architects

Musgrave Mansions, 690 Musgrave Road cnr Springfield Road. Restored by Clark & Thomas

Victorian House, 56 Clark Road.

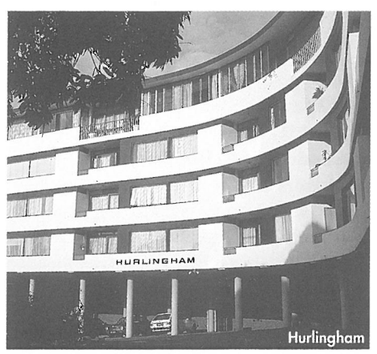
Point Railway Station, 171 Point Road. Restored by Protekon Architects.

THE 20th CENTURY'S 10 BEST BUILDINGS IN KZ-N

In December 1999, the KZ-NIA committee sought nominations from members for the 10 best buildings of the 20th century in KZ-N. The results are illuminating: the newest jewel tops; only one house; and architects have a memory span of only half-a-century!

1. International Convention Centre, Durban, 1997–98. Architects in Association: Stauch Vorster; Hallen Custers Smith; Johnson Murray Architects

2. NSA Gallery, Bulwer Road, Durban, 1995. Walters & Cohen



3. Skye, 167 Ridge Road, 1977. Ferreira da Silva & Smith

4. Huletts, Umhlanga Rocks, 1974–75. Hallen Theron & Partners

5. Cathedral of the Holy Nativity, Pietermaritzburg, 1976–82. Kammeyer, Rozendal & Carter-Brown

6. Ocean Terminal, Durban, 1958–62. MS Zakrzewski & Partners with J Warunkiewicz

7. Netherlands Bank (Nedbank), Durban, 1965. Norman Eaton

8. Hurlingham, 478 Currie Road, Durban, 1958. Crofton & Benjamin

9. House Biermann, Glenwood Drive, Glenwood, 1958. Barrie Biermann

10. Durban Electricity Training Centre, 1998. McCaffery Wilkinson & Little.

LETTERS

Appreciation

Whenever I come across your journal, recent or back issue, having liked it from cover to cover, I cannot help but wonder: "Is this magazine so excellent because it is concise, or vice versa?"

Please send me the current issue and as many back issues as possible. I have enclosed some postage stamps.

Wossen Ashebir, Johannesburg

With such a generous compliment, your wish will be fulfilled. However, if you join the Institute, issues will arrive automatically. Editor

Relevance

May I take this opportunity to thank you for your excellent publication. In my position as Subject Adviser for Art with the Education Department the *KZ-NIA Journal* serves as an important source of information for me regarding developments and issues surrounding local architecture. The layout is always lively and attractive and the text highly readable.

D R Houghton, Subject Adviser: Art

8th in 10 of the Best

I was chuffed to find a copy of the *KZ-NIA Newsletter* with the joyous news that Hurlingham had come 8th in the 10 Best Buildings of the 20th Century in KZ-N.

I have written to Derek Crofton's family to share the joy. What a way to start 2000!

Issy Benjamin, London

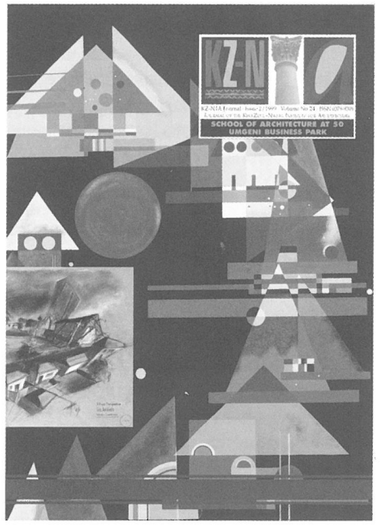
Rewarding Architecture: Sophia Gray

Sir: Recently I came across this issue of *KZ-NIA Journal* (Issue 3/1999). In my opinion it remains a consistently good and delightful publication. You can be justly proud of what you achieve each time.

Thank you for mentioning the Sophia Gray Lecture. However, I would have had more enjoyment in my heart if you also mentioned this University (UOFS) and the main sponsors (*Harveytile*) in your editorial. You would be surprised how few architects know about the Sophia Gray Lecture & Exhibition series and also, that it originated in Bloemfontein. Mentioning the sponsors would have made it so much easier to go back to them with a request for more money.

Paul Kotze, Professor of Architecture, University of the Orange Free State

With a quarter century's sole sponsorship for this Journal, your concerns are very well understood in KZ-N. Editor

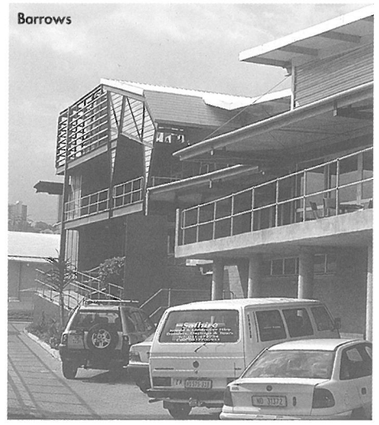


School of Architecture at 50: Innocent!

Thank you for the credit on the cover (Issue 2/1999) – which of course more correctly belongs to Wassily Kandinsky and then perhaps secondly, to Barrie Biermann who insisted the 1960 innocents spend their Easter vacation faithfully rendering a Modern Master in poster paint. It certainly does not seem like nearly 40 years ago. The paint is probably dry by now, but the memory is as fresh as ever!

Bryan Lee

Thank you for the confession! Thanks also go to John Edgar who wrote suggesting an explanation "lest Bryan is accused of plagiarism". Editor



Umgeni Business Park: Air the Musty Attitudes

As a concerned young professional I'm compelled to call to question some of the rhetoric disguised as "critique" in Paul Mikula's drawing and letter (Issue 2/1999).

While no one could hope to defend the dire urbanism that has sprouted along the banks of the Umgeni, perhaps the profession would benefit more from criticism which engages the real issues of regionalism or sustainability versus popular culture and/or capital, rather than the resigned cynicism of someone who simply wasn't invited to the party (although it would have been nice to have him there).

We are living in a complex society, and in a hot and humid climate, but fortunately air conditioning *is* available to those who can afford it. Can our theories of architecture and urbanism not evolve to accommodate these seemingly bizarre conditions? Can we not move beyond politically correct, knee-jerk wattle-and-daub "regional" responses wherein "peacemaking" implies bomas and gumpoles thrown around with romantic abandon?

In my opinion it would have been more professional for Paul Mikula to take the offending buildings to task, or better still, for there to be a debate wherein Durban could air the musty attitudes that are stifling design innovation and the placement of our work into any context other than the lovely bush that surrounds us, keeping the light out, as it seems to do.

Don Albert, soundspacedesign CC

Paul Mikula comments:

Thank you for sending me Don Albert's comments regarding my cartoon entitled, *Bargain Hunting for 160 Years.*

Maybe I am lucky that nobody invites me to their parties anymore. Now I can find that bit of distance which is nesessary to establish just how ridiculous our architecture has become. Maybe because of that, I can afford to be politically correct, when it is correct. I do agree with Don that knee jerk architecture, whether wattle and daub or steel and glass, is probably not the way to go.

Rewarding Architecture: Cheap-shot Impressions

I found it surprising that Daniel Herwitz would choose to criticise the Barrows factory on the mere grounds of function! (Issue 3/1999).

To not approach the work from within (or around) the discourse it establishes for itself is the failing of many a critic, yet Prof Herwitz's lack of care in establishing the facts (the factory owner is not an "Ad man", for example, and not the sole owner either) demonstrates an unwarranted contempt pervading much of his innuendo-driven drivel. Why all the "inside-information" bitchiness?

Herwitz's trans-cultural "anti-Hollywood" verdict is bleak too, and that may be a personal problem, but surely some of the award-winning work in *Rewarding Architecture* deserved his praise? As readers of a journal that should promote our art, we should expect a closer scrutiny of invited writings that may otherwise diminish the profession via "cheap-shot" impressions such as his.

Either give these critics more space to develop their arguments thoroughly, or none at all. In any event, the role of an editor should be to referee content, especially when it takes two or three years of passion to build a building, compared to the ten minutes it may take to critique it.

Don Albert, soundspacedesign CC

The Editor's role is to promote debate and to prepare work for publication in an objective manner, not to censor contributions but to exclude eg personal attacks. Work submitted for Award consideration is submitted for scrutiny and this Journal has a tradition of publishing juror's impressions. However, I fail to read any reference to the owner of a building.

Prof Herwitz comments:

My thoughts are about the inflation of meaning through design as a kind of self-advertising by the building at the expense of its functions. This illusion that a building takes on a function in virtue of its looking a certain way is a legacy of modernism, where the look of functionality was often confused with actual function. In the building I criticise, the look of Africanisation is confused with a true and authentic attempt at Africanisation, which would require both more thoroughgoing rethinking about the building's design, and more penetrating thought about the kind of human integration (between workers and management) that the building actually offers. What the building does offer is the illusion that a high concept idea combined with a few rather chaotic details brings with it significant purpose. This is the thinking of the ad man.

Rewarding Architecture: No Papering over the Cracks

The recent issue of your journal – *Rewarding Architecture* (Issue 3/1999) contains among all the other interesting material a short article by Daniel Herwitz recording his impressions of the state of architecture in this Province. These it seems are chiefly gleaned from his involvement in the regional Awards of Merit jury perhaps a not unreasonable result of his participation.

It is not my intention to provide any particular rebuttal of some of his observations but a couple of points are worth examining as they do touch very directly on the state of architecture in South Africa let alone that of our Province.

The first one is the plea for an appropriate architecture – what would have been termed a style, but that is now a word avoided. This is, if I would understand Professor Herwitz rightly, to be freed from the 'Hollywoodisation' of much of what he sees. This plea for an architecture which will be truly South African (now African) has echoed down at least a century starting with Herbert Baker and the Cape Dutch revival with at best indifferent results. Suffice it to say that while it is an attractive idea with its roots in nineteenth century nationalism, in reality it does not seem capable of sustaining anything like a coherent body of practice. Perhaps the best we can hope for here is something like Frampton's 'critical regionalism'.

A concurrent remark that many of the buildings appear to be designed from Los Angeles brings me to my second point which is also implied in his closing comments viz "There are good architects, thoughtful architects, experienced architects here in KwaZulu-Natal. But where is the mirror". What this implies is that architects have a moral duty to educate their clients – a strangely modernist view if I am to read correctly, and one which lead that particular movement into some of the current messes out of which we are still extricating ourselves.

The truth is that architecture is only as good as its architects *and* its patrons. As Robert Gutman has observed architecture is a weak profession but a strong art. It is also a compromised art, compromised by its general need to be useful. This is not written to absolve the profession from its responsibilities but these are shared responsibilities. The mirror is there alright, clean, polished, and reflecting.

In spite of this though, there is good architecture about; modest buildings by modest people. So perhaps it is the Awards system itself which needs some rethinking with different objectives being set.

Finally I think that you and your Editorial Board should be commended for allowing the *Journal* to become a forum for dialogue and discussion. Papering over the cracks is too easy; good, honest debate should be the life blood of our profession.

Dennis Radford, Professor of Architecture. Head of the School of Architecture, Planning & Housing, University of Natal

OBITUARIES

Henrik Förs 1927–1999

Following an appointment by SASOL, Henrik Förs left the country of his birth, Germany, for South Africa in 1962. After establishing a substantial practice of his own in Sasolburg, he relocated to Durban in the mid-1980s in semi-retirement.

Henrik Förs instigated the conservation study of Rhodes, NE Cape, by the Natal School of Architecture (1987) which resulted in the complete village being declared a Conservation area (1997) in terms of the National Monuments Act. His love for mountaineering and skiing prompted his acquisition of the farm Tiffendell at Rhodes which now has been developed as South Africa's only operational ski resort.

Thomas Leach 1942–2000

Tom Leach died tragically, aged 57, in a head-on collision near Elandslaagte on 15th February. He had been in partnership with Tjaart van der Walt for over two decades in Newcastle and latterly also in Durban.

He was Founder Chairman of the Northern KwaZulu-Natal Chapter which constituency he represented on the Provincial Committee 1992–96, when, uniquely, he would fly his own aircraft from Newcastle to Durban to attend meetings. He will be remembered for his reliability and the optimism behind his wry smile.

Michal Zakrzewski 1903–2000

Neither an architect nor a member of the Institute, but structural engineer Michal Zakrzewski had a considerable impact on the design of the built environment of 20th century KZ-N. Extracts of the eulogy by compatriot, colleague and former partner Milek Masojada follow:

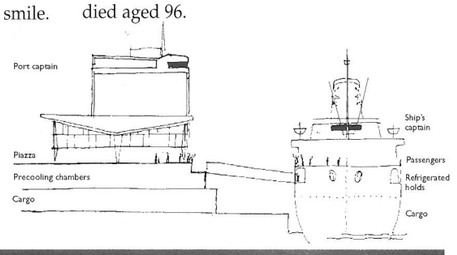
Michal Stanislaw Zakrzewski was born in Trembowla, a small town in Galicia, in a Polish territory benignly occupied at the time by the Austrian Empire. His father was an architect-builder and an entrepreneur and this circumstance, intertwined with the political fortunes of Poland, shaped Michal's life.

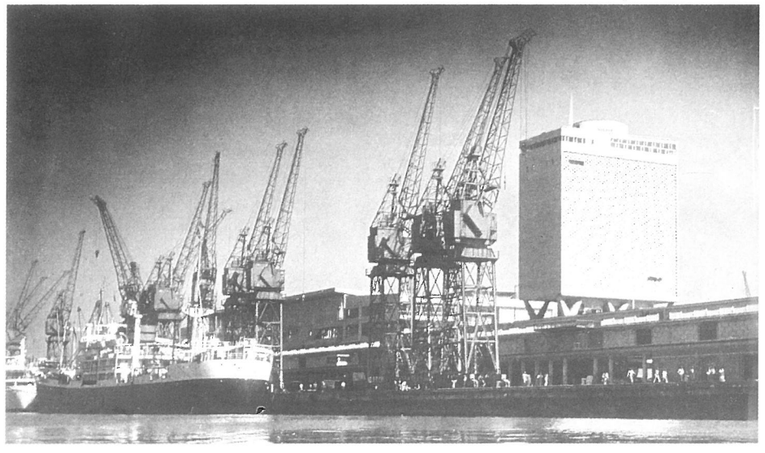
In 1920, together with his two brothers he joined the cavalry unit of the volunteer forces to successfully defend the reconstituted Poland against the Bolshevik attack, an altogether improbable victory that became known as the "Miracle over the Vistula (River)".

Following a tumultuous entry into the 2nd World War, which included a sojourn in Russian labour camps, Michal arrived in London in 1942. He commenced graduate studies and began teaching, whereupon in 1947, he accepted an appointment as Senior Lecturer in Civil Engineering at the University of Natal and settled in Durban.

In 1952 he established a practice. His break came with the appointment by SAR&H for the design and development of the Ocean Terminal in Durban in 1958, a vast project consisting of the passenger facility, cargo sheds, fruit pre-cooling installations and the administrative tower block. On completion of this project in 1962, the practice transformed into a multi-disciplinary consultancy, based in ZAI House, a landmark building at 245 North Ridge Road, built in 1973.

In his retirement, Michal embarked upon an environmental crusade concentrating especially on the eco-systems of the coastal regions. He died aged 96.





A Visit to Irme Makovecz's Catholic University at Piliscaba, Hungary

I invited myself to spend the first few days of the new millennium with my good friend, Dr Ferenc Callmeyer and his wife Eva, at their new home and studio in the village of Telki, about 22 kilometres from Budapest. Not having seen him for some time, I had phoned 'Francis' as I know him, from Zurich on New Year's Day, to tell him I was on my way. This was my third visit to him in Hungary (my last in 1988), since we worked together in the mid-sixties in the office of Richard Shephard & Partners, London, as part of the design team for Brunei University.

Ferenc is the Immediate Past President of the Hungarian Chamber of Architects, having felt it necessary to resign his post last year, over the National Theatre issue, when the change of government instructed architect Ferenc Ban's award winning project to be shelved after construction had commenced under the previous government. The reason stated was excessive costs for the foundations. The Chamber of Architects believed that a new competition should be held but a young, unknown architect was commissioned by the new government to prepare a new design, thus leading to the conflict between the government and the Chamber of Architects. (What's different?)

Ferenc has been campaigning for many years to have a memorial erected to those who died in the Hungarian Uprising on "Bloody Thursday", 25th October 1956. During the last year he achieved his goal by placing a plaque and 5 centimetre brass spheres into each of 150 bullet holes in the wall of the Ministry of Agriculture, the place where he stood that day in his blood-splattered coat. It was a moving story, of how he escaped that day, that he repeated to me again while watching his video of the occasion.

Ferenc and Eva had decided during the past year to build a new house and move out of the centre of Budapest into the country. I was looking forward to seeing him and his new house. Telki is a small village to the west of Budapest in the Zsambek valley. The region was first settled at the time of the conquering of the region by the Magyars and Telki is first recorded as early as 1198. The 800 year anniversary of the

village was celebrated by the consecration of a new coat of arms, designed by Ferenc. January 1st 2000 marked the 1000th anniversary of the Hungarian nation. The village is now one of the rapidly developing residential areas of the "new rich" young Hungarians with the population growing from just 700 a year ago to over 1500 now. Close by is the very famous old ruin of one of Hungary's once famous romantic churches in the village of Zsambek, currently the study of one of Ferenc's oil paintings.

In the same region and close to Telki is the village of Piliscaba, where Irme Makovecz is buildings the first phase of the Catholic University, the main meeting hall and administration centre, known as the Stepheneum. Ferenc's granddaughter is a student at the university, but it spite of being so close, Ferenc had not yet visited the site, so was anxious to show me one of Hungary's most controversial buildings. The snow was over a metre deep as we made our way there. The building is still under construction, surrounded by hoardings and fences, and viewing is limited to some distant views of the copper-sheeted slanted domes partially covered in snow as they shine in the winter sun. The external "tree like" columns are clearly visible supporting the laminated timber roof structure.

Later in the evening Ferenc showed me a video of the construction of Makovecz's 1992 Seville Expo Pavillion where his obsession with the organic growth forms of trees is translated into the building form and taken to extreme lengths with huge curved laminated timber members "growing in all directions" with flowing lines creating twisted and strange shaped spaces and volumes. This organic architecture I like, but until one sees the finished product at Piliscaba, it remains at present a dramatic "stage set".

Anthony Jarvis

STOP PRESS:

Walters & Cohen – Competition Success

Natal graduates of 1989, Cindy Walters and Michal Cohen, who established a practice in London in 1994, have just won the two-stage invited competition for the design of the 350-seat recital hall with rehearsal studios to be built at the Yehudi Menuhin School at Stoke d'Abernon in Surrey.

- A 58-page monograph covering the first five years of practice of Walters & Cohen has been lodged in the Barrie Biermann Architecture Library of the University of Natal.