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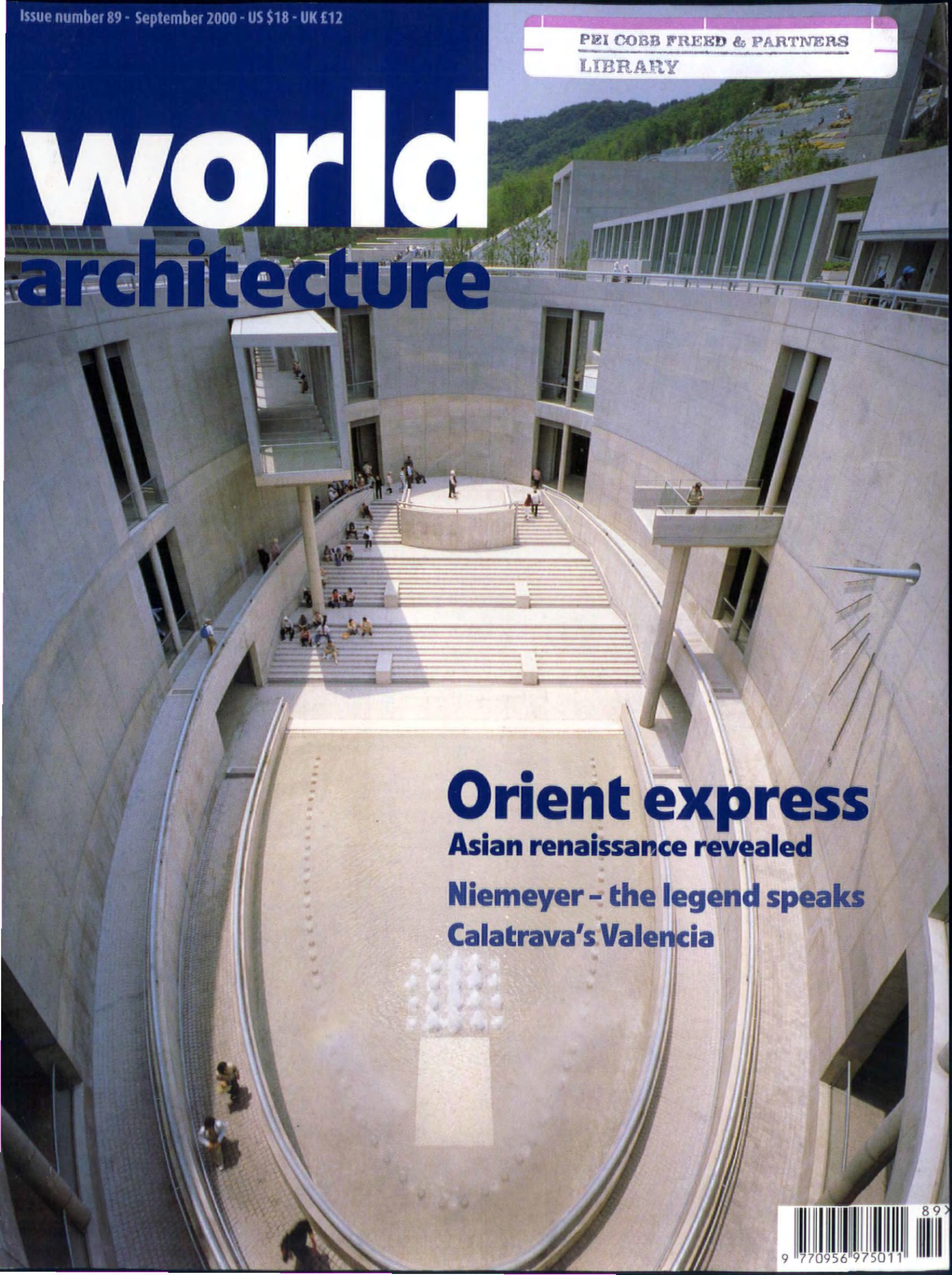

Orient express

Asian renaissance revealed

Niemeyer – the legend speaks

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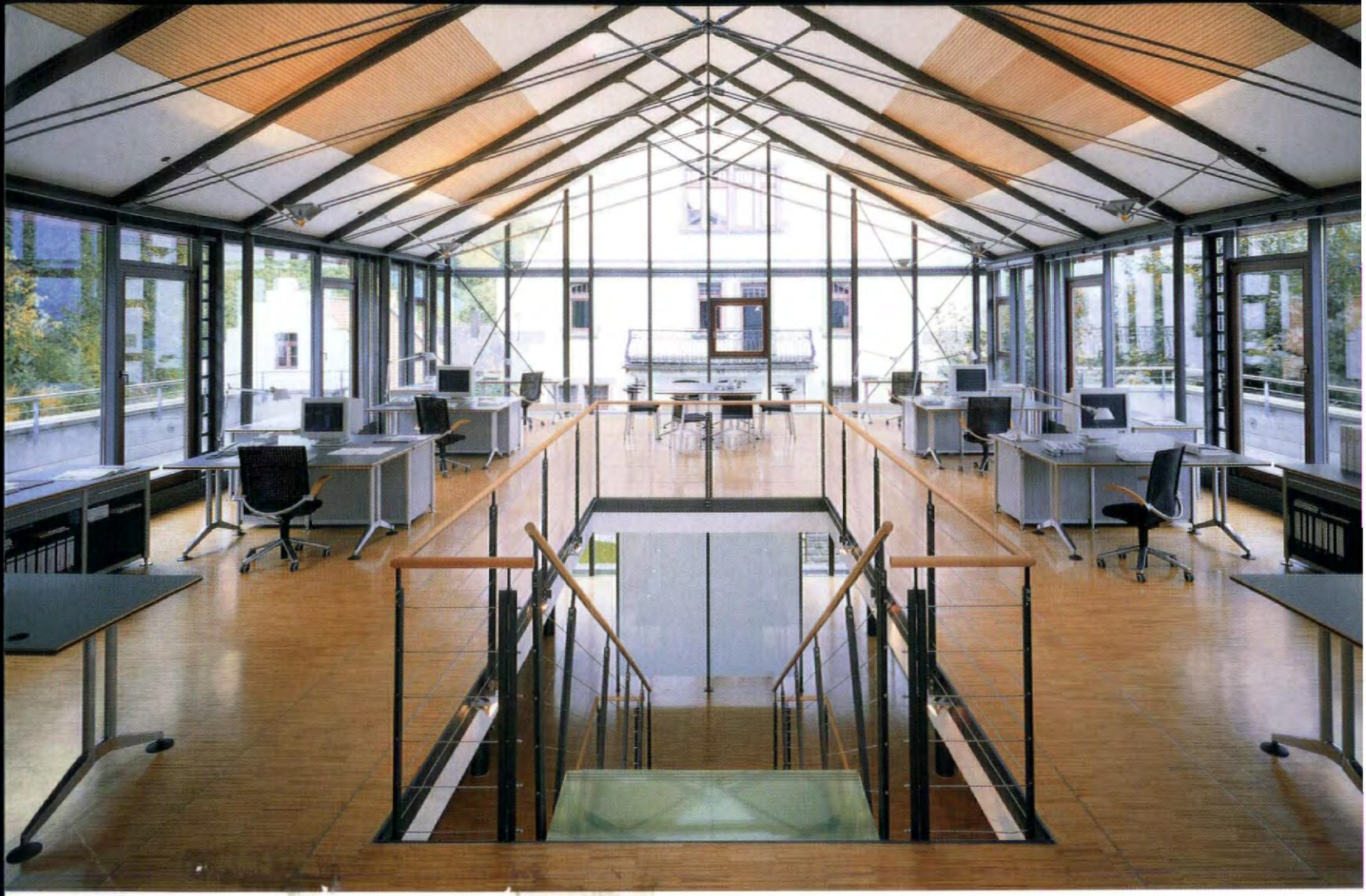

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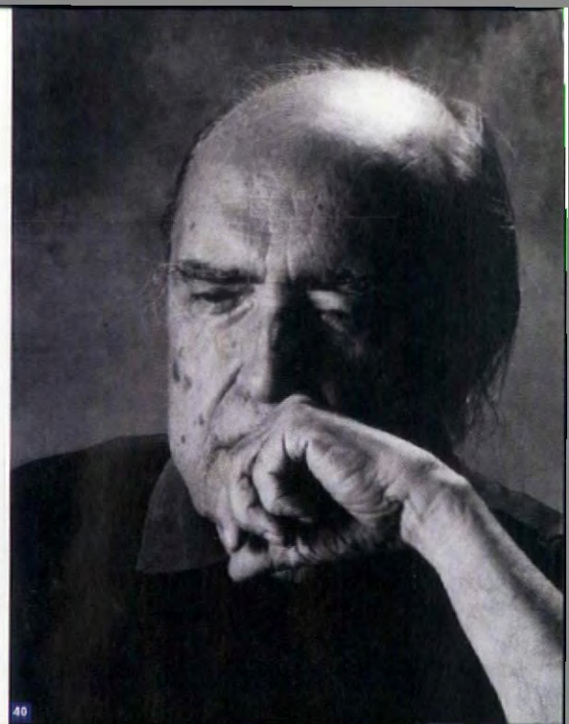

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Just rewards

This issue is about Asia. It is also, more importantly, about people. In this month's city focus on Singapore **wa** reveals the strength of the younger generation of architects which has prospered despite the economic crisis. These designers were, in most cases, not involved in the larger corporate projects that folded or froze as the region's currencies devalued. They were still experimenting with ideas on smaller scale projects for clients who were less affected by the frailty of the economy. Today they are reaping their rewards. As confidence among the profession is building, architects such as Mok Wei Wei, Tan Kok Hiang and Chan Soo Khian are slowly changing the face of Singaporean architecture.

The most extreme example of this is the recent competition win by Wong Mun Summ and Richard Hassell, of WH Architects. By awarding the project – two stations on the new MARINAline MRT – to a young, small, local practice, rather than an international star or powerful established local firm, Singapore has at last proved it can run a genuinely open, anonymous competition for a major public project without accusations of nepotism or underhand dealing. The implications this single competition has for architects throughout Singapore cannot be over-estimated: the city should be proud that it has shaken off the past and taken such a radical stride into the future.

If only awards programmes could show similar advances. The institutions of Pritzker, Praemium Imperiale, Carlsberg et al, have trapped themselves into a vicious circle, in which they cannot be seen to exclude any of the established stars. As a result, the announcement of each year's chosen one (Richard Rogers for this summer's Praemium Imperiale) is never surprising, and has none of the impact (or financial benefit) on the practice that it would do if an emerging talent were lauded.

wa's awards programme, backed by Ove Arup and run in association with the RIBA, promises to be different. Our aim is to honour the project, not the individual architect, and unearthing new talent will be the ultimate success.

Nicola Turner, editor

For your chance to attend the awards ceremony in Hong Kong in June 2001 contact Drena Cox on +44 (0)1242 577277 for your entry form, or visit www.worldarchitectureawards.co.uk. The deadline for submitting entries is Friday 1 December 2000.

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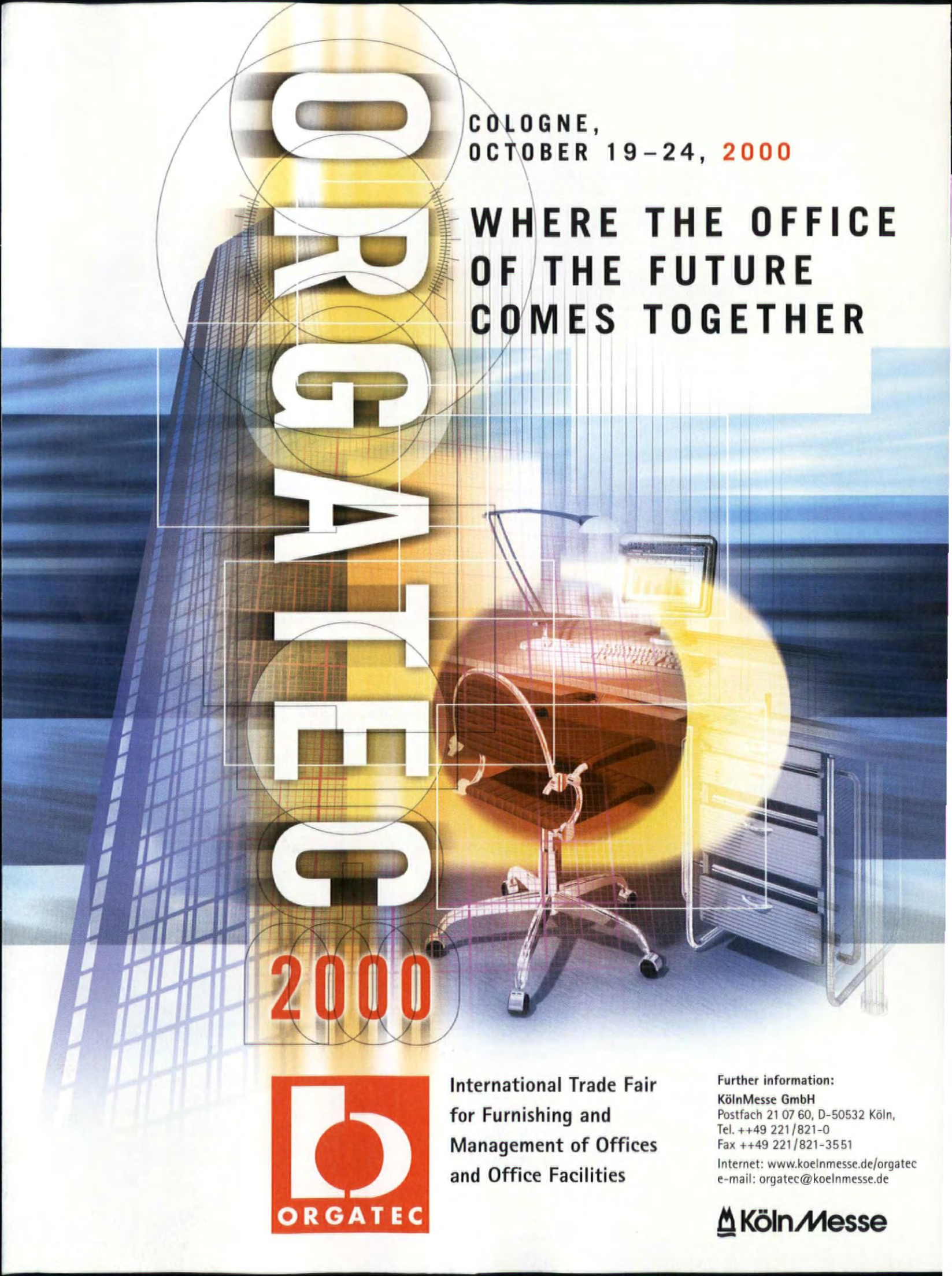

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Beijing Theatre...

The Chinese National Theatre project ['Chinese theatre slammed', News, wa85, page 32] has caused much controversy in my country. Parallel to a petition by 47 academics from the Chinese Academy of Science, a group of influential architects is collecting signatures to a letter to President Jiang Zeming and Prime Minister Zhu Rongji, objecting to the winning scheme by French architect Paul Andreu.

Although I share their objection, their arguments miss the point. The issue is not about technical possibility or artistic creation. The project per se is highly questionable, both in practical and ethical terms.

One can never find a right answer to a wrong question. The Chinese National Theatre is exactly such a wrong question. The brief requires four auditoriums of considerable size under one roof. This is absurd. Modern theatre technology provides great flexibility, versatility and adaptability for auditoriums to accommodate different types of performance and audiences of varying sizes. We can probably reduce the number of auditoriums and so cut the initial investment, lower operational costs and vacancy rates, and cause less circulation confusion both inside and outside the complex.

More importantly, it seems to me that the programme was politically motivated rather than the outcome of carefully deliberation and balancing of the gains and expenditures. Why do we need this theatre, and other provincial/municipal theatres, when the country is in desperate need of more funds to finance the rudimentary education of millions of children? Despite conspicuous economic progress in the past two decades, China is not a rich country. How we spend our limited resources in sensible and sustainable ways is of vital importance.

What purpose does the project serve apart from vanity and to give a false impression of prosperity? Even if we can afford it, is it right to build it now? We have already waited half a century; why can't we wait another ten or 20 years? Maybe future technology will render such facilities obsolete. Or maybe further alienation among people will make concerts all the more valuable and desirable. But most of all, only then will China have the necessary 'spare' money to spend on such a project.

From James Hong, architect and lecturer at the school of architecture, Shenzhen University, People's Republic of China

... differing views

As an architect, I appreciate the architecture of Paul Andreu. His design for the National Theatre is imaginative and inspiring, and the derogatory comments made by the 47 Chinese academics are unjustified.

If the heavy cost is the problem, then we would never get good architecture. If the fact that the proposed building symbolises a tomb is the problem, what about the glass pyramid in front of the Louvre? If cleaning the structure is the problem, manual labour is not the only solution.

The academics are old-fashioned. They seem learned, but their comments expose to the world their inadequacy in the subject. Perhaps they denounce the scheme because of their unfamiliarity with architectural creativity and aesthetics. The proposed building is beautiful, simple, neat and has structural clarity. If built, it will be a polished gem glittering in the heart of the capital city of China. Is there another design that is superior?

From Victor KS Chu, Victor Chu & Associates, Hong Kong

Congrats on redesign

I was very excited to see the new issue of **wa**. The graphic presentation is wonderful, but I'm most impressed with your continuing focus on high-quality content. The magazine communicates with the design community in an exceptionally clear fashion. I applaud your efforts and your fresh look.

From Edward C Friedrichs, president, Gensler, San Francisco

next issue

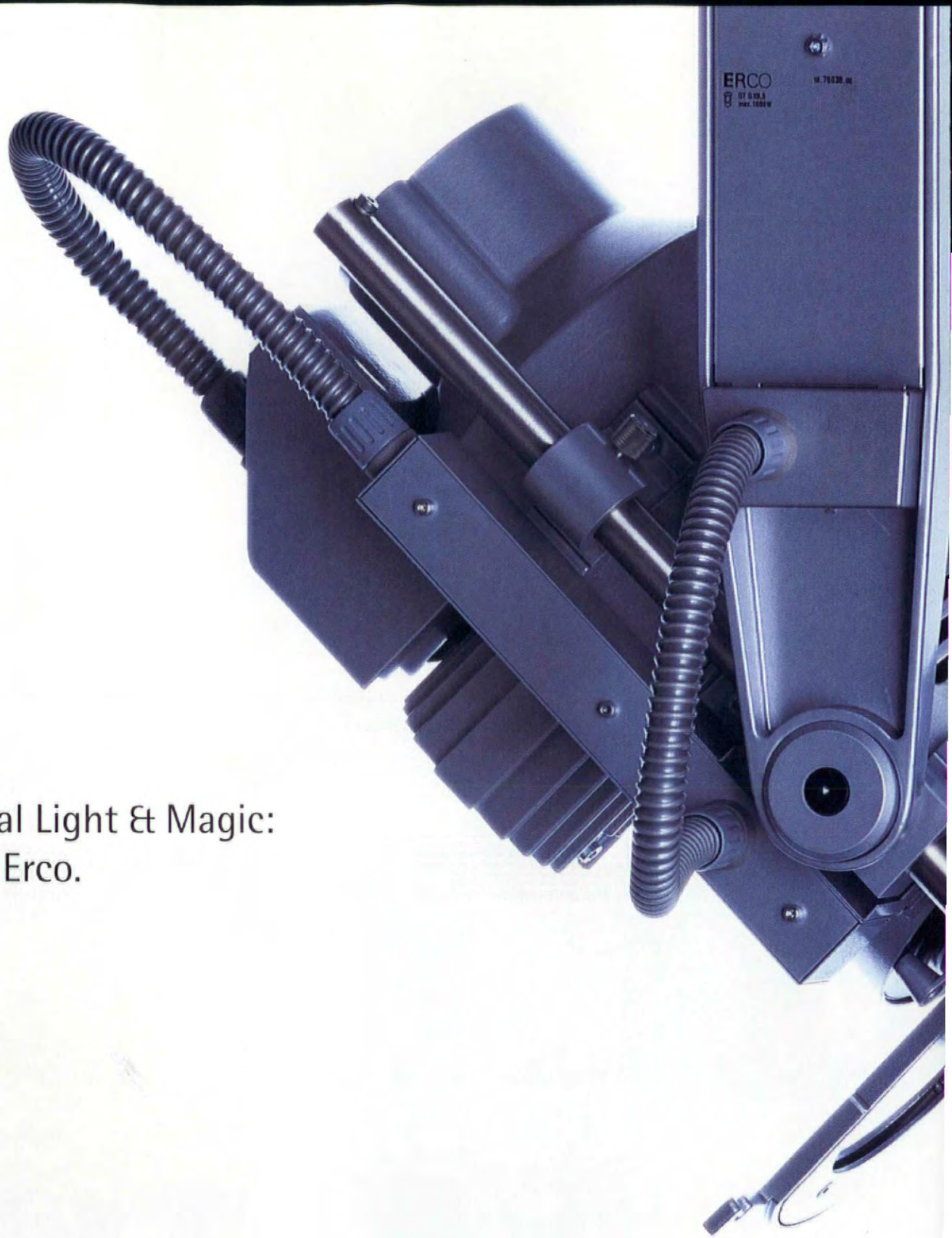
wa 100 interiors

wa's first survey of the world's 100 largest interior design firms consolidates the magazine's position as the number one authority on global construction markets. We reveal last year's most successful interior design firms; speak to the architects, to find out how it's done; and hear from the clients, to find out if they got what they wanted. Plus: breakdowns by region, a practice index, and a list of the top firms.

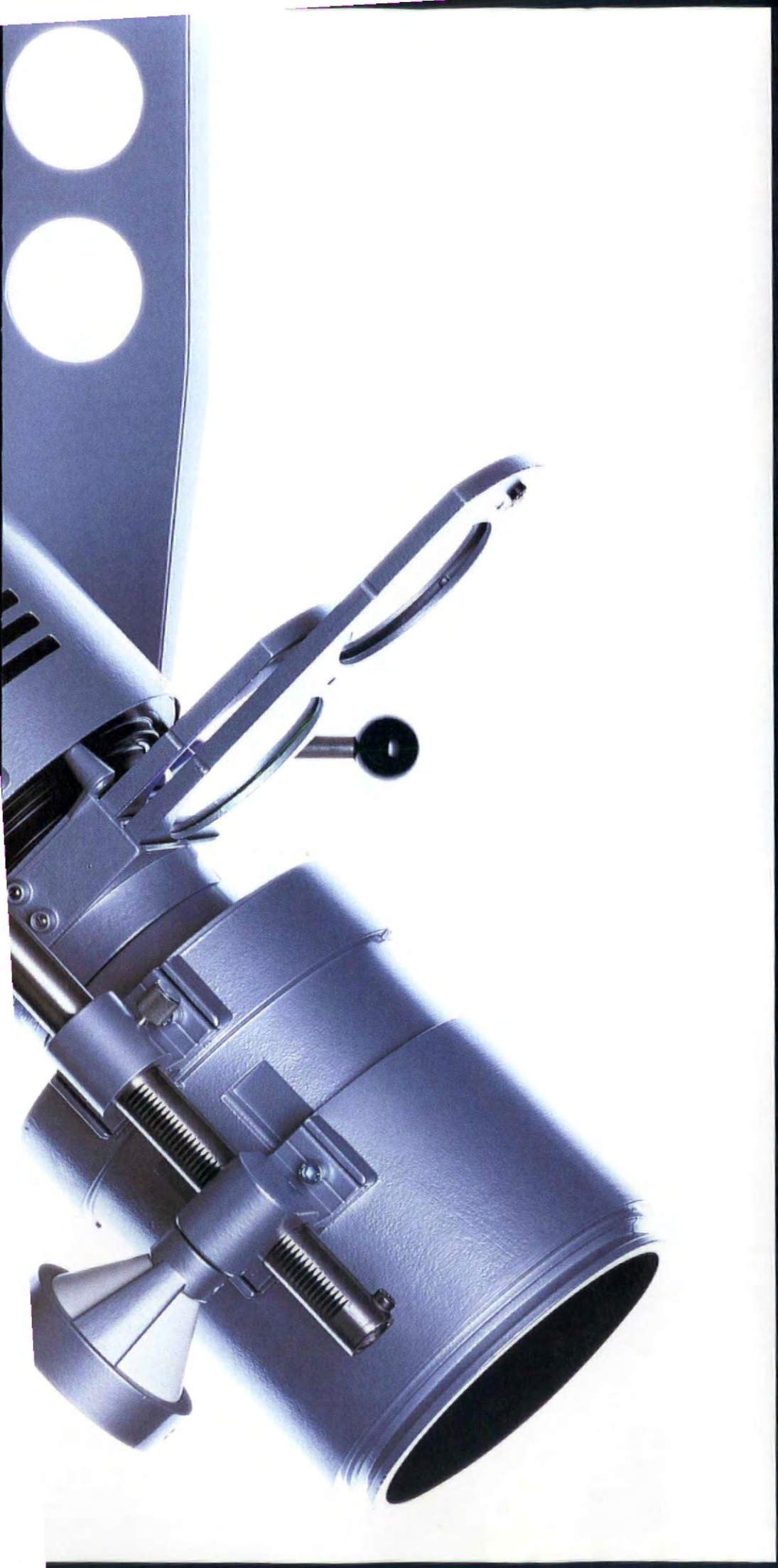
City focus – Shenzhen

Shenzhen is in a hurry to become a modern, world-class city. Through sheer political willpower and impressive capital expenditure, it looks likely to achieve its goal. Like Hong Kong, just over the border, Shenzhen acts both as a 'window on to China' and China's 'window on to the world'. wa reports on the latest developments, from Kurokawa's eco-media park (above) to HOK's IBM factory.

Design: Roy Fleetwood



Architectural Light & Magic: Emanon by Erco.



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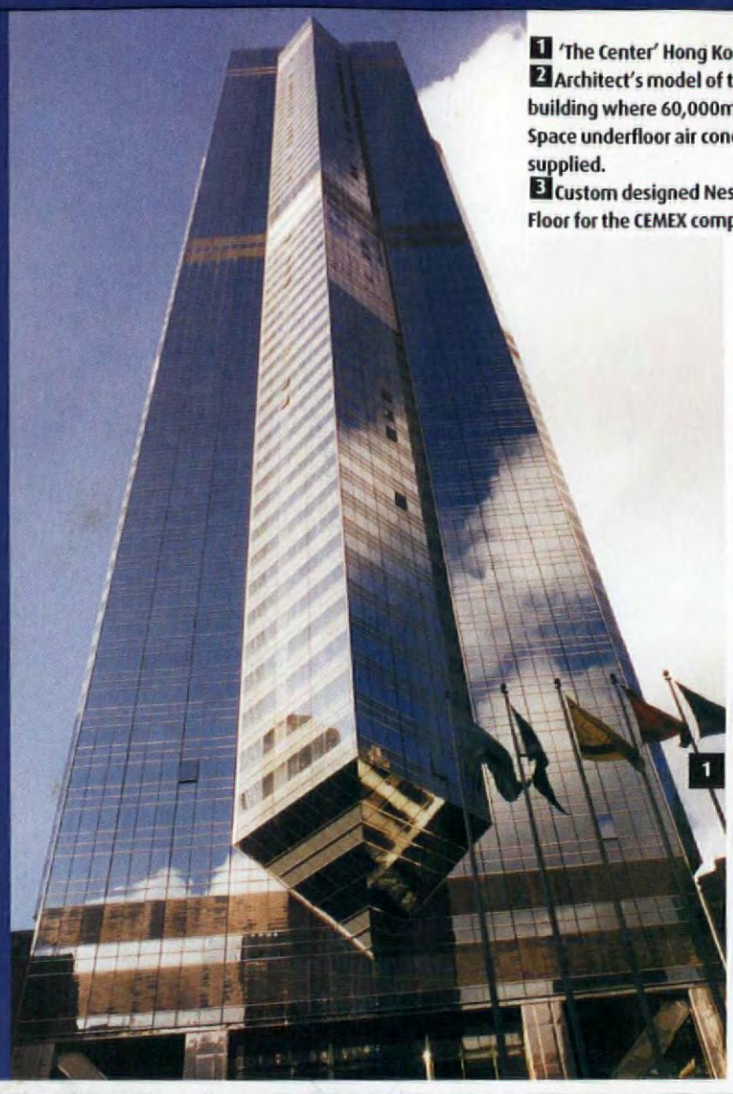

1 'The Center' Hong Kong 100,000m²
2 Architect's model of the Malaysia Telecom building where 60,000m² of Hiross Flexible Space underfloor air conditioning has been supplied.
3 Custom designed Nesite Raised Access Floor for the CEMEX computer centre in Mexico

Flexible space system

STEP INSIDE FIRST POINT, AN OFFICE DEVELOPMENT near London's Gatwick Airport, and the quality of the air is unmistakable – clean, odourless and invigorating. The reason is disarmingly simple: the air conditioning is in the floor.

First Point, developed by BAA Lynton, is designed around the Hiross Flexible Space System (distributed within the UK and Ireland by AET), an idea that has had a profound effect on the air quality of the building — and its organisation.

The roots of this simple but radical development lie in the days when computers packed the power of a pocket calculator with the dimensions of a wardrobe. Hiross was a leading supplier of the raised flooring systems needed to service these monsters. As mainframe gave way to client-server systems, the need for flexible wiring spread beyond the computer suite into the general office, and enlightened developers began to provide raised access floors throughout the building.

In Hiross FSS the air is cooled by conditioned air modules (CAMs) that sit discreetly next to the general office areas. They connect directly with the void under the floor, divided into supply and return plenums by simple aluminised fabric baffles.

Air is introduced to the room through 'fantiles', so called because each unit takes up the space of one 600 x 600 floor module, or consoles around the perimeter of the room. Either inlet system is individually controllable via a hinged panel in the supply grille.

Hiross FSS brings the logic of lighting tracking to air-conditioning. Fantiles can be moved anywhere in the floor literally within two minutes – moving them within a 4 metre radius can be achieved without even unplugging them.

Individual control is a primary feature of Hiross FSS. It may well be one of the reasons for the system's extraordinarily high levels of user satisfaction, estimated at 98% by the facilities manager at Rover's design headquarters.

But controllability means more than just offering users knobs to twiddle. The airflow has to respond in a meaningful way. Conventional ceiling systems that rely upon the coanda effect are often ineffective: in many cases the cooled air clings to the ceiling or wall surface near the inlet vent, only to be sucked out of an outlet vent before it has had a chance to do anything about the stale air in the middle of the room.

Meanwhile with chilled beams, the surface temperature must be maintained at just above the dew point in order to avoid condensation. When humidity rises the beam's temperature must be raised too — otherwise as warm air rises to meet the chilled beam it cools to below dew point and all of the contaminants it contains either condense, causing bacteria growth, or are dumped back into the office atmosphere.

By contrast FSS's consoles and fantiles ensure a

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CD viewing provided for more details on Flexible Space Installations

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true mixing of air within the room. No zone of stale or contaminated air is allowed to remain. As a result, an assessment by the Swedish Clinic for Occupational Medicine found that **Hiross FSS exceeds all recognised standards for air quality** and indoor working conditions, including ASHRAE.

In fact a decision to use the Hiross FSS leads to a cascade of beneficial effects.

First, what happens to the ceiling void that would otherwise be necessary to house the air conditioning ducts? It disappears — and with it up to 500mm of unnecessary height. At First Point, BAA Lynton was able to provide 25% more floor area within the same volume compared with a similar building using conventional air conditioning.

For skyscrapers such as the Center in Hong Kong (Dennis Lau & Ng Chun Man), or Menara Telekom in Kuala Lumpur (Hijjas Kasturi Associates), **it means another ten or more floors without making the building any taller**. For older buildings, either with restricted ceiling heights or with decorative or strongly modelled existing ceilings, it eliminates the need for suspended ceilings. A prominent recent application of FSS in the refurbishment sector is the development in west London for JC Decaux by Sir Norman Foster.

Second, the ability to lay a complete FSS flooring installation in a couple of days without complicated suspended ceilings allows major savings in construction time. First Point was erected in 38 weeks compared with 52 to 65 weeks for a comparable building using suspended ceilings. With every contract week deducted being worth about £50,000 in reduced costs, this makes for big savings.

Third, Hiross FSS's flexibility cuts out expensive last-minute layout changes between briefing and handover. The ease of adding further fantiles also reduces the temptation to over-specify to allow for future expansion.

Fourth, the use of flooring as a complete system allows it and its covering to be reassigned for tax purposes. At 4 Millbank, the first development in Britain to use FSS, capital allowances amounted to £8 million on a total service cost of £5.5 million.

Developers used to supply office space to a fairly basic level, for a completely speculative market. Increasingly however, developers are building for known tenants, who are in a position to specify an air conditioning system such as Hiross that can clearly demonstrate savings in overall lifecycle costs.

Meanwhile for architects, the Hiross Flexible Space System means bringing one of the last untamed areas of a building within the designer's control.

The logic behind Hiross FSS is examined in more detail in a QuickTime movie which you can view by running the accompanying CD-ROM. Full background information is also available on AET's website at www.flexiblespace.com.

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The excellence of the global science community is recognised by the Nobel Prizes. The film industry has its Oscars. Now the architects and teams responsible for the world's best buildings are to be recognised in the first annual global architecture awards.

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The architects of the top 50 buildings will win an expenses-paid trip to the World Architecture convention and the spectacular awards dinner in Hong Kong in June 2001. And the architect of the best overall building of the year will secure the US$30,000 Arup World Architecture Prize.

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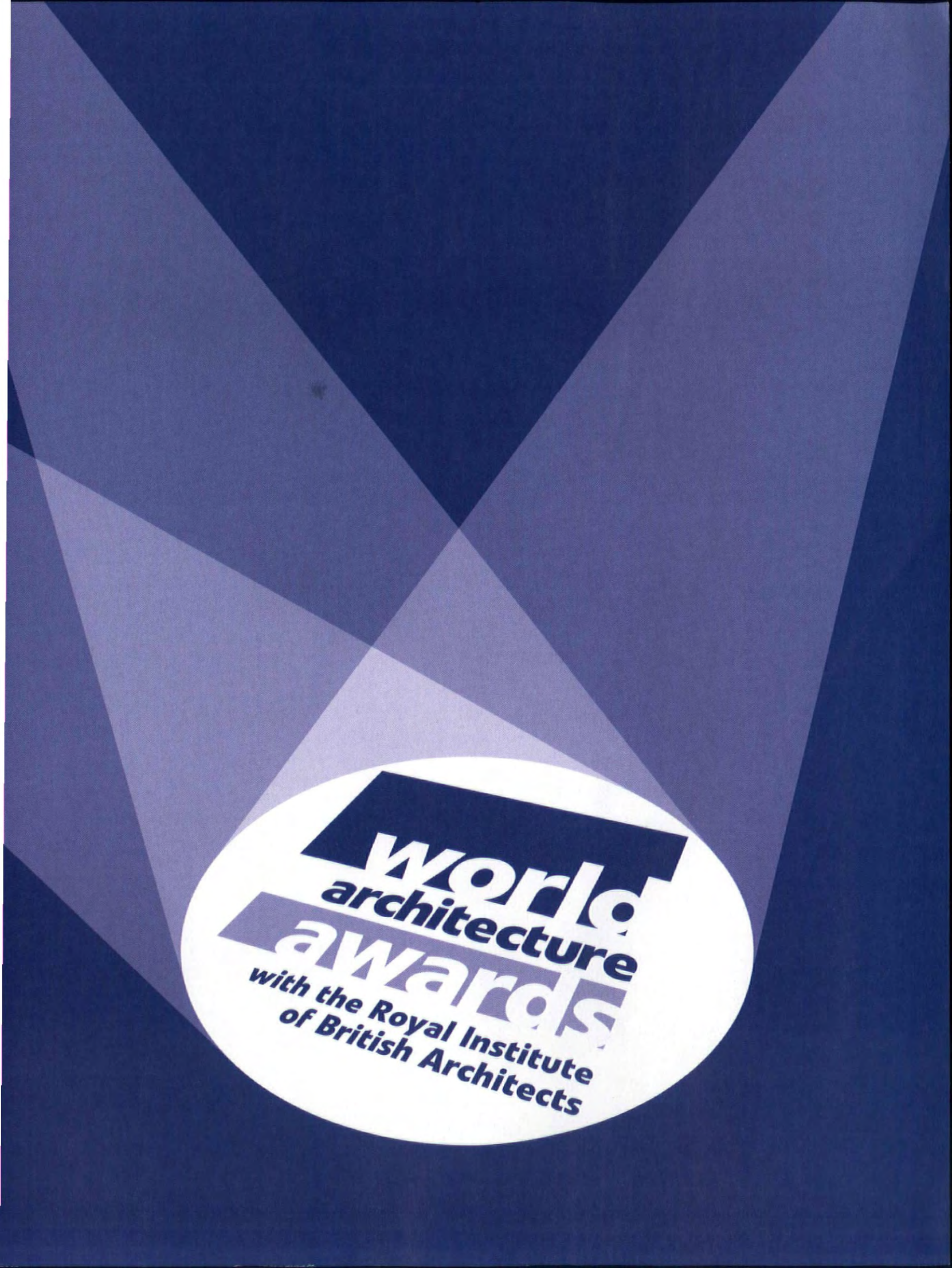
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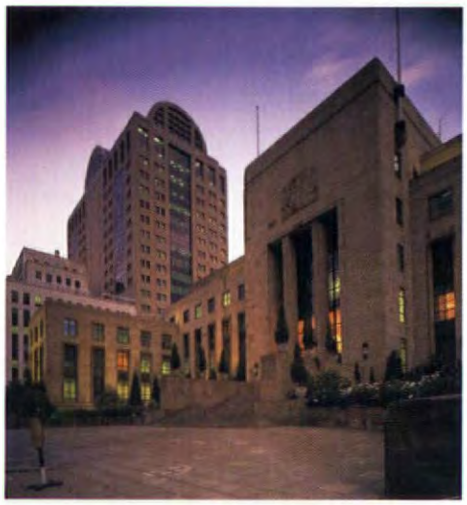

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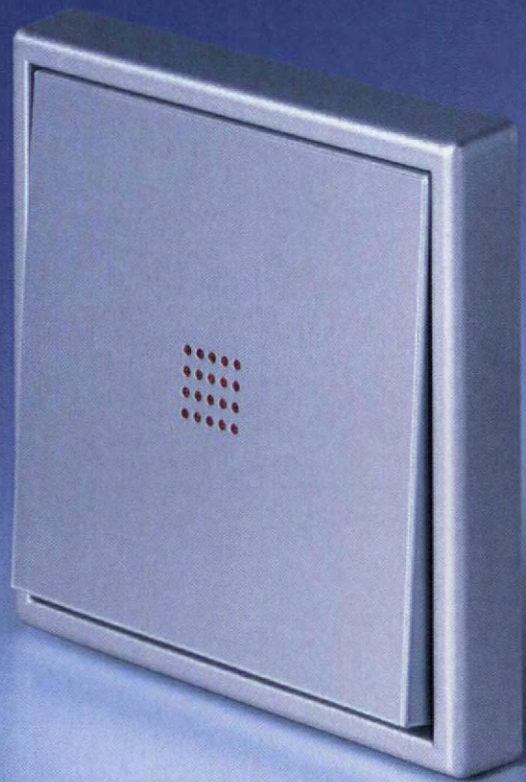

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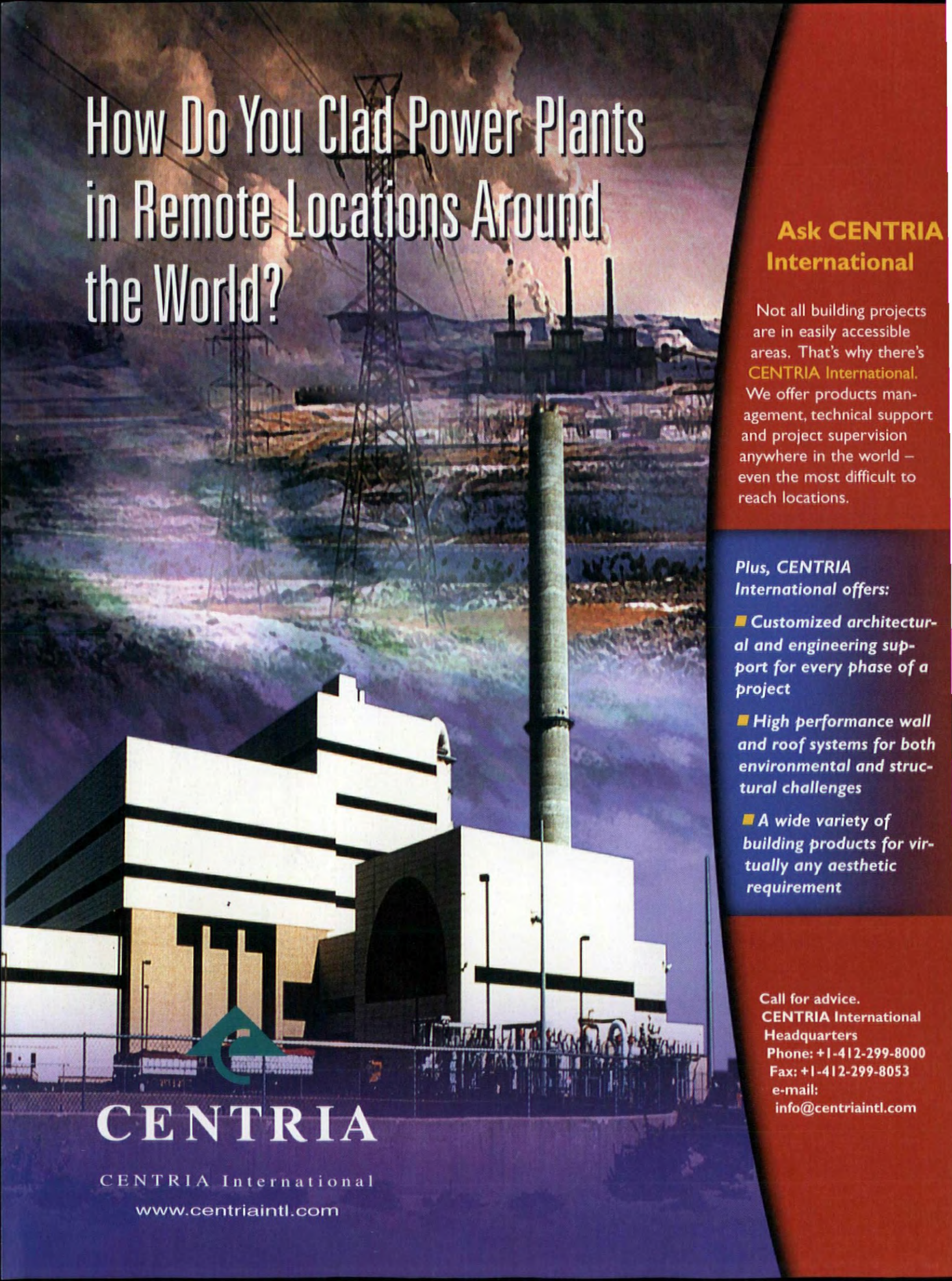

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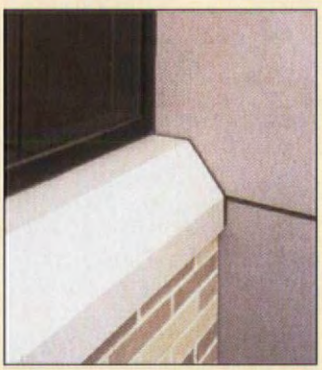

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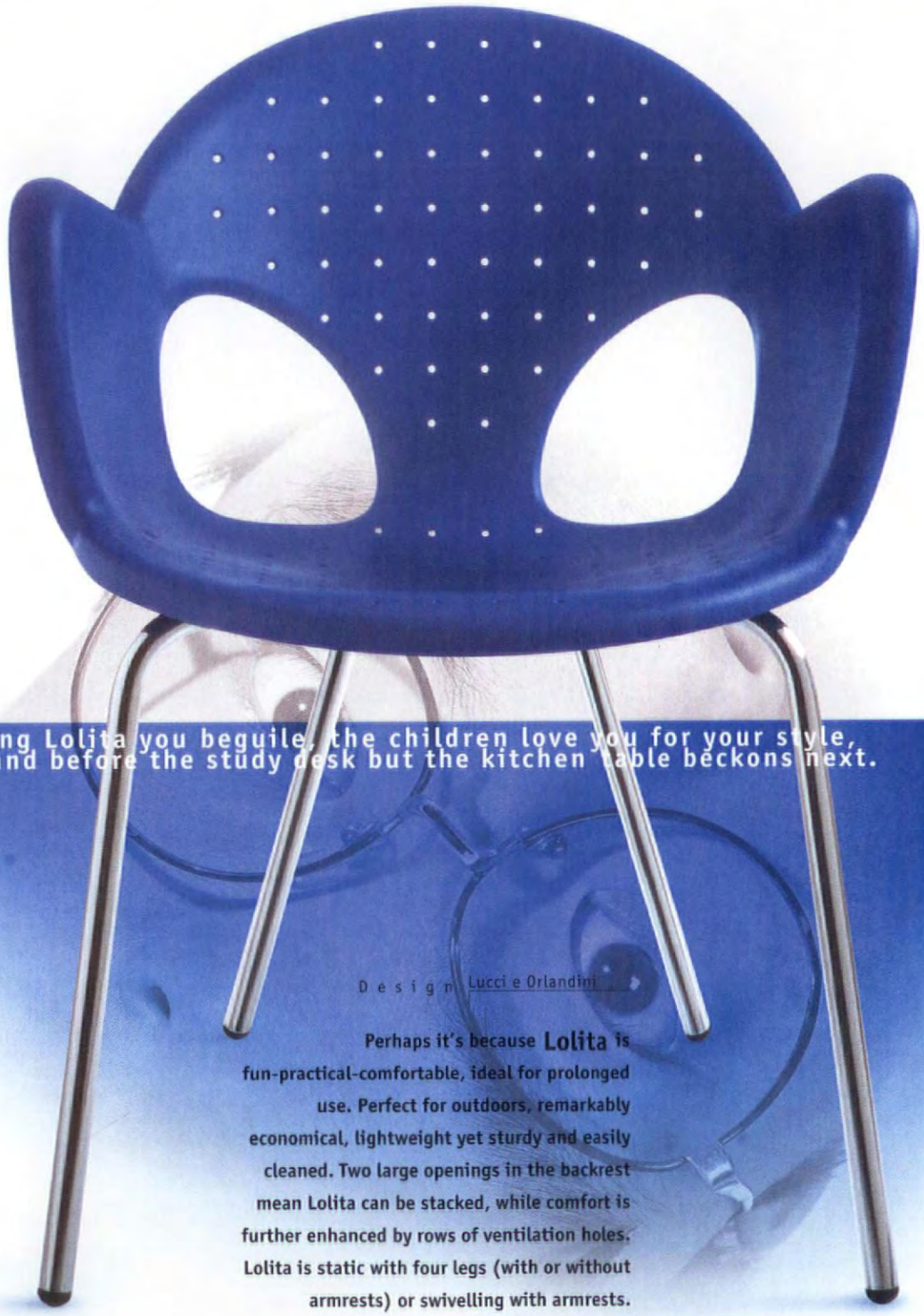

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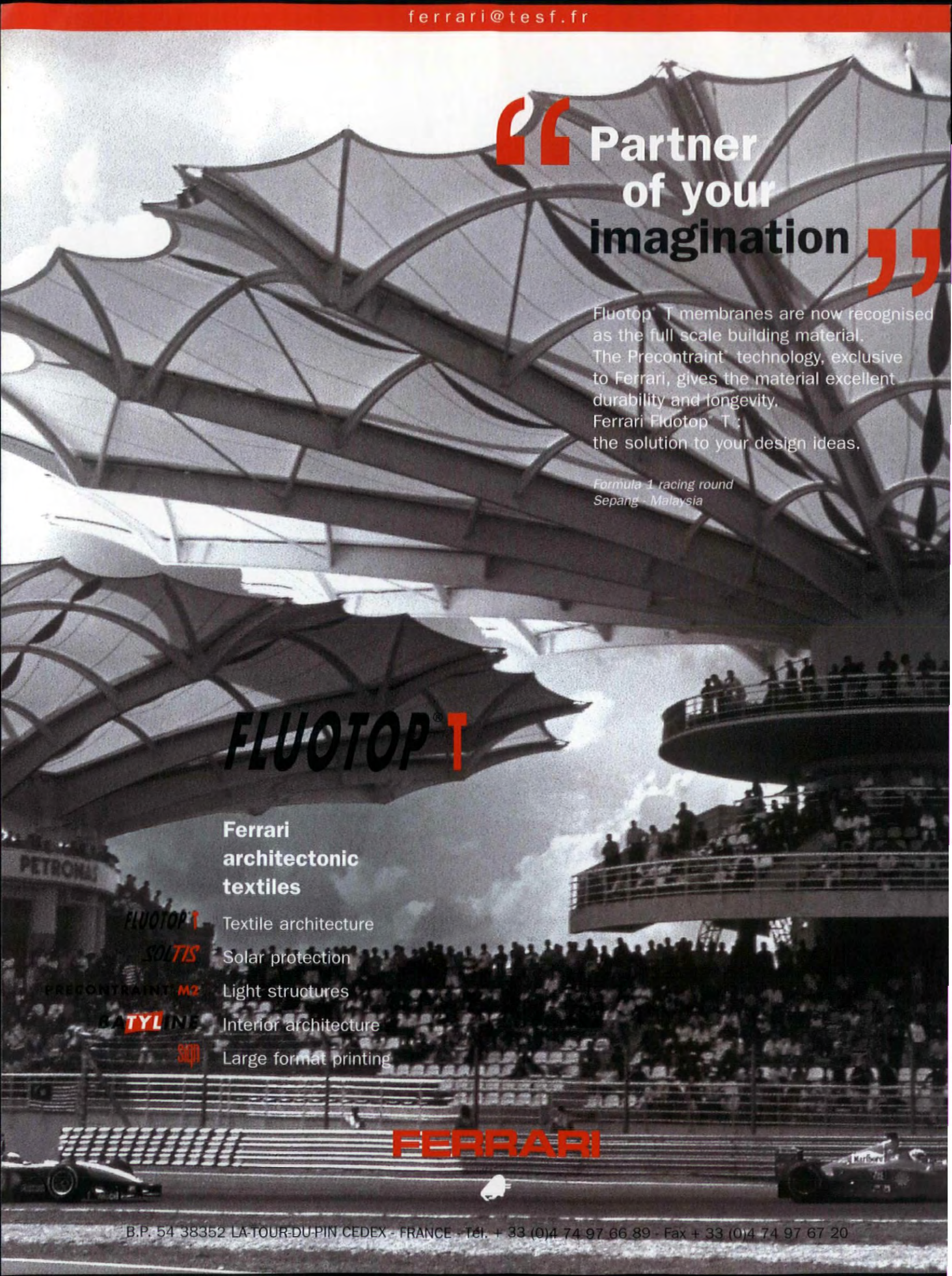

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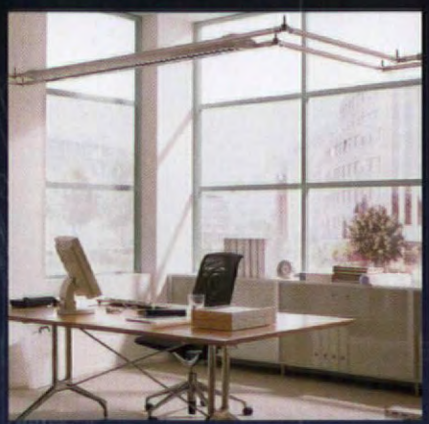

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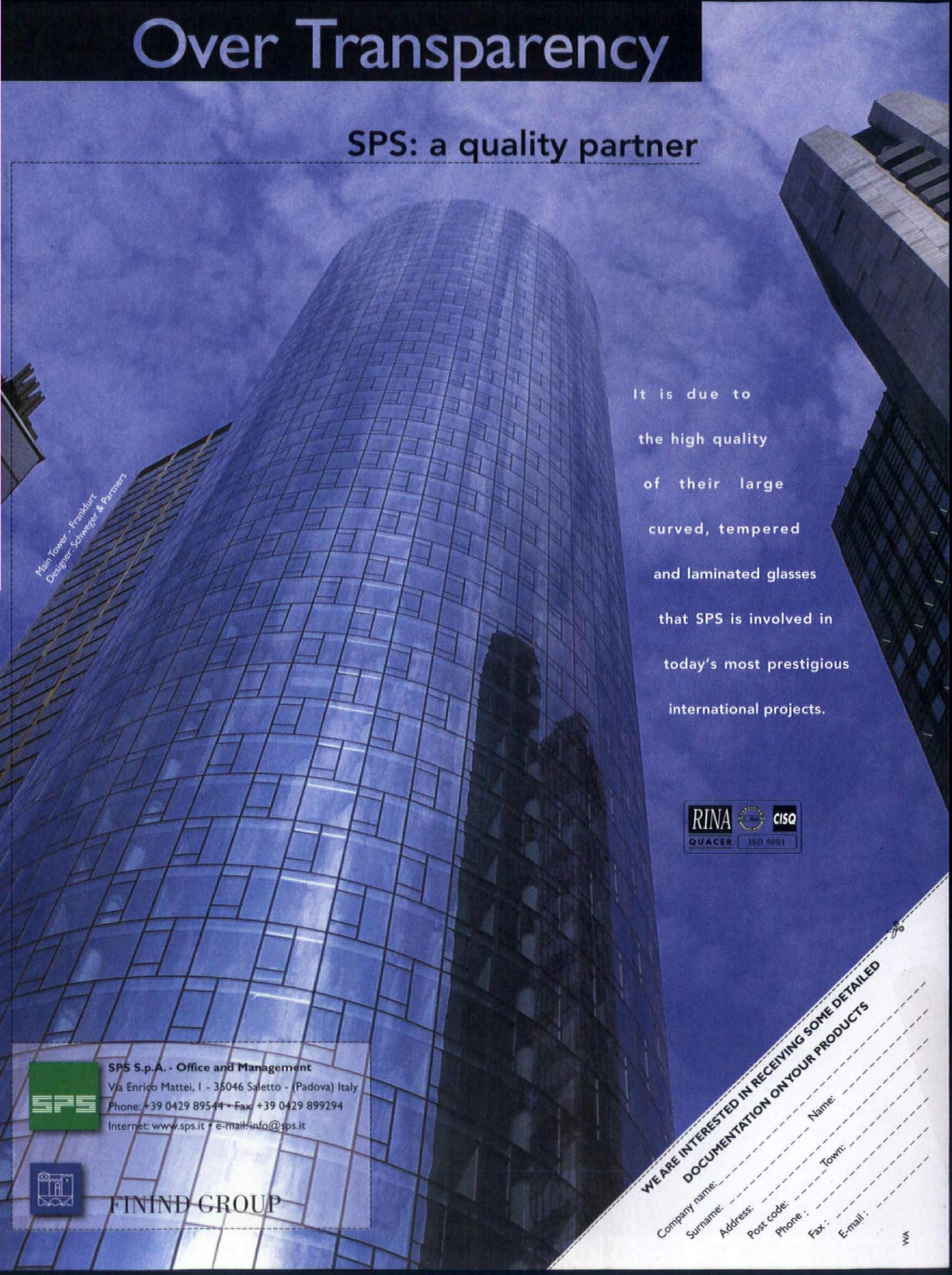

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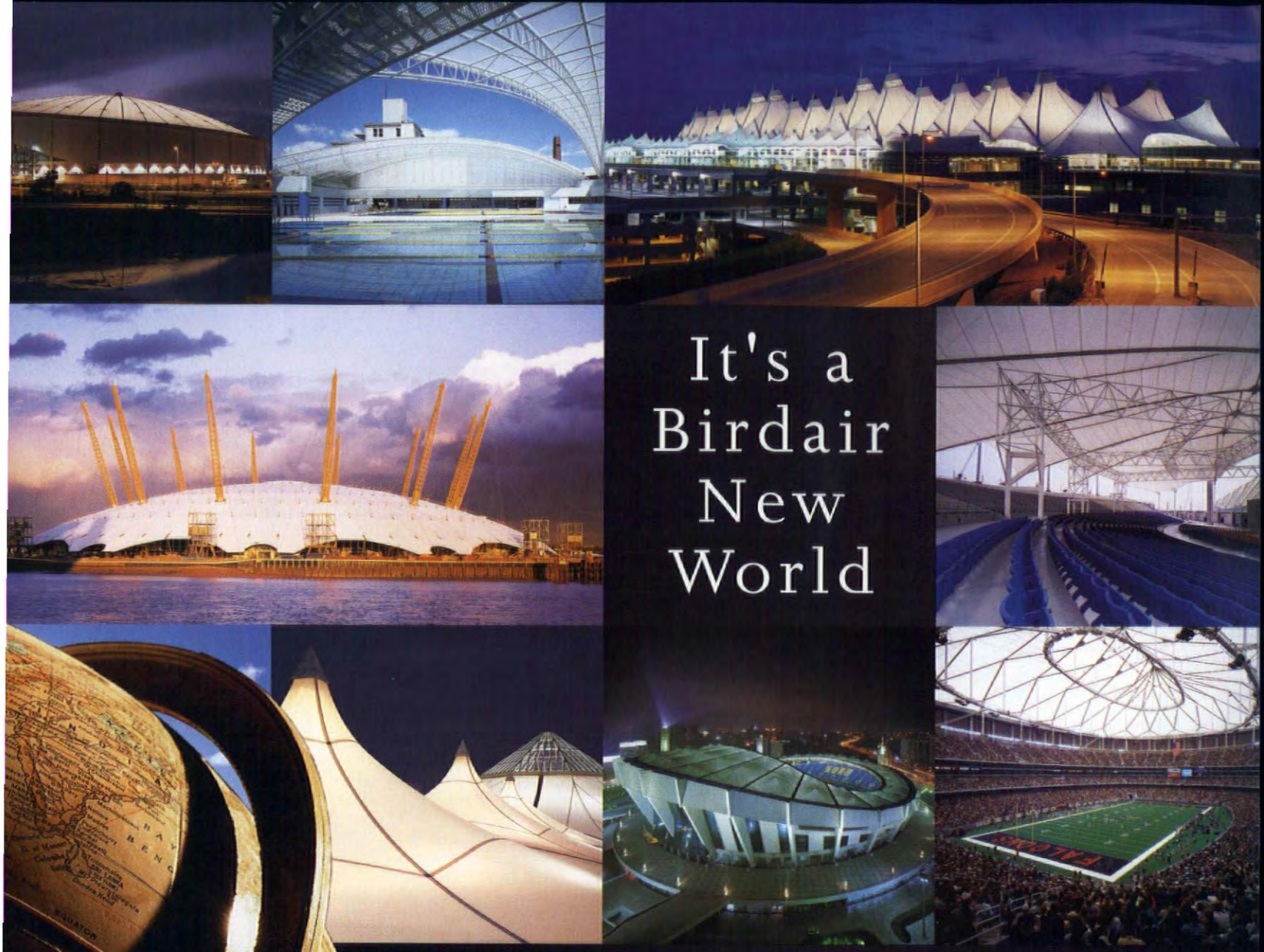

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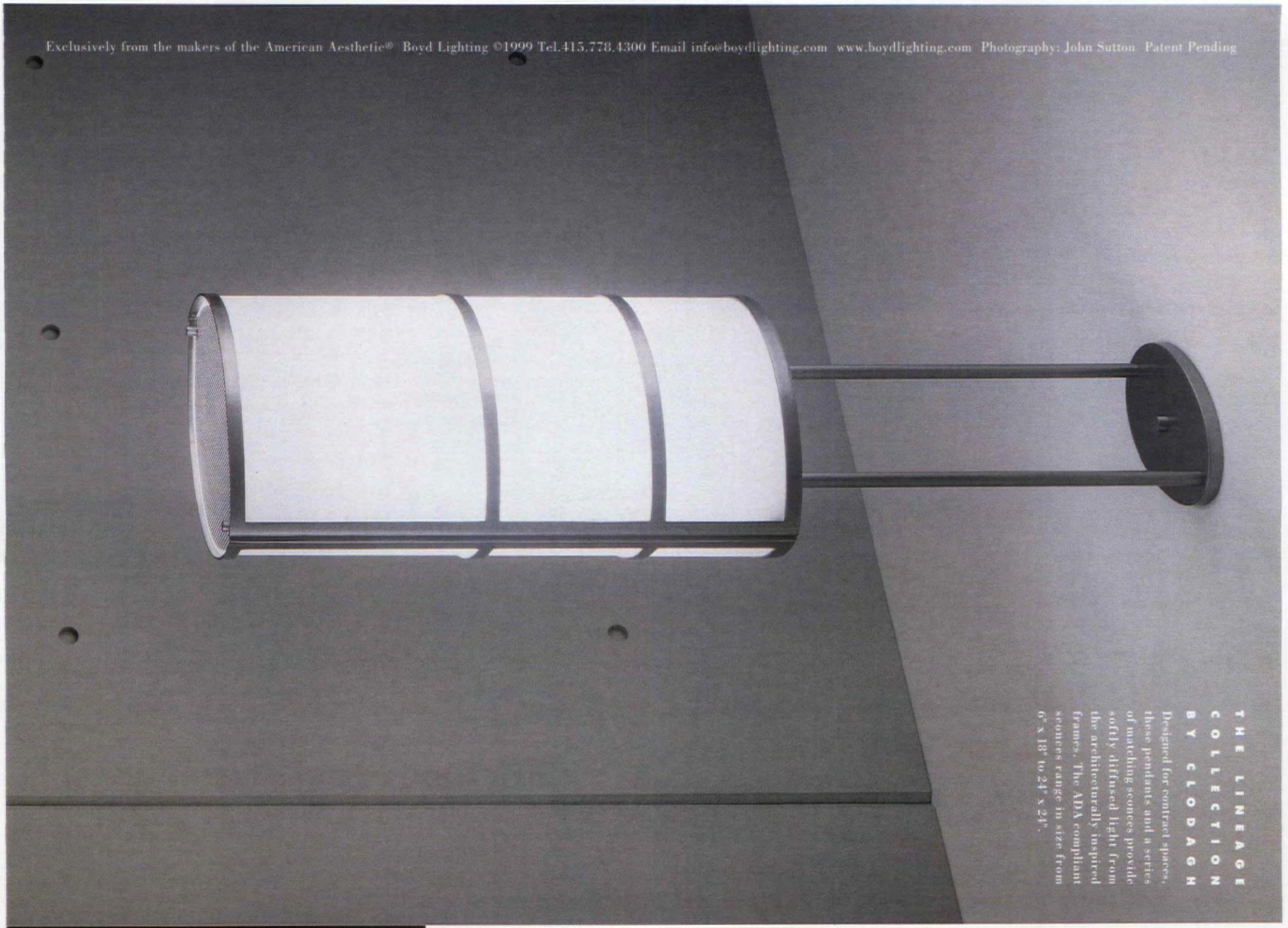
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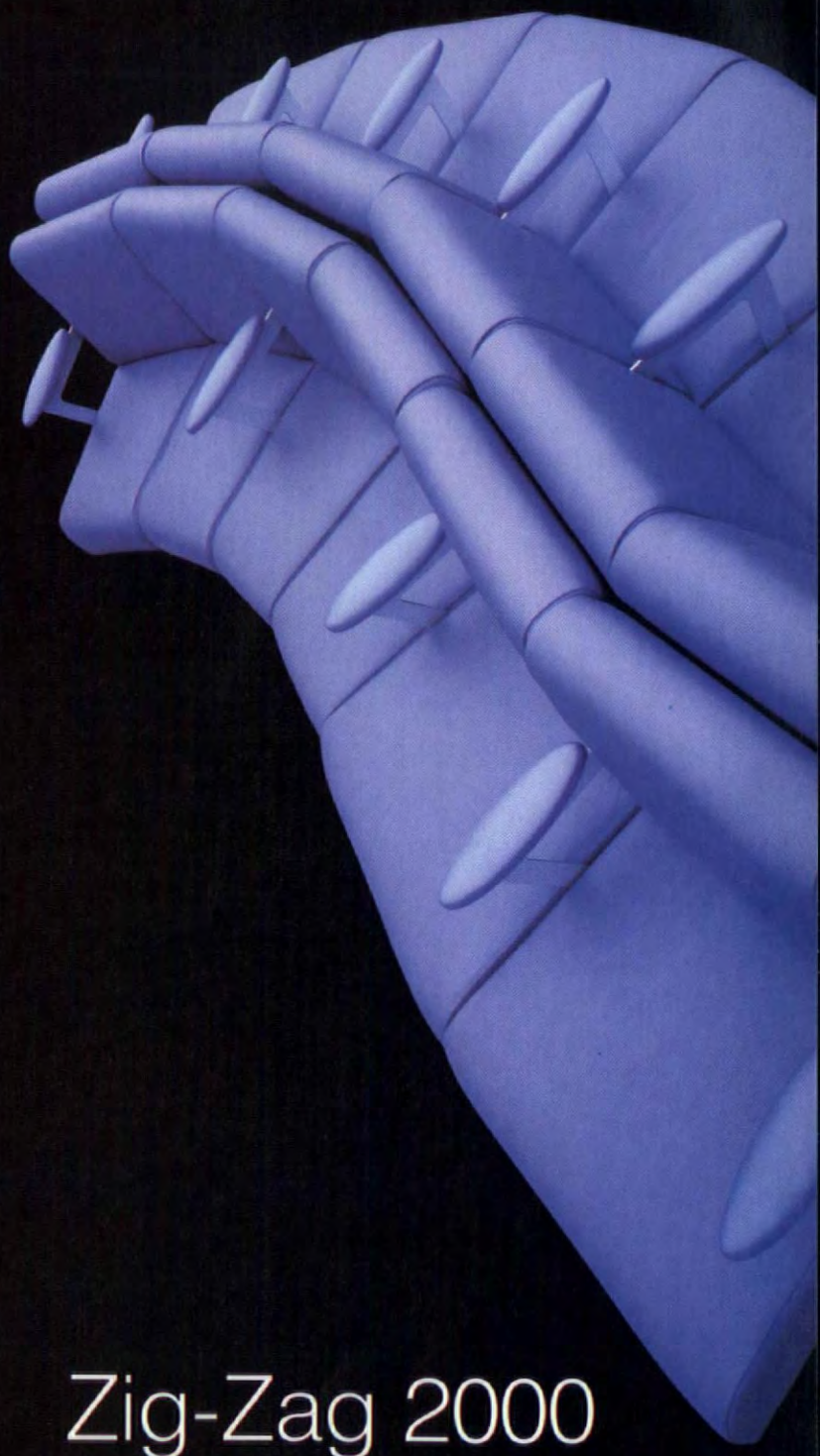

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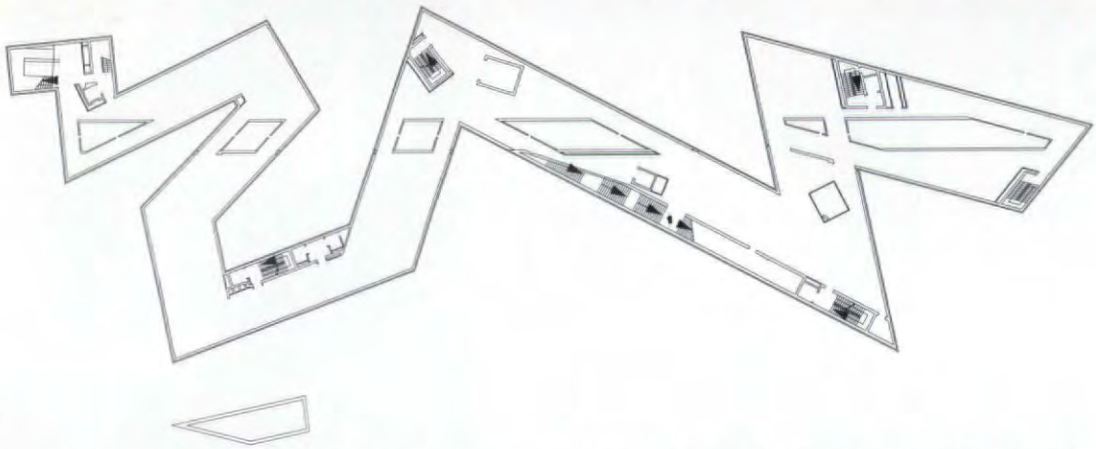
The footprint of the Gallery of Aboriginal Australia, on site in Canberra (right), designed by Ashton Raggatt McDougall, has been 'sampled' from Daniel Libeskind's Jewish Museum in Berlin (below right)



AUSTRALIA 'Shocking similarity'

Libeskind considers litigation in Canberra

Daniel Libeskind is considering legal action over similarities between his Jewish Museum in Berlin and a key element of the new National Museum of Australia in Canberra.

The issue relates to the footprint of the Gallery of Aboriginal Australia, designed by Melbourne practice Ashton Raggatt McDougall (ARM), in association with Canberra firm Robert Peck von Hartel Trethowan. Speaking to wa, Libeskind said: 'It seems there is a very shocking similarity and we'll investigate further.' Nina Libeskind, the architect's wife and partner, explains that in the case of the Jewish Museum, the footprint is very specific, deriving from 'a kind of broken Star of David; a Star of David pulled apart'.

Designer of the National Museum of Australia Howard Raggatt, speaking from the Royal Australian Institute of Architects, has acknowledged that the footprint is that, 'of Danny's Jewish Museum in Berlin... but footprint is all it is'.

ARM is well known for a design methodology where some elements are borrowed, or sampled, and others generated to form a kind of collage. There will also be references in the Canberra complex to other buildings, among them Mitchell Giurgola Thorp's Parliament House.

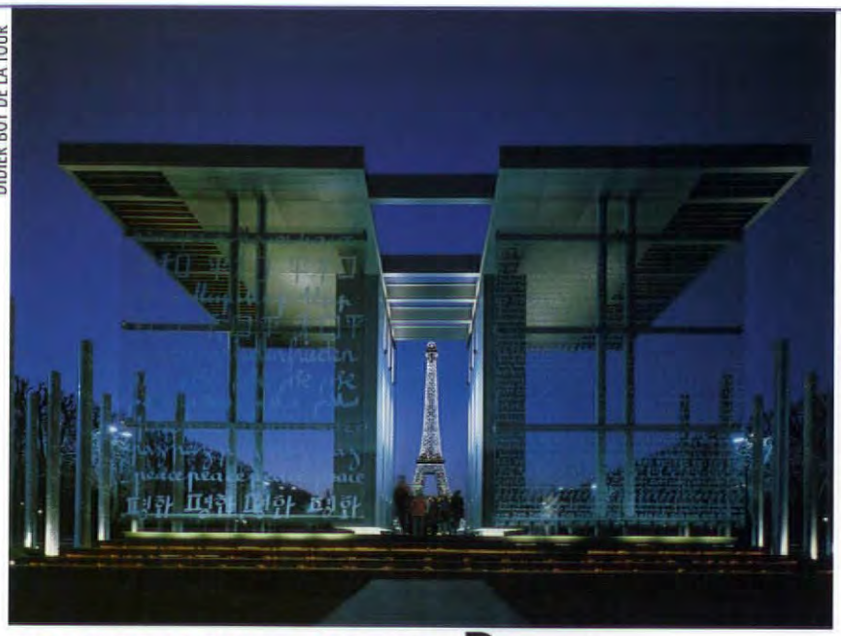
The firm's 1995 St Kilda Town Hall in Melbourne copied elements of Alvar Aalto's Finlandia Hall, of which Raggatt has written: 'Our work with him [Aalto] is part of our pursuit of the copy as a critical strategy. We're interested in testing him down here... with the idea of testing his work against the local conditions.'

While aerial images show the zigzag clearly outlined, a section has been filled in, which obscures the similarity of approach. And there will also be major differences from the Berlin building. The facades are embossed black precast concrete, as opposed to the shiny zinc cladding. They are skewed rather than vertical, and the roof in Canberra is not flat. By all reports, the facade will be even more aggressive, more severe, with less relief in terms of windows.

Response from other architects has been mixed. Some think it is a welcome allusion to the commonality between the tragic history of the Jews and Aborigines, while others believe there are very serious copyright, ethical and moral issues at stake. The Libeskinds are understood to be considering what form their legal action could take.

This is not the first time that the Berlin Jewish Museum has considered litigation. Last year, rumours abounded that Libeskind was considering legal action against Peter Eisenman over allegations that his winning scheme for the Berlin Holocaust Memorial bore more than a passing resemblance to Libeskind's Hoffman Garden, at the Berlin Museum.

The US$100 million National Museum is scheduled to open on 12 March 2001. as



DIDIER BOY DE LA TOUR

Located at the foot of the Eiffel Tower, La Mur pour La Paix – designed by Jean-Michel Wilmotte and Clara Halter – is just one of the French government-sponsored monuments to the millennium around the world

FRANCE/SOUTH KOREA Peace gives architects a chance

A footbridge in Seoul and a transparent wall at the foot of the Eiffel Tower are just two of the projects by French architects to mark the millennium. Both schemes come under the auspices of France 2000, a government initiative for a series of national and international monuments.

The Paris project, La Mur Pour La Paix, by Jean-Michel Wilmotte and Clara Halter, was installed at the start of the summer. The temporary structure makes reference to the religious relevance of the millennium by invoking memories of Jerusalem's Wailing Wall. The word 'peace' is inscribed in 33 different languages. La Mur will remain in place until the end of this month.

In Seoul, Rudy Ricciotti has designed a footbridge to link Sonyuodo Island to the heart of the city. The bridge changes character as it crosses four different contexts: urban roadscape; flood plain; the River Han; and lowland on the island itself.

France 2000 has also sponsored the construction of two public gardens, in Nazareth and Bethlehem. **am**

Link: www.murpourlapaix.com

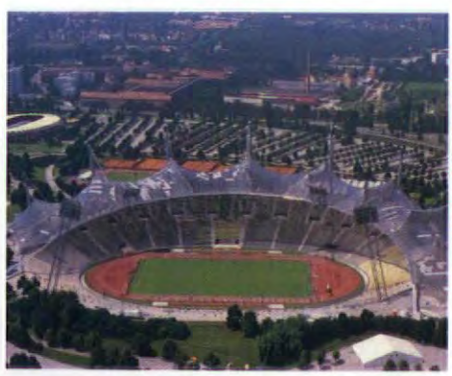
GERMANY
Raze the roof
Behnisch/Otto stadium sacrificed to soccer

Plans to alter Munich's Olympic Stadium have caused uproar in Bavaria. The mid-summer announcement that Germany will host the 2006 soccer World Cup confirmed months of speculation that the stadium's capacity will be expanded, with major implications for its trademark tensile roof.

The stadium was designed by Gunther Behnisch and Frei Otto for the 1972 Olympic Games. Its undulating roof has since become one of the defining structures of 20th-century German architecture.

Behnisch & Partner, in association with Auer + Weber of Stuttgart, has designed a number of schemes to accommodate the required capacity, all of which will involve a radical overhaul of the roof. It seems certain that the new design will include the insertion of a new US$215m cable-ring balcony around the stadium above the level of the existing roof, to accommodate an extra 25,000 spectators.

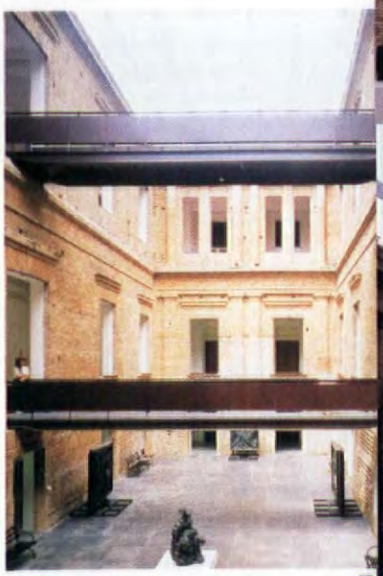
Such a design would destroy the appearance of the stadium, say critics. But even with the planned lowering of playing field and removal of the running track , the options appear to be limited. **am um**

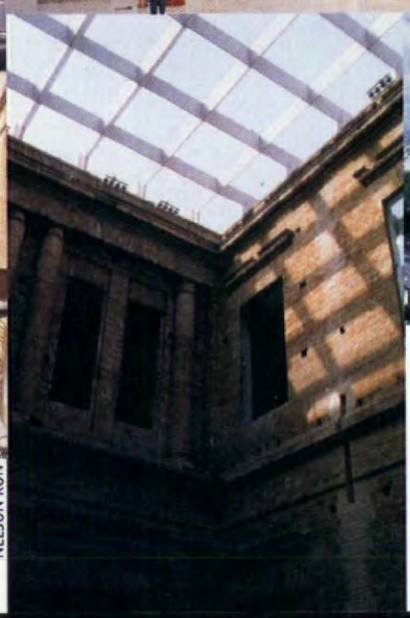


PROFESSIONAL SPORT INTERNATIONAL

Classic view of Munich's Olympic Stadium. The roof will be dramatically altered to increase capacity

This month





NELSON KON

Four views of Paulo Mendes da Rocha's São Paulo Art Museum, winner of the Mies van der Rohe prize for Latin American Architecture

BRAZIL Latin flair

Brazilian architect Paulo Mendes da Rocha has won the Mies van der Rohe Prize for Latin American Architecture. The bi-annual award is given by the Mies van der Rohe Foundation, which is based in Mies' reconstructed 1929 German Pavilion in Barcelona.

The prize specifically recognised Mendes da Rocha's São Paulo Art Museum, a contemporary restoration and adaptation of a 100-year-old school in São Paulo's historic centre.

Other finalists included a beach house in Lima, Peru, by Alexia León; the Reuter House in Cachagua, Chile, by Mathias Klotz; a union vacation resort in Ytú, Paraguay, by José Luis Ayala, Alberto Marinoni & Solano Benítez; the Manantiales Building in Santiago, Chile, by Luis Izquierdo, Antonia Lehmann, José Domingo & Raimundo Lira; and the School of Social Sciences at the National University of Colombia in Bogotá by Rogelio Salmona.

The jury was led by Ricardo Legorreta and included Dominique Perrault, João Luis Carrilho da Graça, Terence Riley, Silvia Arango, Jorge Silvetti, and Igmasi de Solá-Morales.

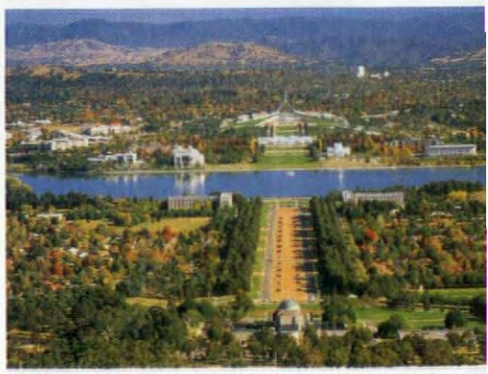
Also in the Mies van der Rohe Foundation awards programmes is a bi-annual prize for European architecture. **dc**

For further details contact: Fundació Mies van der Rohe Barcelona, email miesbcn@ysi.es, web www.miesbcn.com

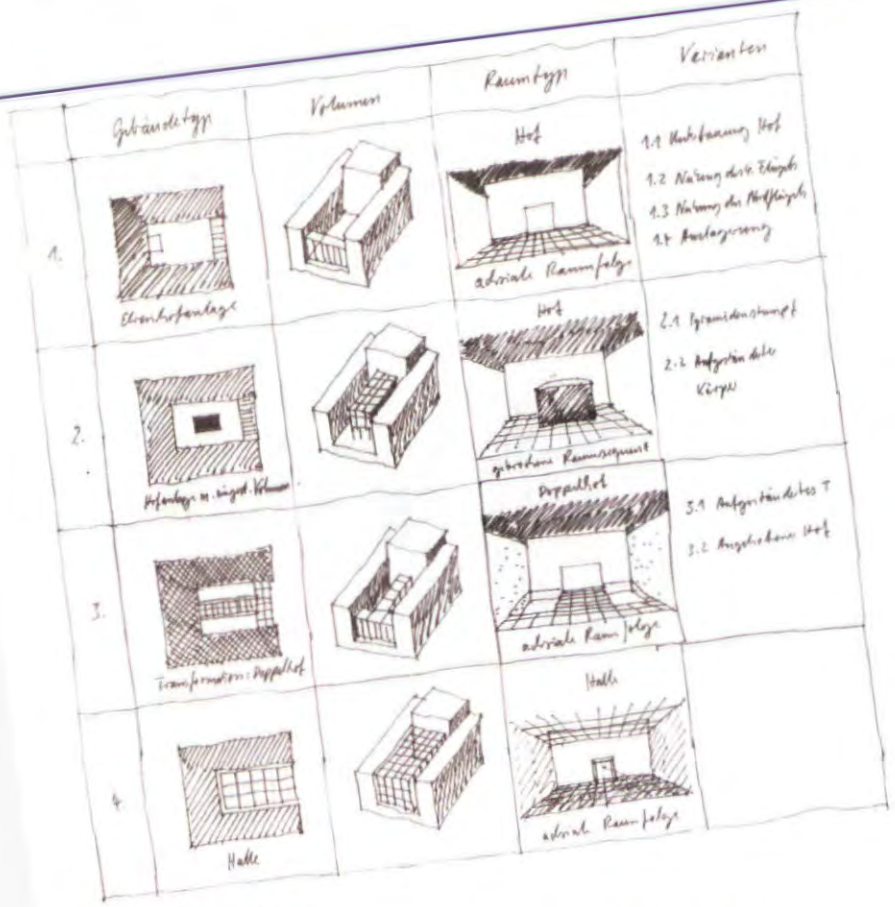
AUSTRALIA A place for Durbach Block

Sydney practice Durbach Block has won the competition to design the 'Place for the People' in Canberra's parliamentary zone. The gentle, minimalist scheme – developed in association with Schaffer Barnsley and Harald Straatveit – was chosen from 73 national entries. The jury, which included Glenn Murcutt and Finn Juhani Pallasmaa, said that it 'cuts and forms the landscape, rather than instigating a large building programme'.

Providing a public space for national rallies, concerts, ceremonies, and exhibitions, the 12,000sqm site is next to Lake Burley Griffin at the bottom of the slope from Parliament House. The design begins in the lake itself with a submerged, convex stainless steel sculpture reflecting light and colouring the water. Up the slope is a 100m-wide amphitheatre with broad grass steps on either side. A fabric ceiling can be stretched over this space to provide shade. Beyond the amphitheatre, for larger meetings, is a huge grass area. A 160m landscaped ramp through its centre picks up Griffin's land axis, and at its end is a pond, spilling into two rills, running back down the slope on either side of the ramp. **as**



Niemeyer's sketches from his new book, Diante do Nada, on the theme of solidarityrom his new



GERMANY
Ungers' museum piece

Oswald Mathias Ungers (73), once dubbed the 'father of post-war German architecture' for his radical, rationalist approach, is the latest addition to the list of architects working on the revitalisation of Berlin's Museum Island. Cologne-based Ungers' US$270m commission for a new building for the Pergamonmuseum (see concept sketches above), which houses Germany's collection of non-European antiquities, is the last piece of the island jigsaw.

The cuboid addition, which will extend the museum and ease circulation around it, has been described as 'typically Ungers', and was chosen from his three design solutions for having the least physical impact. The design links the two wings of the existing museum with a bar-shaped glass block and a two-storey vitrine of thin white pillars – a compromise that appeases preservationists and provides enough new space.

The proposal is effectively an interpretation of the original, early 20th-century scheme. Alfred Messel, who completed the museum in 1906, favoured the addition of a colonnade to leave the building's U-shaped court exposed. However, housing Germany's Egyptian architectural treasures required the addition of a glazed exhibition space.

When the museum is complete, by 2009, visitors will be able to go straight to the 'archaeological promenade' – a subterranean passage being masterplanned by British architect David Chipperfield with Heinz Tesar of Vienna to link all five parts of the museum. **am/um**

CANADA
Power grapes

Frank Gehry has returned to Canada, professionally speaking, with his first architectural project (he designed the interior of Chiat/Day advertising agency's Toronto office in the 1980s).

The new 2,800sqm winery is on a 15ha site in the Niagara wine and tourist region 100km southwest of Toronto, where Gehry spent his first 17 years, until his family moved to California.

Vincor International, Toronto, and France's Boisset, la Famille Des Grands Vins, the world's largest burgundy producer, are partners in the new winery, which will include areas for wine-tasting and dining as well as production space. Construction is expected to begin within two years; wine should start flowing in 2005. The budget has not been disclosed.

Gehry accepted the commission two years ago during one of his sporadic visits to Toronto, partly because of his fondness for good wines and partly 'to express the winemaking culture'.

There was something else. 'I don't pick projects by size,' he noted. 'It's about the people involved and their passions.' He added that the design is evolving, but will be consistent with his signature sculptural style and probably in metal. 'We have to compete with Niagara Falls,' he quipped. **aw**

IN BRIEF

GERMANY
Berlin station derailed

German railway company Deutsche Bahn (DB) has postponed plans to build Europe's largest train station in central Berlin. Hamburg practice Von Gerkan Marg und Partner has completed design development, but DB lacks the funds to invest in the vast commercial and office real estate towers around its 'prime' site. Private investors may jump in to take advantage of the location.

JAPAN
Rogers' latest honour

The Praemium Imperiale has awarded Richard Rogers its Y2K architecture prize. The annual self-styled Nobel Prizes for the arts honours five 'artists' working in painting, sculpture, music, theatre/film and architecture. Winners receive US$148,500 (¥15m), making it the most lucrative prize in world architecture. The awards, now in their 12th year, are presented by the Japan Art Association.

NEW ZEALAND
DLR breaks out

The DLR Group, one of the world's top 30 largest practices (see wa300), has completed its first project outside its US home market. Design of the US$21 million Auckland Remand Prison, with local firm Opus International Consultants, harmonised with the wishes of the local IWI tribes, who consider the site and nearby Mount Eden sacred.

US
Sears ahead

An antenna on top of the Sears Tower is now the highest point of any building in the world. The 24.4m steel and fibreglass extension was attached to the top of one of the tower's two antennas in a three-hour helicopter lift. The Petronas Towers, Malaysia, is still the world's tallest building without broadcast facility, at 452m.

US New York Times tower

Foster, Pelli, Piano, Gehry and SOM shortlisted

Manhattan's former red light district, Times Square, is fast becoming a symbol of the new economy, with skyscrapers popping up where more seedy venues used to stand. The crossroads has been recreated by and for the media, with buildings for Condé Nast (see **wa**83 p56-63) and Reuters leading the way.

Now the square's namesake is following suit. At the end of the summer, the *New York Times* (NYT) signed an agreement with state and city officials to build a 40-storey headquarters on Eighth Avenue, between 40th and 41st Streets, at the heart of Times Square and just two blocks from its current quarters.

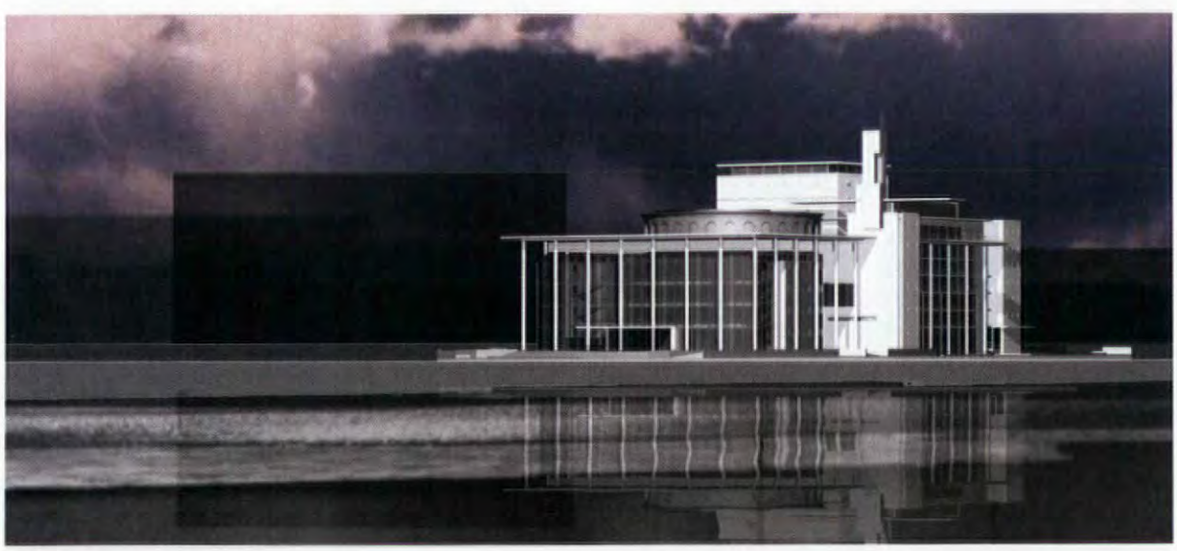
The selection of an architect has the potential to be of seminal importance, as the newspaper is internationally respected for its arts and architecture criticism. It all but established the genre at the pen of Ada Louise Huxtable, who in the 1960s attacked the mediocrity of high-rises proliferating in midtown Manhattan. Moreover, the company has made it clear it wants a building a cut above what it sees as the contemporary banality of new construction in Times Square.

Instead of holding a competition in the traditional sense, the paper opted for an architectural selection process. 'We wanted to understand how an architect's vision would mesh with our vision of ourselves,' said Hussain Ali-Khan, executive managing director of NYT.

To encourage diversity, state and city officials had asked the newspaper to exclude Skidmore, Owings & Merrill, Fox & Fowle and other architects which had designed Times Square buildings in recent years. Among the 30 or so firms, the NYT considered a number of European architects, several of which have never worked on office projects.

In narrowing down the candidates, a design committee of representatives from the NYT and the developer, as well as from the city and the state of New York, examined the qualifications of the designers and visited their completed buildings. According to Ali-Khan, the inclusion of all partners – or potential nay-sayers – on the project will hopefully prevent objections further down the road.

Four finalists are to submit preliminary designs in competition for the commission. The shortlist includes Foster and Partners, Cesar Pelli, Renzo Piano and interestingly, SOM, but partnered by Frank Gehry. **bb**



Gyorgy Vadasz Studio's design for the new Hungarian National Theatre was chosen by an indepdnent jury. But will it be built?

HUNGARY What a performance

After years of political wrangling, the tender for the new Hungarian National Theatre looks certain to go to Hungarian architect Marta Siklos. The 18,000sqm project will go up on the former World Expo site next to the Danube in Budapest.

Design, location and budgetary issues have dogged the project for nearly 50 years, and the latest decision has not been reached without controversy.

A jury of leading Hungarian architects, headed by Jozsef Finta, was appointed to choose a winner from seven invited proposals earlier this year. Each architect put forward a design based on a blueprint produced by Siklos, who was also responsible for the reconstruction of Budapest's Vigszinhaz theatre.

Finta argued that the selected architects 'properly represented different generations and styles'. The jury chose the Gyorgy Vadasz Studio proposal, which incorporated part of the interior design plan by Siklos. However, to the consternation of the Hungarian Chamber of Architects, this decision was overruled by Uj Nemzeti Kht in favour of the original Siklos design.

'The Maria Siklos plan for the new National Theatre has now been sent to the 11th district mayor's office for final approval,' said Gyorgy Schwajda, head of Uj Nemzeti Kht, the state-owned company responsible for the project.

If planning permission is received, work on the US$25 million project can begin before the end of the year, with a provisional completion date of 2002. The construction company, Arcadom has already been appointed as general contractor on the project.

Work on the theatre has been subject to a series of delays since plans were put forward in 1998 for its construction in the city's central Vorosmarty Square, by the previous Socialist lead coalition government. Construction was halted due to a power struggle between the Fidesz-Civic lead government and the Budapest City Municipality.

The site was cleared and there are plans to develop a multi-storey car park and conference centre. gm

UK Castles in the air?

Foster and Yeang lead south London regeneration

The competition to redevelop south London's Elephant and Castle district has been won by a team including Foster and Partners and Malaysian eco-tower expert Ken Yeang.

Southwark Land Regeneration's (SLR) successful US$2.25 billion scheme has a commercial centre with retail and leisure facilities at its core, as well as a new transport interchange, a radical reworking of the local road network, and new social and private housing.

Foster and Partners has designed a glazed office tower and public spaces featuring an ice-rink and giant video screens, while Yeang has developed a 45-storey trademark 'eco-tower' (right), comprising residential and commercial space. Speaking to **wa**, Yeang expressed his hope that 'the demonstration of a successful eco-tower in the UK will encourage other architects to pursue the green agenda'. The masterplan also includes contributions from UK practices Benoy Architects and HTA Architects.

Elephant and Castle is considered among the worst of London's 1960s architectural eyesores. It is defined by a sprawling pink shopping centre, sited on the corner of a busy roundabout, among grey tower-block housing estates. All will be demolished to make way for the new buildings.

Key elements of the masterplan has been left undersigned. SLR plans to hold its own international competitions within the next year. Director Nicholas Taylor stressed that despite the size of the development, he will not necessarily be looking for big-name architects. 'We will command an excellent delivery system, so we'll be able to provide logistical support to smaller practices that might not yet have built on this scale,' he said.

Construction proper is scheduled to begin in 2002, although a few fast-track pilot projects will break ground before then. **df/am**

■ Foster and Partners' 41-storey tower headquarters for the Swiss Re insurance group, nicknamed the Erotic Gherkin, has been granted planning consent (see **wa**85 p35).

■ Preliminary studies indicate that the swaying motion that forced the closure of London's Millennium Bridge (designed by Foster, sculptor Anthony Caro and Arups Engineers) was caused by human walking patterns. The bridge, which was closed only three days after its grand opening this summer, will not reopen for at least six months.

CONTRACTS

AUSTRALIA
Admitted to hospital

French adaptive re-use expert Phillipe Robert, with Sydney architect Tim Williams, has designed a US$260m residential development 3km from Sydney's CBD. The scheme, on the site of a former hospital, will retain two historic buildings in the construction of 112 studios and apartments.

CHILE
Embassy engagement

Münster architect Professor Baumewerd is to design the new German embassy in Chile. The 'uncompromising, symmetrical' scheme will sit orthogonal to the Las Hualtatas Street in the Vitacura area of Santiago. The embassy will go on site by the end of the year.

NEW ZEALAND
Buzz in the beehive

New Zealand's parliament building, the Beehive, is to undergo major internal refurbishment. The US$16.5m makeover of the Wellington landmark is being overseen by architect Warren and Mahoney, and will include replacing inner walls and ceilings with glass or wood veneer. Work is due to start early next year and continue until 2003.

PRC
Speed of height

US practice Leo A Daly (Washington DC), has been selected as design architect for a 36-storey intelligent tower in Shanghai. The site, one block from the Shanghai Municipal People's Government complex, encompasses 65,000sqm of floor space. The fast-track tower will be complete by late 2001.

SPAIN
Crème Brullet

Manuel Brullet has been chosen as the architect of a 33,000sqm biomedical research centre in Barcelona, next to the Hospital del Mar, and near the Olympic Village – also by Brullet.

DAVE CHESKIN

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wa pays tribute to Enric Miralles and John Hejduk, two luminaries of world architecture, who both died on 3 July. By David Cohn.

SPAIN
Enric Miralles (1955–2000)

'Talking with him, watching him work, or visiting his projects, one thought that, if there were an Antonio Gaudí for the end of the 20th century – someone so imaginative, exuberant, organicist, delirious and unpredictable – that person would have to be Enric Miralles.'

With these words, published in Spanish newspaper El País, Barcelona architectural historian Josep Maria Montaner memorialised one of Spain's leading architects, who died on 3 July at the age of 45. The cause was a brain tumour.

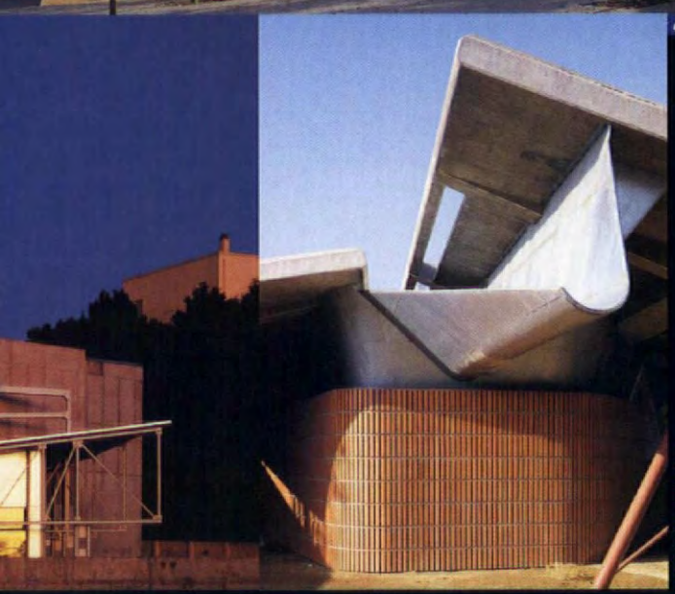
Miralles was working on a host of important projects at the time of his death, including a controversial design for the Scottish Parliament in Edinburgh, now under construction (see wa70 pp32-33), a town hall for Utrecht, a School of Architecture for Venice and, in his native Barcelona, the corporate headquarters of Gas Natural.

Miralles emerged as a brilliant talent while still an apprentice in the Barcelona studio of Alberto Viaplana and Helio Piñón. He opened his own studio in 1983 with his first wife, the noted Barcelona architect Carme Pinós. After their divorce in 1989, he married the Italian-born architect Benedetta Tagliabue, who also joined his practice.

Miralles' designs were based on complex assemblies of repeated elements arranged in non-orthogonal, aleatoric or naturalistic patterns. Characteristically, he would superimpose different scales of assembly, layering structure, infill, finishes and details over one another in different patterns. His most successful designs, such as Barcelona's Olympic Archery Range (1992) or the Morella Boarding School in Castellón (1994),

1 Enric Miralles with his partner and wife Benedetta Tagliabue, admiring a model of the Scottish Parliament
2 The Rhythmic Gymnastic Centre, Alicante
3 The Olympic Archery Range for the 1992 Barcelona Games
4 Cemetery in Igualada, one of Miralles' first completed projects. He was buried there in July

3



4

DUCCIO MALAGAMBA

took their cues from the surrounding landscape to create a symbiosis of nature and architecture. His project for Edinburgh, which had lately attracted a hostile local opposition, and faced severe overruns on its tight initial budget, was conceived along these lines, with the parliament chamber nestled into the topography under a hull-like roofscape that echoes the surrounding hills.

Enric Miralles was laid to rest in one of his most celebrated works, the Igualada Cemetery outside Barcelona, designed with Pinós in 1985, bringing his astonishing meteoric life, though cut short, full circle.

■ A house renovation in Barcelona, by Enric Miralles, has won the Foment de les Arts Decoratives Interior Award for 2000. Rafael Moneo's Kursaal Center in San Sebastián (see **wa**81 pp 35-37) picked up the architecture award. The FAD programme recognises works completed on the Iberian peninsula during the past year.

USA

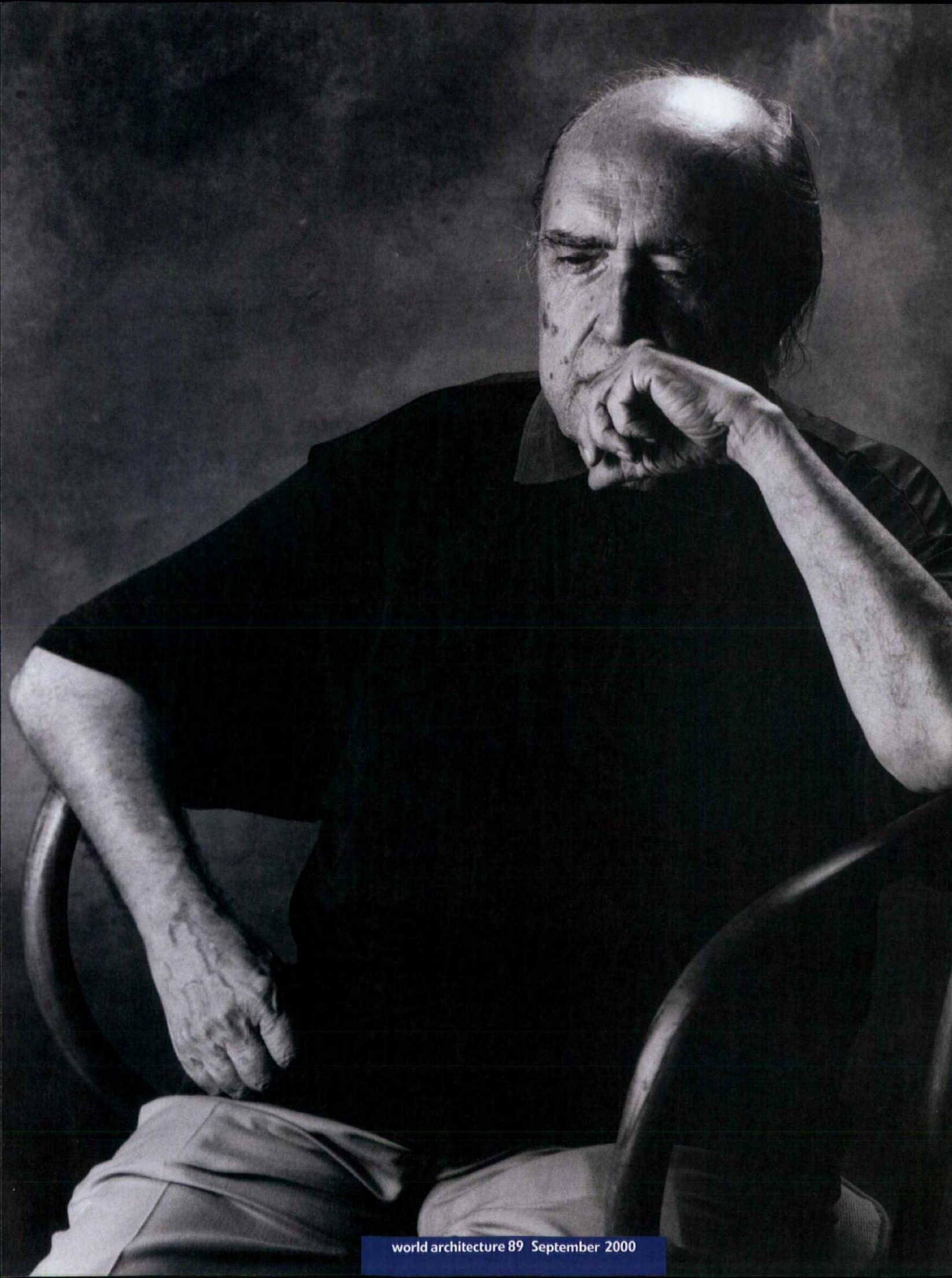
John Hejduk (1929–2000)

John Hejduk, influential architect and animating spirit of New York's Cooper Union School of Architecture, died of cancer on 3 July, aged 71. Hejduk's built works are few – most notably, the interior reconstruction of the Cooper Union in the 1970s, a 1988 housing block in Berlin's IBA exhibition, and a civic centre in Santiago de Compostela, Spain, set to open next year.

Instead, his work was largely confined to sketches and drawings, or what he called 'research into the soul of architecture', which he published in over 20 books, including 'The Mask of Medusa' (1985), 'Victims' (1986), and 'Vladivostok' (1989). His stark poetic images were marked by the dark obsessions of his post-war generation.

Hejduk was born in New York in 1929, and studied at the Cooper Union and Harvard. After teaching in Texas and working in the office of IM Pei, he returned to teach at Cooper in 1964. He became chairman of the architecture programme in 1965 and dean of the school in 1975. His work first became widely known in the seminal 1972 book 'Five Architects'. Former students include Daniel Libeskind, Shigeru Ban and Elizabeth Diller.

PHOTO: ARCHIVES OF THE COOPER UNION FOR THE ADVANCEMENT OF SCIENCE ART



Oscar worthy

Sometime social revolutionary, and life-long Communist, Oscar Niemeyer has never been predictable. As the latest addition to Brasília is unveiled, Ricardo Antonio met him to discuss architecture, political exile and the global struggle against poverty.

(WA): On its 40th anniversary, how would you describe Brasília?
(Oscar Niemeyer): A moment of optimism and hope.
(WA): Is there anything about Brasília that could have been done better?
(ON): Of course. The lack of time raised difficulties about its realisation and, in a certain way, its architecture. But if we had considered that, Brasilia wouldn't have been built at all. One thing still tranquillises me: never before has an entire city been built in only four years. And regarding its architecture, people who visit it may like its palaces or not, but they can never say they have seen some thing similar before. When Le Corbusier came up the Congress ramp and stopped before the huge domes, he couldn't contain himself: 'There is invention here,' he said.
(WA): Can you describe the latest additions to Brasília's Monumental Axis cultural sector?
(ON): Concluding the Monumental Axis has been a major concern. It is important to retain architectural unity within this important area of the new capital. The designs are done, and ready to be executed. On the south side is the huge museum and the library, by the other side a music hall, the planetarium, cinemas, bars, restaurants. Although the funds are not yet available, the general atmosphere is optimistic.
(WA): Your Contemporary Art Museum in Niteroi (1998), was recently listed as one of the Seven Wonders of the Modern World, by Condé Nast Traveller magazine. It was also rated as one of the Five Buildings of the 1990s by World Architecture (wa78). At the age of 93, how do you remain motivated and inspired?
(ON): I think intuition must be preserved. It has been my permanent preoccupation to avoid anything that could influence it. That's not to say that I despise everybody else's opinion, or what is written about architecture, but I want to preserve 'my architecture'. I have never believed in the idea of a pure architecture – a style that respects all pre-established principles. Every architect must have his own architecture and, for that reason, I do not criticise my fellow professionals. The creative act encompasses so much hope and anguish that it demands respect.
(WA): What do you think of first when designing a building?
(ON): I concentrate on finding a solution that pleases me – and possibly interests those who commissioned me.
(WA): How did it feel to see Brasília invaded by the army's tanks soon after its inauguration?
(ON): Those were 20 years of darkness that must never be forgotten.
(WA): Was it hard to leave the country during the military dictatorship?
(ON): Professionally, it was a useful experience. It gave me the opportunity of working and disseminating my architecture abroad. But it was difficult to feel, from afar, the desperation and hopelessness in my country.

When Le Corbusier came up the Congress ramp and stopped before the huge domes, he couldn't contain himself: 'There is invention here,' he said.

(WA): Was it a valuable experience to work in Europe during your political exile?
(ON): It was fine. It was good to see that solidarity and respect still existed.
(WA): While in Europe, you designed some of your most celebrated buildings. Do you have a favourite?
(ON): They are all so different. The University of Constantine (Algeria, 1969), for example, pleases me particularly – white, monumental, defying logic with its huge free spaces. On the Mondadori headquarters (Segrate, Italy, 1968), it's the structural invention that predominates. The carefully proportioned void between the columns, so many times forgotten and always exalted by German poet Maria Rilke who said: 'How magnificent the trees are! But still more magnificent is the void, sublime and pathetic, in between them.' In all these projects, architectural invention has always been my preoccupation.
(WA): Is there a particular building in which you think all your architecture is synthesised?
(ON): Perhaps the latest project I did for Niteroi (**wa**59 pp68-71). It is a conjunct of buildings where form, technique and unity mostly dominate.
(WA): Throughout your professional life you have stuck by some well-known principles and convictions about architecture and politics. Is a Communist architecture achievable?
(ON): The day when Communism is the prevailing ideology, architecture will surely be more human and inventive.
(WA): What is an architect's political role?
(ON): An interest in life, justice and equality should no more be the exclusive domain of politicians, than architects. It is the role of all sensible people to be responsible for the problems of the unprotected majority of human beings.
(WA): Nowadays, it seems that many people have given up the political struggle. Are you still battling?
(ON): Unlike many, I believe that Communism didn't die. It is an idea, a just and rescuable idea.
(WA): What is your opinion on how we could face starving and poverty in the world?
(ON): This absurd world of poverty and wealth, pleasure and desperation, is a product of capitalism. Fighting that is, for me, the essential thing.
(WA): How do you rate the performance of the richer developed countries in the global struggle against poverty?
(ON): As bad as it could possibly be. For them, human solidarity has never existed.
(WA): Today, how do you see your architecture?
(ON): See my architecture? I see how life – full of happiness, sadness, hopes and desperation – is more important than my architecture has ever been. **wa**

A city within a city

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After years living in the shadow of Barcelona and Seville, Valencia is now developing its own international identity. Lucy Bullivant reports on how the City of Arts and Sciences is giving Calatrava a chance to reshape his birthplace into a dynamic public space.

Valencia has one of the largest historical city centres on the Mediterranean, not bad for a city founded by the Romans on a tiny island in the Turia river. It is also where the barrier-breaking, bridge-building Spanish architect Santiago Calatrava grew up, and where now, after 13 years of planning, his 350,000sqm City of Arts and Sciences has taken shape. The sophisticated project is built on land reclaimed from the river, which burst its beds after the Second World War, and had to be drained and diverted.

Voted in by the last socialist local government, and inherited by the conservative Popular Party which continues to support it (to the tune of US$200M), the project comprises three main buildings. 'Hemisfèric', an IMAX cinema and planetarium, opened in spring 1998 in the form of a giant eyeball with half-open white eyelids. It became an instant hit, the fourth most visited cultural building in Spain after the Prado, the Guggenheim and the Reina Sofia. Further along a causeway, across artificial lakes, is a major new science museum, the Museo de las Ciencias Príncipe Felipe. No-one will yet commit to the exact opening date this autumn, but it's nearly complete. And, at the southern end of this open site, 'Oceanogràfic', designed by Félix Candela before he died, will be the biggest ocean park in Europe, with live subterranean displays and an underwater restaurant. A fourth element is due for completion in 2002: the Palacio des las Artes opera house, with two amphitheatres, one open-air, to give the city the international platform it needs in the performing arts.

'It's not a project of the city, but of the region, realised not with state but regional funding,' explains Calatrava. Valencia is Spain's third largest urban conglomeration, but, unlike Barcelona, it's never hosted the Olympics; it hasn't had an Expo, like Seville; and it hasn't enjoyed the cultural privileges of being a capital city like Madrid. State political support, which made possible infrastructural developments such as Seville's high-speed train link, has passed Valencia by, and by the early 1990s, there was a crying need for an 'attractor' project. 'In Spain today there is a dynamic spirit all over the country, with the regional governments looking for an identity, and for an architecture that expresses their plans,' explains Calatrava. He adds: 'The cultural programme itself, not just the physical one, is set to change the physiognomy of the city. It's a city within a city.' Valencia's alliance of arts and sciences in a leisure zone is fairly unique in Europe. 'The ambition is to create a project of national and European transcendence. It's the periphery of cities in Europe that see the importance of architecture and planning as a first step for its further development,' he concludes.

The project grew 'organically' over a 12-year period. The brief for the Science Museum, in particular, was undefined early on, leaving Calatrava seemingly free to define its character. A huge skeletally screened public street runs the length of the building, alongside beautiful, diaphanous exhibition spaces. Visitors spontaneously describe it as a cathedral, with its light-filled marble floors and the architect's customary emphasis on fluid circulation. Steel and glass tubes create a continuous surface above the street side, folding and unfolding in an undulating waterfall effect. This highly visible building breaks with museological orthodoxy, offering an ambitious space to be accommodated rather than an interactive playfellow for the changing scientific cultural displays devised by Manuel Toharia, the museum's new director.

The City of Arts takes its design cue from the linear freedom of the river bed, bringing an architectural ethos of mobile, sociable urban space. 'I like to do buildings you can walk through, which you can traverse, which allow the peripatetic, instead of having to go to as a destination. Eight kilometres of walkways make the buildings

1 The two-sided Science Museum with its white supporting concrete framework, sits next to the Hemisfèric's elliptical pod

2 'Architecture is an art to serve society,' says Valencia-born Santiago Calatrava, who won the job for the complex in 1992

3 The Science Museum's glass and steel facade creates a light-filled internal public 'street'. A line of five 'trees' divide public from private

1 2 The sculptural framework, a 'cat's cradle' of interlocking transversal sections of white concrete along the south facade of the Museum building, is filled with glass

part of a live circuit.' Calatrava wanted the impact of the new trio of institutions to build, like music: 'They're done for the eye, and reflect in the water. You appreciate their many faces, moving round.'

The project also redefines urban cultural tourism, in a place that two years ago was seriously short of hotels. 'It's a very good thing for the dynamisation of the city and the region,' comments Fernando Olbas, Calatrava's project architect in his Valencia office.

Ironically, the Valencians previously disdained their coastline, where for the last 20 years the most classy residential accommodation has been fishermen's housing. Now that is all set to change. 'The City of Arts creates a balcony for the city, a route to the sea,' explains Olbas. The effect is akin to that of the Guggenheim in Bilbao, regenerating an obsolete southern industrial area that once dominated the coastland. Factories have been removed, and the resulting freed up land grabbed by housing developers. Some 90% of the 1,500 apartments overlooking the City of Arts are already sold. The multiplier effect is working to the north east of the site too, with the creation of the City of Justice complex to house all Valencia's justiciary operations.

Creating a complex of new public space with a piazza and plazas makes sense to locals, who have long enjoyed the creative re-use of the old river bed as a linear urban park to the north of the site, very popular for jogging and sport. It is possible to cycle the length of it, dipping into the old city centre across one of the many bridges, Calatrava's Alameda bridge being the most conspicuously modern. 'We've got a mentality in the south of appropriating public space,' explains Olbas. 'It's a Mediterranean tradition we cannot lose with the commercialisation of urban space.' The pulse of political history hasn't lost its urban energy, either, Calatrava insists: 'The Spanish Civil War ended here, when the government was exiled. It's a place strongly related to democratic thoughts.' **wa**

Lucy Bullivant is a London-based architectural writer and curator.

Greenbacks for all

New York State has introduced a pioneering scheme offering tax credits for the building of environmentally sustainable buildings. Robert Fox Jr describes how the legislation will encourage green design in one of the world's densest urban environments.

The US lags far behind Western Europe in terms of environmental consciousness, and consequently in the application of sustainable design and construction. However, any Americans dedicated to the cause of green buildings have had a number of reasons to take heart in last year and a half – the most recent being the enactment in New York of the country's first state tax credit for environmentally sustainable buildings.

The legislation could prove an important model for both other US regions and the rest of the world – in fact, the tax credit is more important for the precedent it establishes than the actual funds it makes available, which are limited to a total of US$25m until the end of 2009. Whether tax credit or another form of incentive is chosen, this development proves that effective legislation favouring environmentally sustainable design can be created at the local or regional level. Given the life-cycle of a typical urban development in developed nations, the success of an incentive programme could be determined in as little as five years.

With relatively limited public investment, the state of New York is bringing awareness of sustainable techniques to the wide field of developers, architects and engineers. If it succeeds, the tax credit will make sustainable building affordable to every client for the first time.

Under the tax credit model, building owners will be able to deduct a portion of the extra costs of green construction or renovation directly from their tax bill. The first new building to take advantage of the tax credit is likely to be a planned 25-storey apartment building in lower Manhattan. The residential tower, and four neighbours to be built later, will adhere to strict new green guidelines – the first of their kind for multi-family construction. The guidelines were drafted by local architects for the Hugh L Carey Battery Park City Authority (BPCA) (a far-sighted quasi-public agency overseeing the legislation's implementation) with funding provided by the BPCA and the New York State Energy Research & Development Authority.

To be eligible for the state tax credit, buildings must have a minimum of 1,800sqm of commercial space, or 12 residential apartments that total 1,800sqm. A broad range of assessments are made to establish a building's green credentials.

- Buildings that qualify must meet strict energy usage requirements: 65% of the energy code for new buildings, 75% of code for rehab projects.
- Plumbing systems, building materials, appliances and equipment will be carefully scrutinised.
- Waste recycling must be facilitated via separate waste disposal chutes, carousel compactor systems or easily accessible collection areas.

The legislation also includes strict air-quality standards. Separate ventilation must be provided for smoking and non-smoking areas, and the building must be able to purge any two floors at a time.

- During construction the ventilation system must be protected; immediately after construction, the air on all floors must be purged for an entire week to remove any lingering pollutants.
- Air quality must be tested before occupancy and again every year.

Building owners and tenants who comply with the regulations will be credited 'within reasonable limits' for a percentage of specified costs for each of the first five years. For example, 1% of base building and tenant improvement costs based on a maximum of US$150 and US$75 per square foot respectively, is credited each year, up to a total of 5% of these costs.

Additional reimbursements are available for the building owner. These include 6% of fuel cell costs, totalling 30%, less any federal or state grants. Two per cent of the costs of approved, non-ozone-depleting air-conditioning equipment will also be credited each year, for a total credit of 10% of these costs. The incremental price of photovoltaics will be credited at 20% per year; this means the full 100% of additional costs from the installation of photovoltaics is credited, again less any federal or state grants.

Legislation as detailed and important as this cannot be implemented without the support of a number of dedicated individuals and organizations. As well as the BPCA et al, the Real Estate Board of New York and the National Resources Defense Council were involved in the drafting process at all stages, giving the workings of the tax credits relevance to all sectors of the AEC industry.

Robert Fox Jnr is a principle of New York practice Fox & Fowle, email rfox@foxfowle .com

Industry feedback

✳ **New York Times: 'Governor Pataki's plan could breathe new life into green building legislation.'**

✳ **South China Morning Post: 'New York State has taken the lead in making commercial and residential buildings more efficient and more in harmony with the environment.'**

✳ **Environmental Building News: 'I believe that tax credits did more harm than good to the solar water heating industry in the 1970s and '80s, and I don't want to see the same mistakes repeated with the broader green building industry. If we as a society want to support the implementation of green technologies, there are much better ways to provide that subsidy.'**

✳ **York State Energy Research and Development Authority: 'The programme's minimum requirements would result in new buildings that are 35% more energy-efficient than required by state energy code, and rehabilitated buildings that are 25% more efficient.'**

✳ **North American Insulation Manufacturers Association: 'One of the single-most important dimensions of the credit is that it will stimulate the expanded use of energy-efficient building materials.'**

Hot on the heels of its Condé Nast building, Fox & Fowle's skyscraper at 3 Times Square will be one of New York's first major projects to qualify for green tax credits

Sustainable development around the world. By Dan Fox

Australia

The Olympic Games are being seen as an opportunity to lead by example. Visitors to the Olympic Park will find Energy Australia's 70 kW rooftop solar power installation on the roof of the basketball venue, the SuperDome, and the Towers of Power which generate solar energy for the grid. The Athletes Village will be part of Australia's largest solar-powered suburb.
www.dest.gov.au

Bangladesh

Publicly funded incentives make little sense in one of the world's poorest nations, so it has just announced the formation of seven new environmental courts, and a dedicated legislative framework, to mete out effective punishment to those caught breaking laws. Building designers and constructors will be closely watched.
www.edie.net/news/archive/2980

European Community

In June, the European Construction Industry Federation (FIEC) published its Charter for the Environment, which campaign for more energy-efficient new-build, renovation and infrastructure. Though without political power, the continent's leading construction concerns are represented by the FIEC.
www.fiec.org

Germany

A tight framework of green building legislation was recently compromised when the 100,000 Roofs programme, which offered interest-free loans to building owners and household occupants to install photovoltaic systems on roofs, had to be revised. So many people applied that the cost became unworkable – interest of 2% has now been introduced.
www.edie.net

Ireland

Comhar, a national forum for consultation and dialogue on sustainable development, was launched earlier this year. It will advise government on policy and lawmaking for of Ireland's Sustainable Development Strategy.
www.comhar.ei

LECTURES AND CONFERENCES

AUSTRIA

Architecture and Mediation

Eighth Viennese Architecture Congress, discussing international contemporary architectural movements. Vienna, 10 to 13 November.

Contact: Architektur Zentrum, Museumplatz 1, A-1070 Vienna, Austria.
Tel: +43 1 522 3115
Fax: +43 1 522 3117
Email: office@azw.at
Web : www.azw.at

BRAZIL

The Modern City Facing the Future

Sixth international Docomomo conference. Brasilia, 19 to 22 September.

Contact: F-UnB-Programa de Pos Graduacao, Frederico Hollanda, Campus UnB, Asa Norte, 70910-070 Brasillia, DF, Brazil.
Tel: +55 61 27 30 155
Fax: +55 61 27 32070
Email: conf2000@ufba.br
Web : www.ufba.br/eventos/conf2000

MALAYSIA

Asia Pacific Structural Engineering & Construction Conference

Congress on 'The Construction Industry - The Challenges Ahead', held in conjunction with building trade show Malbex (see Trade Shows). Kuala Lumpur, 13 to 15 September.

Contact: ASPEC 2000 Secretariat, Faculty of Civil Engineering, Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor Bahru, Johor, Malaysia.
Tel: +60 7 55 76 160
Fax: +60 7 55 66 157
Email: aspec2000@fka.utm.my
Web: www.fka.utm.my/events/ASPEC2000

THE NETHERLANDS

Sustainable Building 2000

A weekend of presentations, lectures and workshops. Maastricht, 22 to 25 October.

Contact: The Organising Committee SB2000, Ronald Rovers, Novem, PO Box 17, 6130 AA Sittard, The Netherlands.
Fax: +31 46 452 82 60
Email: SB2000@novem.nl
Web: www.novem.nl/sb2000

POLAND

Kracow 2000

International conference themed: 'The principles of restoration for the new Europe'. Kracow, 23 to 26 October.

Contact: Centro Citta d'Acqua, S Marco 4149, 30124 Venezia, Italy.
Tel: +39 041 5230 428
Fax: +39 041 5286 103
Email: citiesonthewater@ iuav.unive.it
Web: www.iuav.it/eu-restauro

PRC

Air-Conditioning in High-Rise Buildings 2000

ACHRB 2000 provides a forum for exchanging information and experience in the development of aircon for skyscrapers. Everything from CFD to conservation will be covered. Shanghai, 24 to 27 October.

Contact: The International Institute of Refrigeration, 177 bd Malesherbe, 75017 Paris, France.
Tel: +33 1 42 27 32 35
Fax: +33 1 4763 17 98
Web: www.iifiir.org

UK

How Healthy is City Life?

Community, commuting, public space and entertainment all come under the microscope at this conference. Newcastle, 14 to 16 September.

Contact: The Landscape Institute, 6-8 Bernard Mews, London SW11 1QU, UK.
Tel: +44 20 7350 5200
Fax: +44 20 7350 5201
Web: www.urbanlifestyles.co.uk

US

2000 Desert Practice Conference

The annual get-together of the AIA California chapter, focusing on 'the business of practice'. Indian Wells, 17 to 19 November.

Contact: AIA California Council, 1303 J Street, Suite 200, Sacramento, CA 95814, US.
Tel: +1 916 448 9082
Fax: +1 916 442 5346

ARCHITECTURE AND DESIGN COMPETITIONS

ITALY

Material In Motion

Use of the new synthetic material Chenna in industrial design. Deadline 10 September, first prize US$1500.

Contact: Crabo Spa, Via del Cristo 60, 33044 Manzano, Udine, Italy.
Tel: +39 0432 745511
fax: +39 0432 775481

US

JAE: Design as Research

The *Journal for Architectural Education* invites proposals which show the role of the design object in the process of discursive enquiry. Registration and submissions by 15 September.

Contact: Howard Smith, managing editor, JAE, PO Box 29276, Los Angeles, CA 90029-0276, US.
Tel: +1 213 743 4622
Web: www.flashgun.com/JAE

US

Graphisoft Prize

Award for innovative use of CAD software in architecture. Registration by 20 October, submissions by 31 October, prize fund US$10,000.

Contact: Graphisoft US , 235 Kansas Street, Suite 200, San Francisco, CA 94103, US.
Tel: +1 415 703 9777
Fax: +1 415 703 9770
Email: gsprize@graphisoft.com
Web : www.gsprize.com

EXHIBITIONS

ITALY

Dreams Around The Time

Feature of the Verona Fair. Looks at how digital communication is changing our perceptions of spaces and time. Verona, 12 to 16 October.

Contact: Roberta Colla, Architectural Studio Simone Micheli, via Novelli 43, 50135, Florence, Italy.
Tel : +39 055 605 679
Fax : +39 055 619 245
Email : simone@simonemicheli.com
Web : www.simonemicheli.com

UK

The Norman Foster Studio – Exploring the City

Latest retrospective of Foster's work, to be held in the Sainsbury Centre for

SWEDEN: EXHIBITION

1 *Woman Pillar*, 1958 by Siri Derkert, at the Östermalmstorgs underground station **2** *Spheric ball bearing*, SKF 1907 **3** *Terrazo* textile print, 1943-44 by Josef Frank

Modernism in Sweden

Broad exhibition featuring architectural, industrial and graphic design. At the Moderna Museet, Stockholm, 7 October to 14 January 2001. Contact Moderna Museet at SE-10327 Stockholm.

Tel: +46 8 5195 5200
Fax: +46 8 5195 5210
Web: www.modernamuseet.se

UK: EXHIBITION

The 76m-diameter US Pavilion

Buckminster Fuller: Your Private Sky

Buckminster Fuller, the man to whom Einstein said 'Young man, you amaze me', is recognised in this extensive exhibition. Sometimes known as 'the planet's friendly genius', he gained renown as an inventor, engineer and designer of the Dymaxion House, the Dymaxion Car, the Dymaxion Map, and the Geodesic Dome – the only structure that actually gets stronger as it gets larger. As a philosopher and systems thinker, he coined the term 'Spaceship Earth', and as a mathematician discovered synergetics, nature's geometry.

From his first patent application in 1928 his ideas flowed continuously. But despite his radical inventiveness, it was not until Fuller's large-scale multi-functional geodesic domes began to appear around the globe that his genius was fully recognised. He was made World Fellow in Residence at the University of Pennsylvania and received the Medal of Freedom in 1981.

Original sketches and models, notebooks, diaries and photographs give an intimate understanding of what drove Fuller to become the 20th century's engineering genius. At the Design Museum, London until 15 October.
Contact: The Design Museum, Shad Thames, London SE1 2YD, UK.
Tel: +44 207 7403 6933
Fax: +44 207 7378 6540

Visual Arts, one of the architect's breakthrough projects. Norwich, until 20 September.
Contact: Sainsbury Centre for Visual Arts, University of East Anglia, Norwich, NR4 7TJ, UK.
Tel: +1603 456161
Fax: +1603 259401
Web: www.uea.ac.uk/scva

US
One Hundred Years of Architecture
A thousand objects including original and newly commissioned scale models, photographs, drawings, historical film and video footage, furniture, and artefacts. Los Angeles, until 24 September.
Contact: Moca LA (The Geffen Contemporary), 152 North Central Avenue, Los Angeles (Little Tokyo district), US.
Tel: +1 213 621 2766
Fax: +1 213/620-8674
Web: www.moca-la.org

TRADE SHOWS

BELGIUM
Brim 2000
International real estate show. Brussels, 6 to 8 October.
Contact: Brussels Kart Expo, Av Gosset 11, 1702 Grand Bigard, Belgium.
Tel: +32 2 332 52 43
Fax: +32 2 332 52 44

BRAZIL
Construa 2000
Construction show to welcome European developers to the Mercosur market. São Paulo, 5 to 8 October.
Contact: Exponor Brasil, Av Angelica 2466 – Coni 154, Edificio Angelica Trade Centre 01228-200 São Paulo, Brazil.
Tel: +55 11 3151 6444
Fax: +55 11 315 16444
Email: xponor.com.br
Web: www.exponor.com.br

Glass South America
Expo for South American glazing and glazing systems. São Paulo, 16 to 18 November.
Contact: Miller Freeman do Brasil, Rua Wanderley 848, Sao Paulo FP, Brazil, CEP 0501-001.
Tel: +55 11 3873 0081
Web: www.mfi.com

ITALY: TRADE SHOW

Future hotel room by Studio d'Architettura Simone Micheli

Technotel

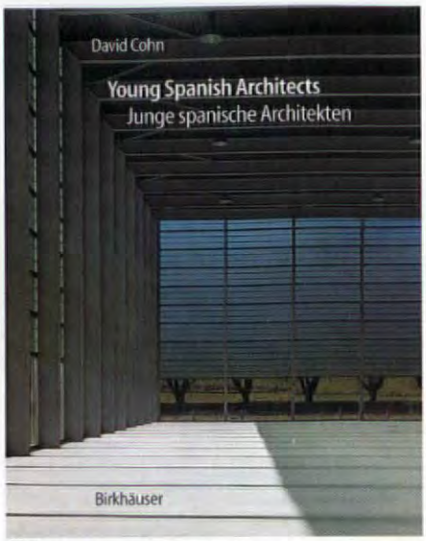
Trade conference for hotel designers and specifiers. Features 'Over The Bedroom, More Than A Bedroom', an exhibition of five innovative designs for future hotel bedrooms by prominent Italian designers (to be announced). Genoa, 11 to 15 November.
Contact: Roberta Colla, Architectural Studio Simone Micheli, via Novelli 43, 50135, Florence, Italy.
Tel : +139 055 605 679
Fax : +39 055 619 245
E-mail : simone@simonemicheli.com
Web : www.simonemicheli.com

GREECE
Infralympics Athens
Trade show and conference based around all the sports facilities and infrastructure that is needed by an Olympic Games. Athens, 11 to 15 October.
Contact: EKEP, 12th km. National Road, Athens – Lamia, 144 52 Athens, Greece.
Tel: +30 1 2846 006
Fax: +30 1 2829 089

MALAYSIA
Malbex/Asian Stone 2000
Building, construction and Asian stone technology exposition. Kuala Lumpur, 12 to 15 September.
Contact: Reed Exhibitions, Suite 312 Block F, Phileo Damansara 1, Jalan 16/11 off Jalan Damansara, 46350 Petaling Jaya, Selangor, Malaysia.
Tel: +60 3 4603766
Fax: +60 3 4603595
email: resb@reed.po.my
Web: www.reedexpo.com

SINGAPORE
Kitchen + Bath Plus 2000
The latest trends in equipment and accessories for kitchens and bathrooms. Singapore, 24 to 26 October.
Contact: Singapore International Convention and Exhibition Centre, 1 Raffles Boulevard, Suntec City, Singapore 039593.
Tel: +613 431 2293
Fax: +613 431 2268
Web : www. sicec.com

UK
Construct IT
Three-part exhibition and conference, comprising Construct IT (software), FM Expo (facilities management and services) and Securex (security systems). London, 19 to 21 September.
Contact: Miller Freeman, 630 Chiswick High Road, London W4 5BG, UK.
Tel: +44 20 8987 7703
Fax: +44 20 8995 2788
Web: www.millerfreeman.com



The young ones

Young Spanish Architects/Junge Spanische Architekten. By David Cohn. Birkhauser, Basle, Switzerland. 144pp. Illustrated colour and b&w throughout. sFr 68, US$40 (paperback).

By Adela Garcia-Herrera

For this fifth volume of the Birkäuser modern European architecture collection, on Spanish architects, the Madrid-based American critic David Cohn worked with 14 studios. The picture that emerges is very promising, both for the group as a whole and for individuals.

As background, Cohn goes back to what is known as the 'generation of 92', a sizeable group of architects, led by Rafael Moneo and Juan Navarro Baldeweg. They made the 1980s a prodigious decade for Spain, with critical acclaim of their works reaching a peak around the time of the Seville Expo and the Barcelona Olympics.

The group (average age about 40) which has taken over from this 'generation of prodigies' includes Ábalos & Herreros; Moreno Mansilla & Tuñón; Fraile & Revillo and Juan Mera from Madrid; Ruisánchez & Vendrell; Batlle & Roig and Aranda Pigem & Vilalta from Catalonia; Mangado and Tabuenca & Leache from Navarre; Irisarri & Piñera from Galicia; Rubiño, García Márquez & Rubiño from Seville; García-Solera and Payá from Alicante. Also credited are Manuel Feo from the Canaries and the mixed Spanish-Iranian team of Alejandro Zaera and Farshid Moussavi, who are based in London.

The change has been a gradual process rather than a sudden break, coinciding with widening horizons within the profession. Like their predecessors, the great majority of architects included here combine design work with teaching, and some, such as Ábalos & Herreros or Moreno Mansilla & Tuñón, regularly write for magazines such as *Arquitectura Viva, Quaderns* or *El Croquis*. Some have even set up their own alternative publications – *Exit* and *Circo* – which are very popular in university circles. This continues a very fruitful Spanish tradition of close links between the architecture faculties and professional studios.

The style of work produced by this new generation is not dissimilar to that produced elsewhere in Europe. In the Iberian peninsula, geometric precision and sophistication co-exist with Swiss-inspired cladding. Also of interest is the idea, which originated in the Holland of Rem Koolhaas, of architecture encapsulating social events or landscapes. They have also touched on the Japanese-inspired 'light construction' style.

What made the 1980s one of the most fruitful decades of the 20th century for Spanish architecture was its special balancing of tradition and avant-garde. This gave architecture what the historian William Curtis has called a 'poetic dimension'. It continues in projects which take on board 'the new' critically, without losing sight of the context in which they are working, just as Coderch, Sota and Oíza did in the 1950s and 60s.

Many of the architects selected by Cohn are at the Venice Biennale, open to visitors until 29 October. Around 50 young Spanish teams are participating, 39 in Spain's official pavilion and the rest invited by the director of the architecture section, Massimiliano Fuksas. The fair reinforces the message of the book – that modern Spanish architecture can fit in with modern European architecture without losing its own identity. Pragmatic talent with sound intellectual and technical training.

Adela García-Herrera is editor-in-chief of Spanish architecture magazine *Arquitectura Viva* and *AV Monographs*

This auto be good

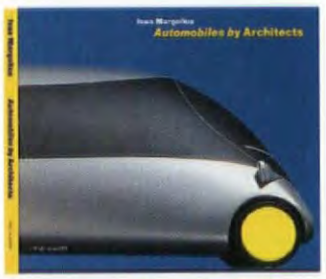
Automobiles by Architects. By Ivan Margolius. Wiley-Academy, Chichester, UK. 160 pp. Illustrated b&w throughout. US$55, £40 (paperback)

By James Krohe

Driving across Paris with an ebullient Le Corbusier at the controls of his beloved 1925 Voisin, with its broken windows and missing second gear, Czech architect Karel Honzik must have wondered whether the great architect conceived of the motorcar as a machine for crashing. Le Corbusier was hardly the only member of the fraternity to indulge himself behind the wheel. Frank Lloyd Wright got the first of his many cars as early as 1910 – all of them fast, bright red, and usually unpaid for. He liked the Cord because it flattered his houses, and later drove a 1940 Lincoln Continental Cabriolet convertible that he customised (somewhat vulgarly) himself.

As architect and writer Ivan Margolius explains in his interesting new book, *Automobiles by Architects*, architects have been designers as well as drivers from the start of the automobile age (indeed, for longer than that; Margolius begins with Joseph Aloysius Hansom (1803-82), architect and editor of *The Builder*, who invented the original Hansom cab). The work of more than 20 architects in automotive design is surveyed, including some of the famous architects of the era, such as Loos, Gropius and Le Corbusier. A motorcar, like a building, embodies the continuous progress of technology as well as the illusions and myths of its era.

Not all architects have been inspired by what the author calls the 'opportunity for an exercise in miniature architecture' provided by the automobile. Ettore Sottsass, we



learn, advised Astroturf for the floor of the Alfa Romeo Guilietta. The great designers tended to be sculptors or art students-turned engineers such as Edouard Michelin or near-architects as Norman Bel Geddes and the French entrepreneur Gabriel Voisin.

For all the novelty of their visions (here amply and expertly rendered in photos and drawings) our famous architects made no real mark on the industry. Architect-designed cars had many of the problems of certain architect-designed houses, the difference being that mechanical unreliability is seldom fatal to the occupants of a house. Not so with Buckminster Fuller's Dymaxion car, the rear wheel of which tended to lift off the road at speed.

Few firms hire architects to do cars anymore, which is ironic, since the automobile has never functioned more like a house. In the US commuters use cars as mobile living rooms in which they catch up with their 'reading' through audio books, visit friends on the phone, and take meals. Only in America would a Mercedes sedan be scorned by press reviewers for its lack of cupholders. However, car design, including fabrication techniques and materials, promises to have a more profound effect on architecture than the other way around – if architects are open to the lessons.

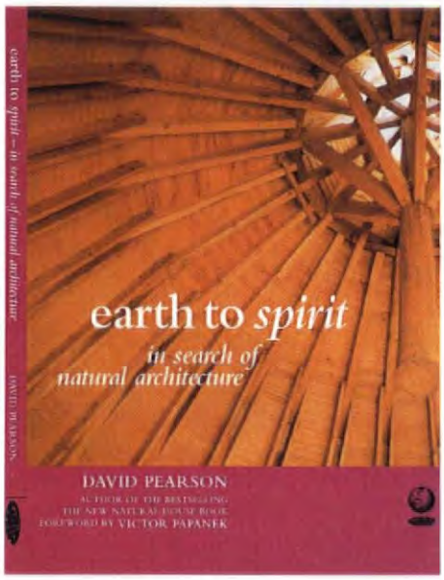
James Krohe is a US-based writer and author, and contributing editor to New York business journal *Across the Board.*

Alternative vision

Earth to Spirit – In Search of Natural Architecture. By David Pearson. Gaia Books, London, UK. 160pp. Illustrated colour throughout. £11.99, US$18

By Anthony Gall

'In Search of Natural Architecture' is the subtitle to David Pearson's odyssey Earth to Spirit – a journey which the author has chosen to share through publication of his selected photographs in conjunction with a carefully-worded text. This publication is not to be mistaken for travelogue –



Pearson's wanderings have covered the entire surface of the globe, recording the built fabrics of bygone or 'obsolete' cultures, together with the experiments of the environmentally tuned or slightly 'eccentric' architects. What is poignant about this book (the author's third) is not the diverse illustration – American Indian teepees and Byzantine domes alongside Delphi and modern projects by architects such as Asmussen, Makovecz or Ton Alberts – but the systematic manner in which Pearson intersperses his own superb photographs with clear, concise essays elaborating a vision of natural architecture.

What is natural architecture? The choice of chapter titles – 'Ancestral Archetypes', 'Healing Architecture', 'Harmony with the Land', 'Vernacular Wisdom', 'Cultural Identity', 'Living the Dream' – clearly outline Pearson's vision. In introducing the volume Victor Papanek speaks of 'green and gentle architecture', stating that Pearson has recognised 'the crucial need for ecologic and environmental sustainability, and that such green architecture must be nourished by an overarching spiritual commitment'.

Ancestral Archetypes remind us of the possibilities of the past, the harmony of the ancients, a sense of place, and the complex and intricate practicality with which the architecture of the ancient tribes of the world connected earth and spirit. Healing Architecture is posited by the author as an ever-growing architectural awareness seeking to overcome the disharmony of the modern world. Frank Lloyd Wright and Rudolf Steiner provide the background for a discussion of work by contemporary architects: Ton Alberts in Holland, Christopher Day in Wales, Erik Asmussen in Sweden, or Imre Makovecz in Hungary, among others. Pearson calls for a broader perspective, a truly organic and ecological architecture, which must be concerned about the welfare of all species. In thinking about harmony with the land, the eco-house of the Gaia Group, Norway, permaculture and ecohabitats, urban recycling and other green initiatives provide positive examples. Frequently misunderstood vernacular wisdom is of a sustainable and self-sufficient way of life. Repositories of this forgotten wisdom are open-air museums (Szentendre, Hungary, or the Weald and Downland Open Air Museum, Sussex, UK) and surviving vernacular architecture, illustrated by examples from New Mexico, Bologna, Italy and timber houses in Berkeley, California. Hassan Fathy's work in Egypt, that of Francisco 'Bobby' MaHosa in the Philippines or Charles Correa in India provide convincing examples that ecologically sensitive architecture can 'transform the models of the past to act as a catalyst for the future' and at the same time retain specific cultural identity.

Living the dream of a self-sustaining living earth is a vision Pearson shares with scores of individuals and organisations across the world. In his clear exposition of his vision of an 'alternative' architecture, he has verbalised an essential fact: that this vision is our only 'alternative'.

Anthony Gall is a Budapest-based architect and historian

The school system

Shaking the Foundations: Japanese Architects in Dialogue. Edited by Christopher Knabe and Joerg Rainer Noennig. Pestel, London, UK. 160pp. Illustrated b&w throughout. £29.95, US$19.95

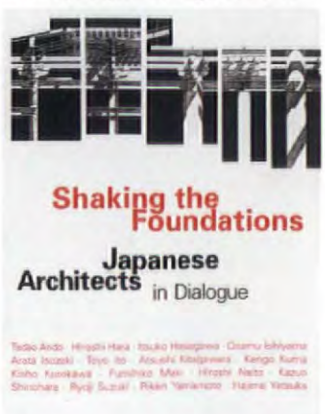
By Thomas Daniell

Perhaps the easiest way to make sense of the stylistic diversity of contemporary Japanese architecture is to draw a family tree. Although rigid classification is always controversial, simply identifying the inter-generational chains of mentor/protegé relationships is a way of drawing softer outlines around the various 'schools': discrete branches are separated and common roots revealed.

This is what makes this book potentially so valuable. Containing interviews with 15 leading Japanese architects conducted in 1997, it is more than just a set of individual positions. The authors – two German architects engaged in post-graduate studies in Tokyo – base each interview on identifying ideological connections. It was not the sole topic addressed (Itsuko Hasegawa is questioned about her interest in the homeless, Ryoji Suzuki about his use of concrete), but the three key figures included – Arata Isozaki, Hiroshi Hara and Kazuo Shinohara – are interviewed specifically in terms of their influence on former students and staff.

The book's promise is to 'reveal the passions behind the cool, abstract exterior of the Japanese design scene'; it at least reveals a wide range of personalities, entertaining combinations of hubris and humility, calm professionalism and esoteric inscrutability. Kisho Kurokawa, although without direct heirs, clearly has his legacy in mind: 'after my death it is your role to study what I did,' he instructs the interviewers. Tadao Ando, the only subject based outside Tokyo (interviewed in his Osaka office), cheerfully acknowledges his non-acceptance by Tokyo's architectural cliques – 'I think it's fine for that community to exist, but I don't wish to belong to them'.

The choice of architects is generally good, although could have been wider. Important younger figures such as Kazuyo Sejima or Shigeru Ban are

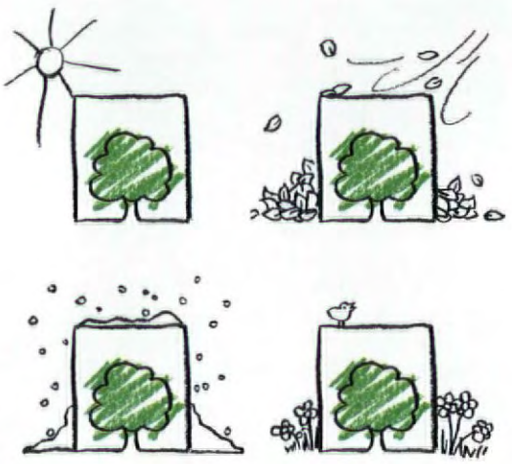


absent, and the omission of Shin Takamatsu means one vital stream of Japanese architecture – the intense and ornate heritage of Sei'ichi Shirai – is unrepresented.

Despite the admirable intentions of the interviewers and excellent introductory texts by David B Stewart and Wilhelm Klauser, the book feels like a rush job. There are a number of minor errors (names, dates, places), and it suffers from the lack of an index, a bibliography, biographies of the authors, and most importantly, a concluding essay.

The accumulated data needs to be refined into a coherent picture; to clarify connections discovered, to highlight nuances not conveyed in the transcriptions and to introduce salient themes from those interviews omitted from this publication.

Thomas Daniell is an architect and associate in FOBA, Kyoto, Japan



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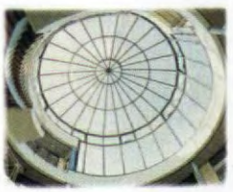

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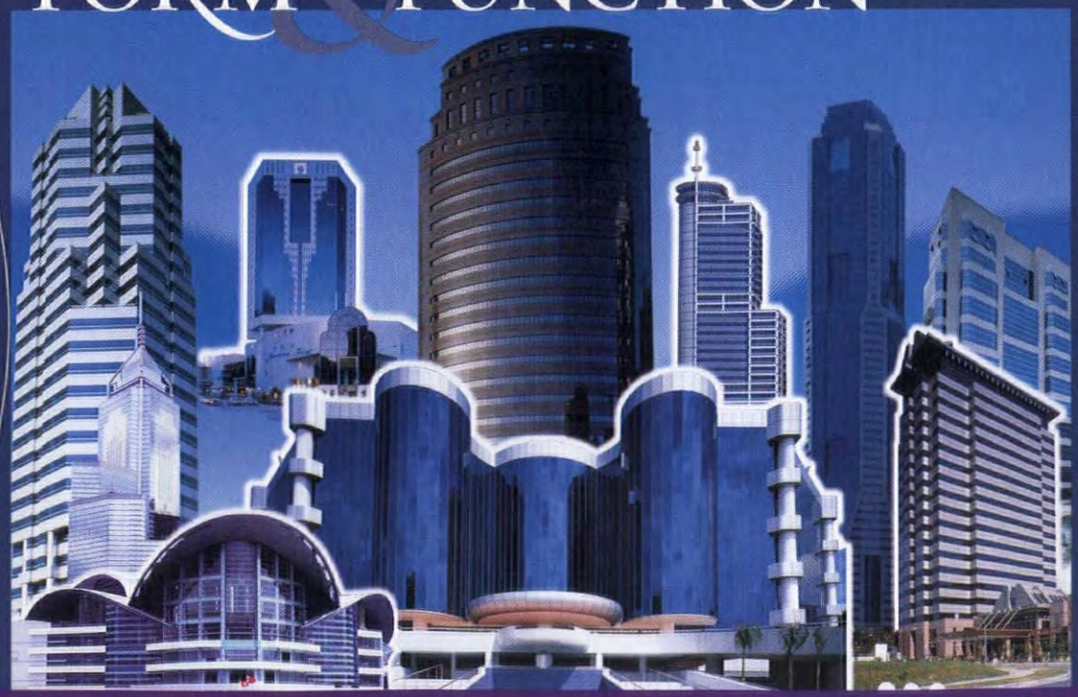

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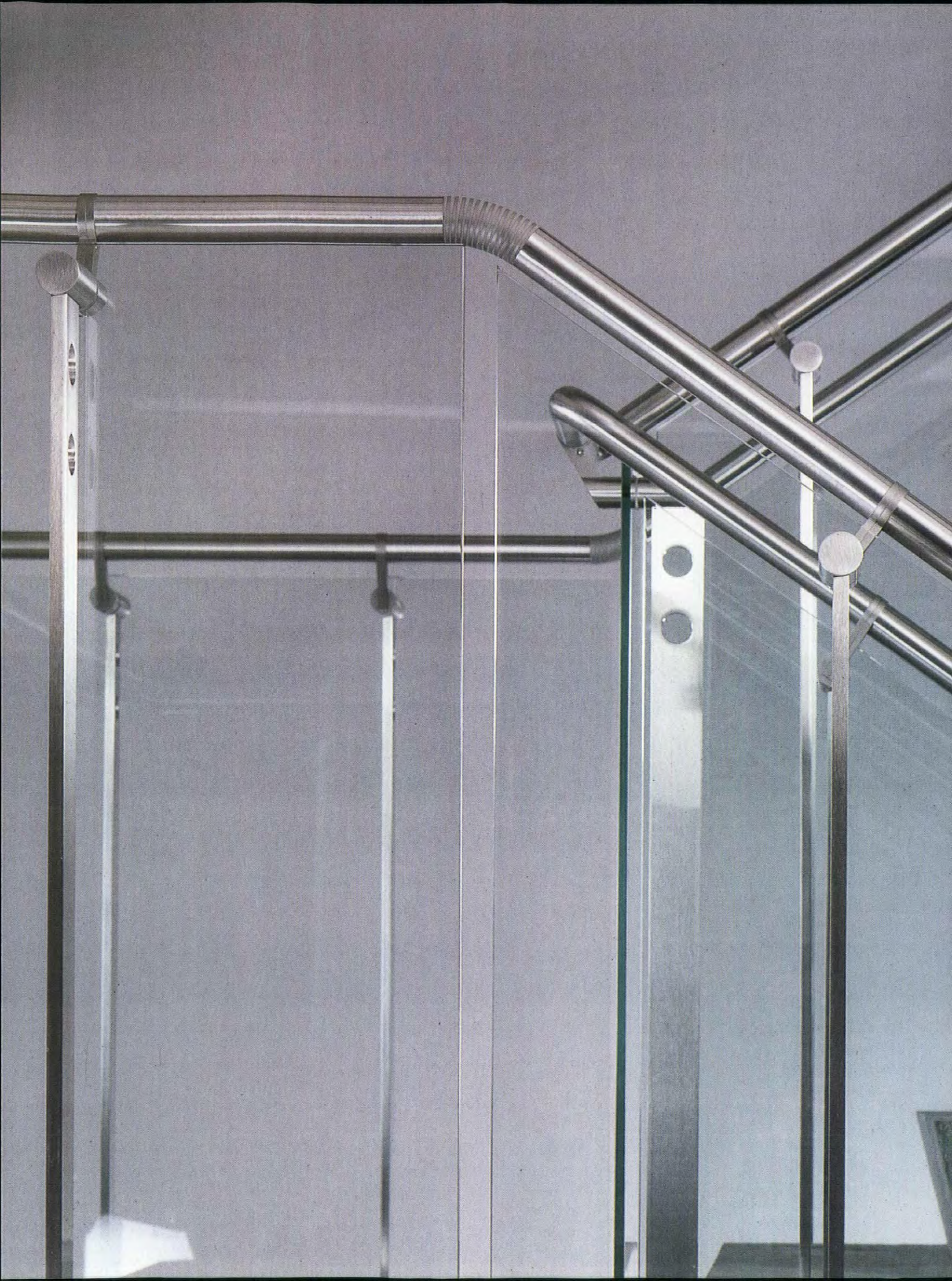
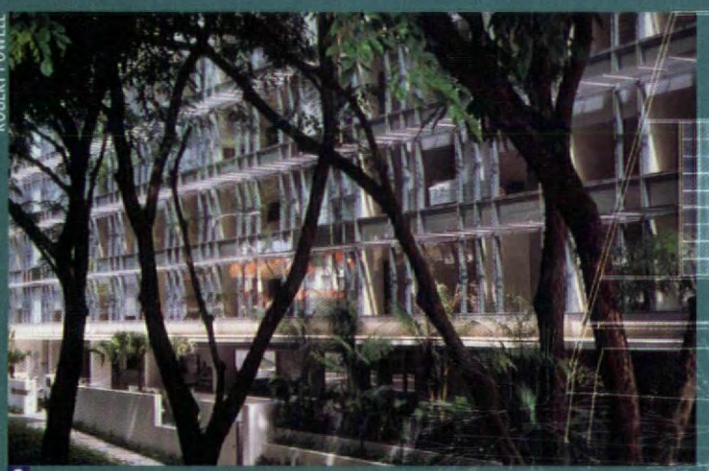


1 PICTOR INTERNATIONAL

Singapore is full to bursting. Architects are having to find ever more inventive ways of building in this unique urban environment. This report includes three of the best recent projects completed by local architects, all of which include the regeneration of valuable urban space.



2 ROBERT POWELL

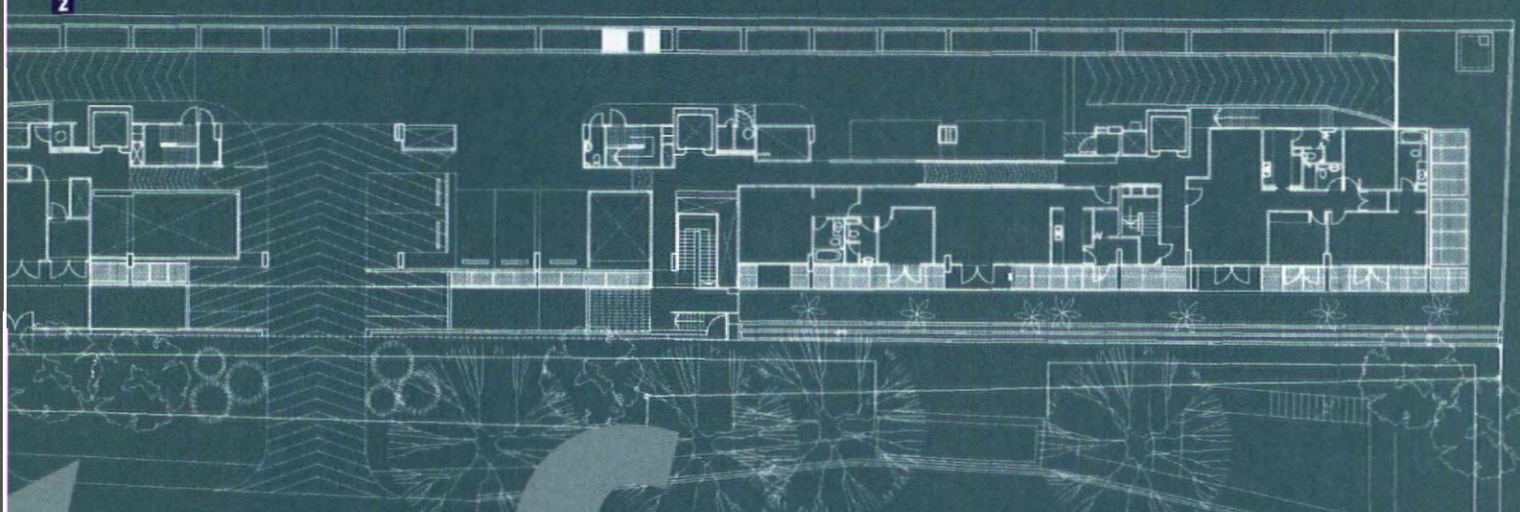
3

1 View of downtown Singapore with the Padang (field) in the foreground
2 Street elevation and ground-floor plan of the Paterson Edge
3 Corner detail of the Gallery Evason hotel
4 Inside the Henderson Community Centre

4

ALBERT LIM

2



ty focus singapore

1 Boulevard Station
The jury's comment on WH Architects' scheme for this new station on the MARINAline MRT (see pages 60-61) was: 'The bridge concept was unique amongst all 63 entries and a superb example of lateral thinking... the concept effectively resolves the problem of pedestrian access to the station and the pylon supports can function as a means to channel the crowd smoothly from the stadium to the station.'

2 Museum Station
The jury commented that WH Architects' Museum Station proposal was 'highly commendable in environmental terms... being minimalist intervention at ground level. In contrast, the underground space

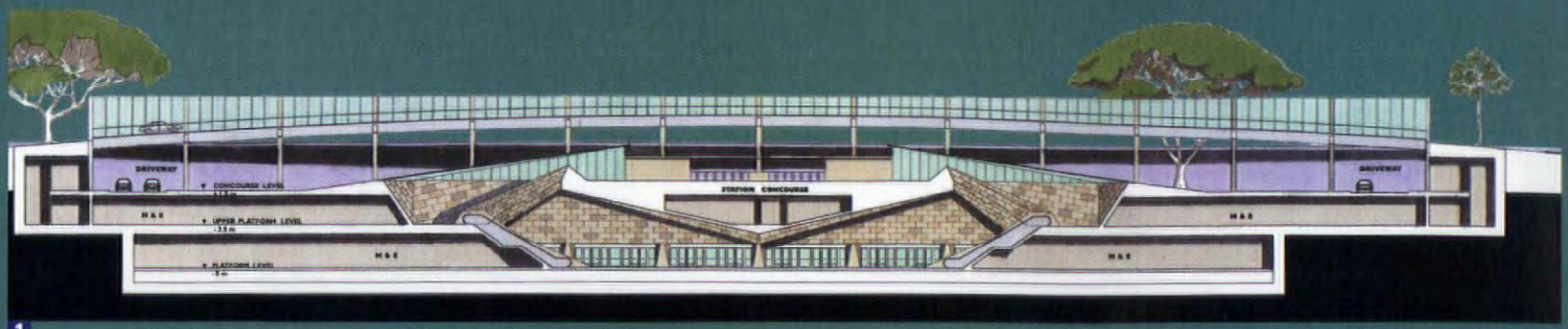
Urban resistance

Until recently, all the major jobs in Singapore were swallowed up by international architects. But now the island's local firms are resisting the foreign domination: not by complaining, as in the past, but by raising their own standards - and it seems to be working. Nicola Turner reports.

Singapore celebrated its National Day on 9 August. This put the city's green lung, the Padang (Malay for 'field'), out of use for some eight weeks to get it ready for the celebrations. Eight weeks for just one day of festive marching and whistle-blowing. The Singapore Cricket Club (founded in 1852 and bastion of expatriate life in the city) lost its cricket ground, tennis courts and all outdoor facilities. No doubt the government regards such 'infringement of civil liberties', as one member described it, as being cruel to be kind. There is nothing as important, in the eyes of the state, as reminding all the island's inhabitants once a year of the power and glory of this tightly run island nation.

This heightened sense of national consciousness surged following independence in 1965. Slum clearance and urban renewal became the government's priorities. Provision for housing and education came a close second - Singapore's only significant resource being its people. Without a hinterland or any natural resources, it has moved from underdeveloped to developed status in just 35 years. 'Even the chaos is planned chaos,' wrote Rem Koolhaas in *S,M,L,XL*.

Sitting in the cricket club and looking out over the city through a jungle of scaffolding and raked seating, it occurred to me that this carving-up of Singapore's precious green space perfectly encapsulated much that is unique about the city. First, this is a city where, in general, the inhabitants live peacefully under the watchful eye of the law. However irrational it might seem to an outsider, to a Singaporean the cost and disruption incurred for National Day could never be too great. Second, the impact such an event has on the centre of Singapore is notable only because of the claustrophobic density of the city.



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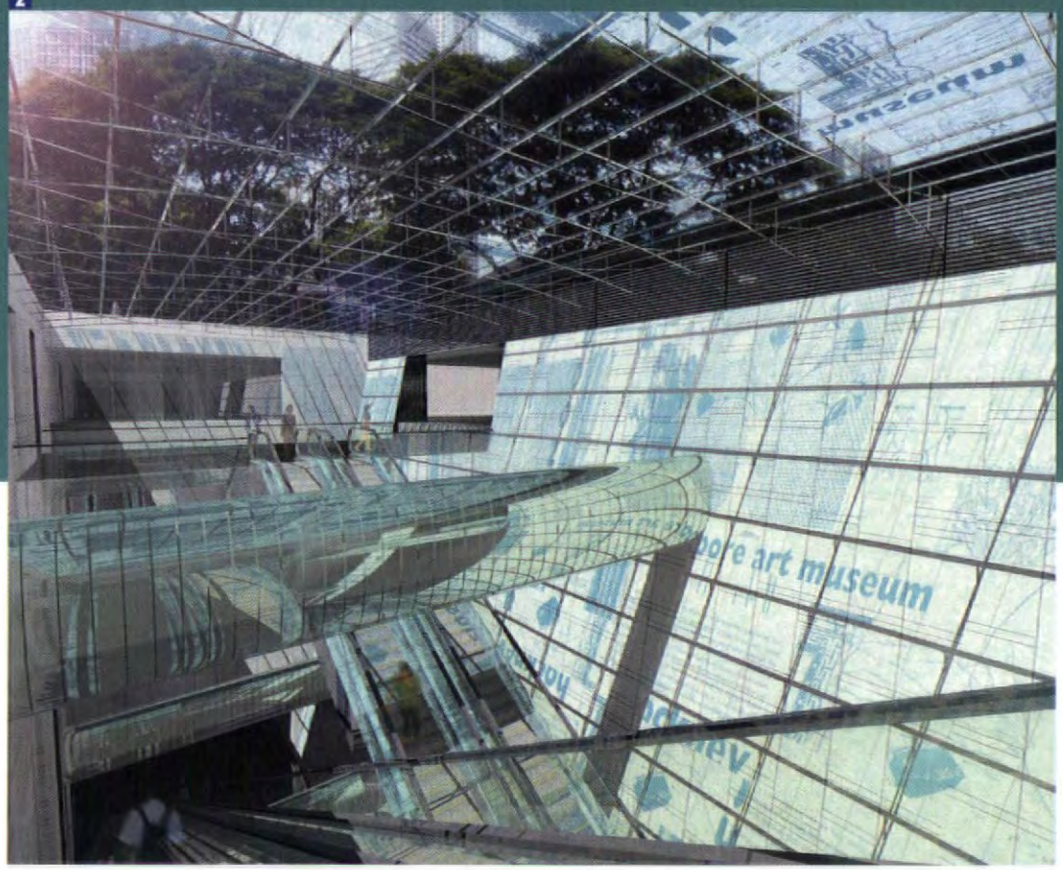


for the station is dramatic and direct in leading people to the platform.' The jury praised the response to urban design issues, particularly the reflecting pool over the skylight. It saw the sunken courtyard as a strong, flexible solution to the integration with the museum, providing 'opportunities for related activities to enliven the space'. The single deep canyon and skylight allow for people and daylight to be brought down to a deep level.

Commentators are concerned that the government keeps raising the limit to which it will allow the population to climb. The population was 2.7 million in 1990. This was forecast to rise to 4 million by 2040, but as it already stands at 3.8 million, the figure has been revised to 5.5 million. Singapore's total area is a mere 647 sqkm. Developers and architects are already fighting over available land. It's no wonder that the few green spaces that remain are requisitioned with such alarming frequency.

Singapore's politics and its unique urban condition control the work of both local and international architects working on the island. Although it is not a primary global city like London, Tokyo, New York or Los Angeles, Singapore has fast become – along with Hong Kong – one of South East Asia's major financial and transportation centres. International corporations have laid down roots in the central business district and, as a result, the larger international design firms have had more than their fair share of the city-centre architecture. But this advantageous position hasn't always produced the best work from the likes of Kenzo Tange, IM Pei, Helmut Jahn and Kisho Kurokawa. Perhaps, some argue, this is because the local architects have so far offered little in the way of resistance.

In 1997, when **wa** last published a report on Singapore, there was still a significant feeling of resentment towards the foreign domination. This summer there was a refreshing lack of whingeing. Instead, it seems that the younger generation of local architects is recognising that their own work has to be raised to a level that can compete with the overseas designers, and that Singaporean clients should be more rigorous in their demands of foreign firms. 'The French gave Pei years and years of hassle [when designing the Louvre Pyramid] and they found the genius of the man,'

City factfile, provided by Hanscomb

General Singapore City, the capital of the Republic of Singapore, is linked to the southern tip of the Malay peninsula by two causeways across the Johor Straits.
Climate Tropical climate with high temperatures, humidity and rainfall. Daytime high of 30°C, year-round.
Local economy Relies on transportation and trade. Keppell harbour is one of the largest and busiest ports in the world. Changi International airport, 16 km from downtown, is a major regional transport hub. Singapore has developed a strong export-based economy, and is also a financial centre for the region.
Local currency Singapore Dollar (S$) which has 100 cents. Exchange rates roughly S$1.73 to US$.
Communication The country code is 65. The access code is 001.
Time Singapore is eight hours ahead of Greenwich Mean Time.

TIM GRIFFITH/ESTO

NIGEL YOUNG

1 The pressure has been on international architects to produce work of comparable quality and invention to the buildings they design elsewhere. Richard Meier's cylindrical Camden Medical Centre has received positive attention from the media and public alike.

2 Foster and Partners Expo 2000 MRT station is currently being completed, and the city eagerly awaits what it sees as a flagship project

3 **4** Nanyang Polytechnic by Gwathmey Siegel of New York. Education projects are high profile

says Tan Kok Hiang of Forum Architects (see pages 72-73).

Now the local design talent is slowly but surely accelerating past the corporate giants and producing architecture that is more than equal, aesthetically, to the work of overseas firms, and in many cases provides more innovative solutions to the problems of density and tropical climate.

Mok Wei Wei, younger partner of William Lim – the father, in Lim's own words, of 'contemporary vernacular' – believes the older generation 'lost its way because of too much money and too much work. We now read more, travel more and interact internationally. Today's challenge is how to make our buildings have a sense of place – how to relate technology to our physical, climatic and cultural conditions.' As design architect for the Paterson Edge (see pages 62-67), Mok also acknowledges the practical difficulties of employing advanced technology within a building industry with relatively limited experience.

The competition for two stations on the new MARINAline Rapid Transit system (MRT) to serve the downtown tip of Singapore has generated the most positive turn of events for many years. For the first time, the Land Transport Authority (LTA) conducted a genuinely open competition for the architectural design of this first section of a network which will eventually form a circle line ringing the city. The judging was conducted with complete anonymity and the competition run in association with the Singapore Institute of Architects. The fact that WH Architects, a small, young, local practice, won the competition for both stations – shaking off the likes of Foster and Partners, Terry Farrell & Partners and the Cox Group – has caused shock waves – or, perhaps more accurately, ripples of delight – in both the architectural fraternity and the wider Singapore community.

WH Architects is headed by Wong Mun Summ and Richard Hassell. Here, at last, is a chance for the city to show that it can provide home-grown designers for a mega project

The construction industry, provided by Hanscomb

Outlook **The industry inflation rate in 1999 was between -5 and -10%. The projected rate of inflation for 2000 is between 2 and 5%.**

Construction procurement **For private projects, most firms use forms of contract published by the Singapore Institute of Architects. The two government agencies responsible for most public sector work have their own standard forms of contract. Most contracts are either lump sum or measurement (where quantities are remeasured during construction and the bill of quantities is part of the document). Designs are 80 to 90% complete when bid, using a main contractor. Detail design for specialised work is performed by contractors, and the main contractor may sub-contract as much as 90% of total construction.**

The Building Control Authority establishes and monitors building codes and regulations. The Singapore

5 6 Chan Soo Khian of SCDA Architects is another of the younger generation to be making his mark. Following the likes of Richard Ho and Ernesto Bedmar, Chan has so far specialised in Modernist houses, with Asian references to form, while steadfastly avoiding pastiche. The Coronation Road West House is shown here.

7 Ken Yeang of TR Hamzah & Yeang (Malaysia) looks set to introduce Singapore to new levels of ecological design with the new 180m-high Singapore National Library Board building. The project was won in a limited design tender in collaboration with local firm Swan & Maclaren. The building is likely to raise both Yeang's international profile, and the standard of public building in Singapore. Ground breaking is expected in January 2001.

(although born in Australia, Hassell has lived and worked in Singapore for many years). They are a very young team (both under 40) with an office of just 18 staff. The excitement generated by this summer's public exhibition of the MRT competition provided a tangible sense that, at last, the tide is turning. Indeed, many architects feel that they are witnessing a historical moment in Singaporean architecture.

The wholesale import of overseas designers in the 1980s offered a sure way for Singapore to assert itself on the international stage, proving that it had the cash to buy in the big names. However, the problems it caused were twofold: the stifling of local creativity, and the sometimes complacent attitude of the architects who were clearly just visiting. The difference today is that Singapore's young architects are disciplining themselves and producing designs across the board that can compete with some of the best internationally. This not only means that they have a better chance of winning work at home, but that the visitors (which no one can deny the island needs) are having to work much harder to give Singapore a standard of architecture they themselves would be proud of back home.

Richard Meier and Gwathmey Siegel are just two of the US practices to have produced landmark buildings in the last couple of years. From the UK, Foster and Partners is completing the dramatic 'flying saucer' MRT station for Expo 2000. Perhaps the region's best known ambassador, Malaysian Ken Yeang, has scooped up the much coveted win for the Singapore National Library Board building, chosen for the breadth of its environmental agenda.

Singapore stands to win. But only if the government can come up with an effective plan to stem the speed of population growth. Otherwise, the city's few green spaces will continue to be swallowed up and Singapore will lose its most attractive asset – its standard of living. **wa**

Institute of Standards and Research prepares the industry standards.

Design professions **Architects and engineers must be registered with their respective governing boards to practise. Published fee scales are rarely used. There are standard forms of agreement between the owner and the architect.**

Contractors, labour and materials **Singapore has many contractors. A register is maintained by the Construction Industry Development Board. An adequate supply of materials and labour, both skilled and unskilled, is available.**

Approximate costs **The following sqm unit rates are for rough comparison purposes. All costs are in S$ per sqm.**

Industrial/warehouse, owner-occupied: 750-850

Office building, 11-20 storeys, fully serviced 1,300-1,950

Mid-rise hotel, three-star, 1,050-1,250

Apartment, no A/C, average quality 900-1,200.

Living on the edge

Robert Powell celebrates Mok Wei Wei's solution for living in a densely populated, tropical city. The Paterson Edge condominium provides privacy and transparency in equal helpings, with dramatic aesthetic results.

Photographs by Albert Lim.

One of the key questions confronting Singapore architects is how to build in the most densely populated country in the world. These 'Next Generation' architects have to deal with increasingly high plot ratios, with the notion of privacy versus proximity in the compact city and with the conflicting desire to be anonymous and yet recognised. And on top of this is the overwhelming need to create places for solitude in the city.

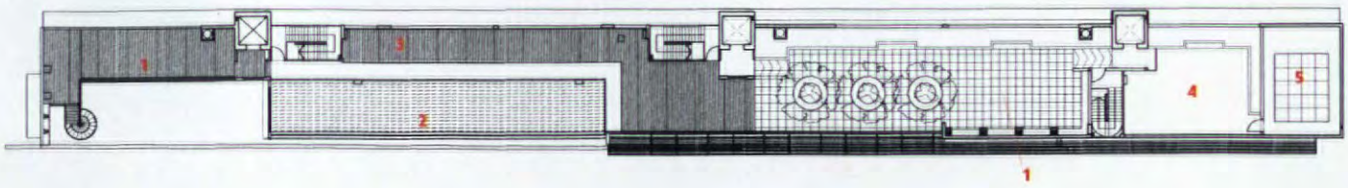
One of the architects grappling with these challenges is Mok Wei Wei. After graduating from the National University of Singapore, School of Architecture in 1982, and joining William Lim Associates in the same year, he has since become Lim's partner. The pair make an interesting contrast. Lim, who was one of the pioneering modern architects in the early days of independence, talks rapidly with expansive gestures, and thinks aloud, sketching ideas verbally. His architecture reflects his personality, with a liberal use of vibrant colour and bold forms.

Mok's manner is by contrast thoughtful and introspective, and when he speaks it is with precise articulation. His architecture has this quality too. He is more likely to gather all his thoughts and energy together before executing his moves with certainty and

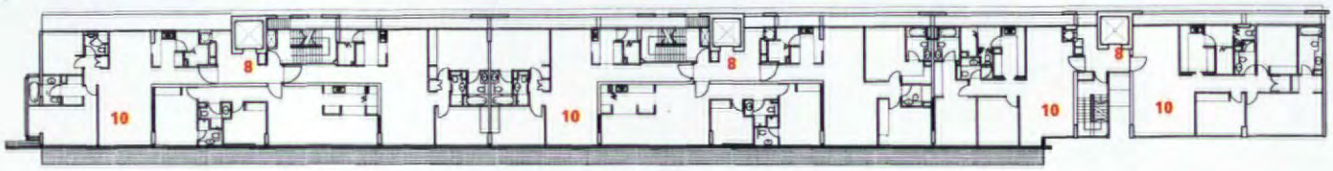
Water from the roof-top pool cascades over the parapet, enforcing the idea of 'life-at-the-edge'

Singapore urban living

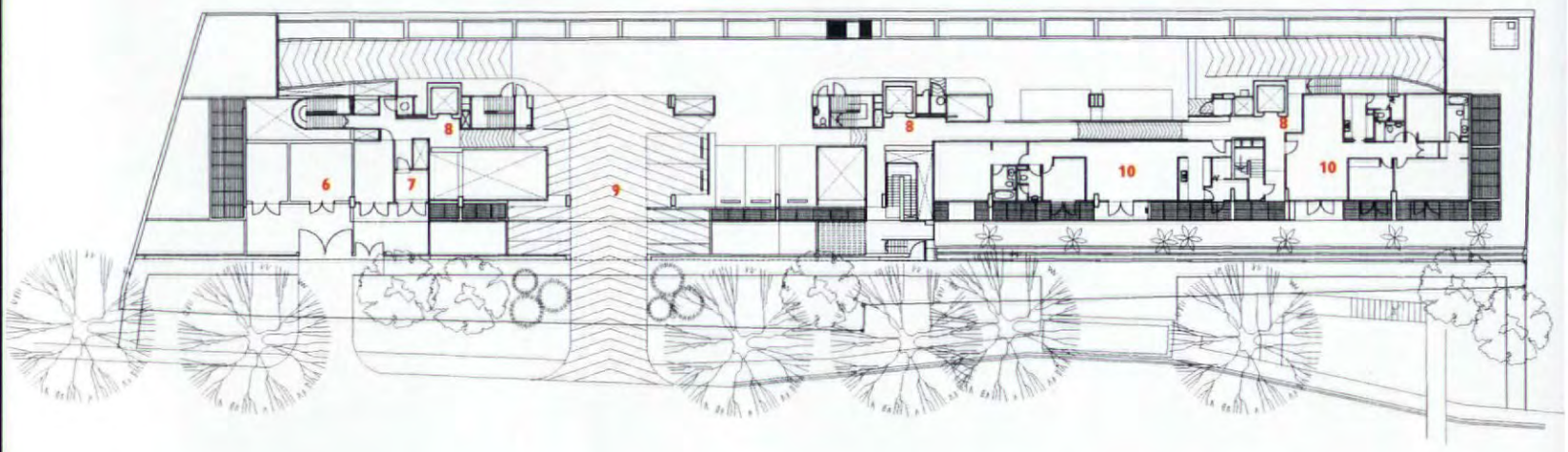
Roof plan



Tyipical floor plan



Ground floor plan



directness. It is to Lim's credit that such a diversity of ideas (in both method and design) is allowed to flourish within one practice. To a large extent it is his willingness to embrace the ideas of his younger partner which has kept William Lim Associates on top in an increasingly competitive environment for Singapore's local architects.

The key to Mok's success is perhaps his willingness to take risks in architecture. He never settles for the mundane or the pragmatic. He attributes this aspect of his character partly to his father, the chief editor of a Chinese newspaper in Singapore till the mid-1980s who encouraged him to pursue the liberal arts. Lim also nurtured his architectural and intellectual integrity.

One of his most recent projects is the Paterson Edge condominium. The site of the apartment block has an extremely narrow rectangular configuration (100m long by 8m wide) running parallel to Paterson Road, a six-lane, dual carriageway connector which slices through a low-rise residential area, edged by a narrow sidewalk.

The road however intersects Singapore's principal shopping artery, Orchard Road with its wide promenades thronged with pedestrians, and it is the difference between these two very different urban forms which Mok Wei Wei has exploited in the plan form.

The two principal elevations reinforce the duality. Facing east a transparent filigree of glass reveals the lifestyle of the inhabitants to the gaze of passing commuters as they draw briefly to a halt at the adjacent traffic lights.

The notion of 'edge' is suggested by this curtain wall, stretched taut along the boundary and viewed through a screen of mature rain trees. The occupants of the apartments are simultaneously remote and inaccessible. It is a solution which satisfies the inhabitants while intriguing the passing motorists. It also has the considerable benefit of being an arresting aesthetic solution, the glass screen requiring a second look before the observer can work out what it is.

The west facing elevation overlooks the established low-rise residential area of One Tree Hill and here the architectural response is altogether different. It is planar and appropriately layered, which has the additional attribute of shielding

Key
1 Terrace
2 Swimming pool
3 Swimming pool deck
4 Putting green
5 Water tank
6 Substation
7 Bin centre
8 Lift lobby
9 Driveway
10 Apartment unit

A glazed curtain wall stretches along the roadside elevation

Singapore urban living

Client
Sembawang Land
Architect
William Lim Associates
(Mok Wei Wei; Joan Loo)
Structural engineer
Steen Consultants
M&E engineer
Bescon Consulting Engineers
Cost consultant
Rider Hunt Levett & Bailey
Acoustic consultant
Acviron Acoustics Consultants
Curtain wall specialist
ALT CLadding & Design
Landscape consultant
Behtwo Design
Main contractor
Kian Hiap Construction
Curtain wall contractor
Lam Hong Leong Aluminium

PHOTOGRAPH: ROBERT POWELL

1

the building from the setting sun and accommodating the service ducts.

There are certain themes at work in this duality. The tension of living in the city is explored, the desire for recognition and yet to be anonymous, in the same way that celebrities court publicity and yet complain of intrusion into their privacy.

In the introduction to the book *The Un-Private House* which accompanied an exhibition at the Museum of Modern Art in New York in October 1999, Terence Riley explores the origins and the development of the private and public realm in residential architecture. Private and public, once seen as distinct entities, have become increasingly blurred.

Now, more and more dwellings are playing with the notion of transparency so that, to quote Winy Maas, 'putting the inside, even your own, on display seems a very modern thing to do.' Paterson Edge illustrates this growing tendency in the Singapore context, along with The Alice Lem House also by Mok Wei Wei and the Windsor Park House by Tang Guan Bee (The Urban Asian House, 1998).

Another theme implicit in the design of Paterson Edge is that of changing notions of the family unit. In the west, the structure of the family, even the role of the family, is being questioned and severely tested.

It is an obvious, yet none-the-less startling observation by

2

Riley, that the traditional family structure of a married couple with two children is no longer the norm and that, 'people who live alone or with one other person are the general public in many parts of the industrialised world'. Statistics indicate that around a quarter of American households now consist of one person and half of the families in America consist of couples, without children living under the same roof.

In Asian cultures the primacy of the family unit is still deeply rooted in the psychology and in the spatial arrangements of the home. But the influence of the west is increasingly evident. Paterson Edge can be seen as a response to the changing demographic patterns. The apartment units are designed for single persons or for two people living together and in close proximity to the Central Business District and the entertainment belt.

'Life-at-the-Edge' is for the young urbanite. The roof design dramatically expresses the fast and furious lifestyle of those living for the moment. A roof top lap-pool is literally pushed to the limit, with water cascading over the parapet and a glass wall at the end of the pool giving swimmers a view of the city streets 12 storeys below. **wa**

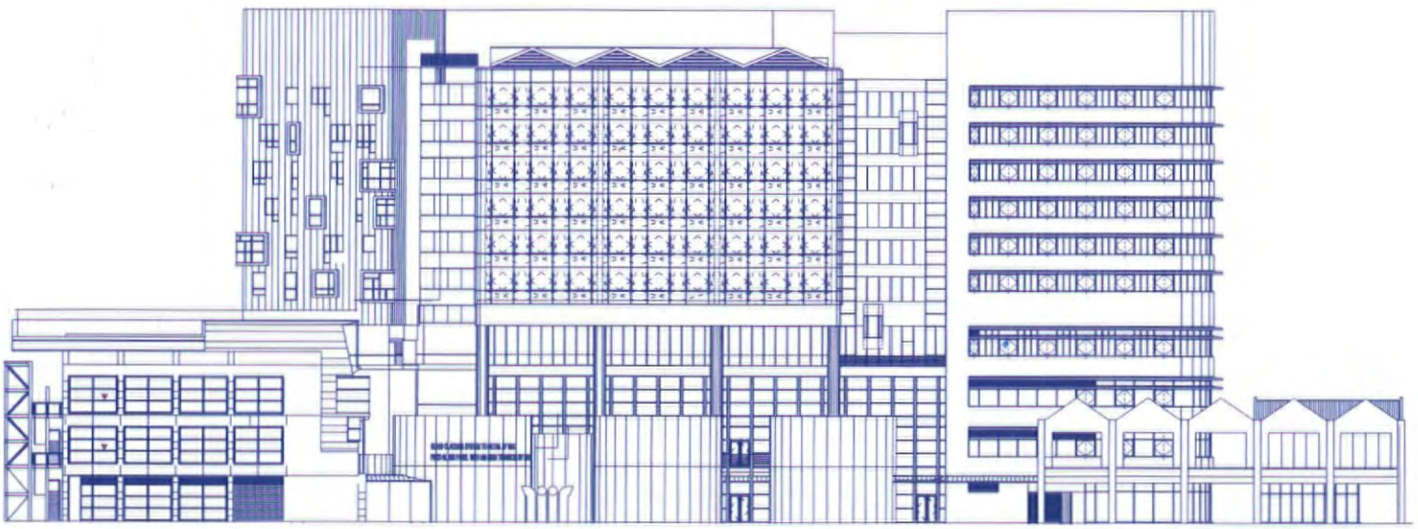
Robert Powell is a regular contributor to wa. He edits Space magazine in Singapore and has written widely on tropical architecture, and Singapore in particular.

1 The rear, west elevation is treated in a more conventional way
2 Views from the apartments take in the CBD, softened by the surrounding trees

The elevated tower of individually designed rooms

East elevation

West elevation



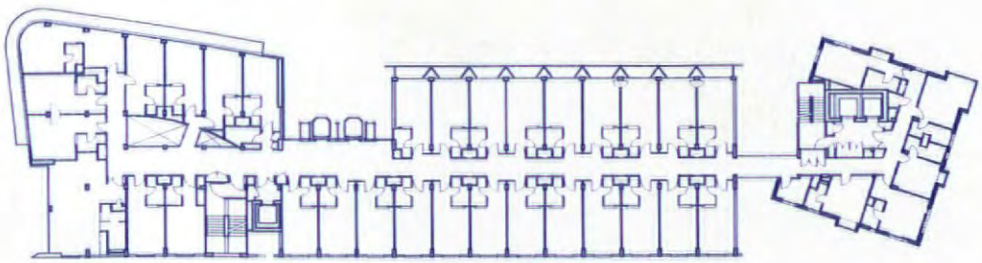
Singapore swing

Nicola Turner checks into Singapore's first 'hip hotel', the Gallery Evason, by William Lim Associates, and TangGuanBee Architects.

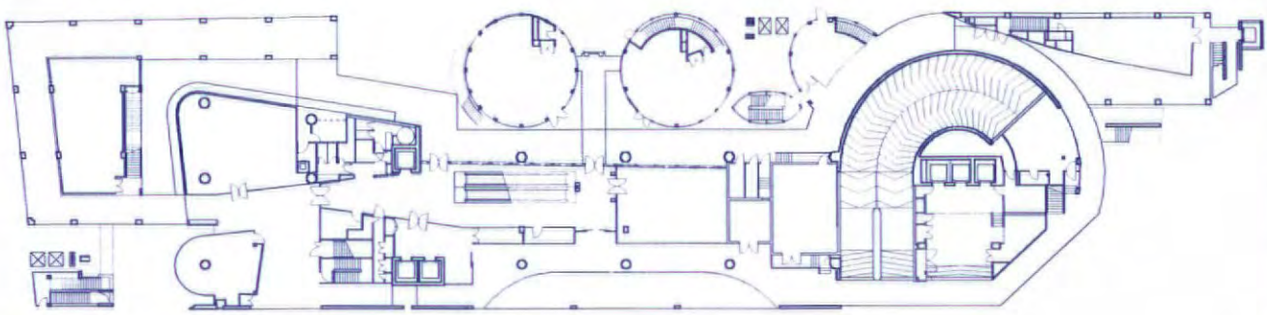
Until the arrival of Gallery Evason, Singapore offered little by way of hotel accommodation for the design cognoscenti. If you wanted to branch out you could either pay top dollar for the refined colonial luxury of Raffles Hotel, or check in to enjoy the glamour of Kevin Roche's Ritz Carlton, downtown. But for those who prefer highly individual places, or 'hip hotels' as they've come to be known, the city had little, if anything, to offer.

It may come as little surprise to those familiar with the Singapore scene to discover that the city's first hip hotel is the brainchild of the city's more radical architects Tang Guan Bee and William Lim, and

Singapore hotel



Plan for floors six to ten



Plan of first floor

Lim's associate Teh Joo Heng. Although the duo belong to the older generation of architects they both still practice with a vigour and sense of experimentation more associated with the emerging generation.

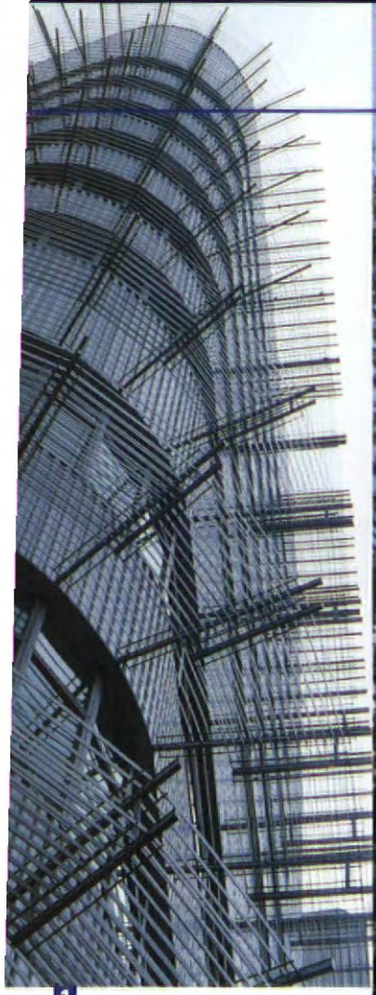
Perched alongside the previously run-down Robertson Quay, and surrounded by a forest of glass-clad hotel highrises, Gallery Evason has injected colour, energy and glamour into the area. Think Pompidou Centre meets, or collides with, Meier's Museum of Contemporary Art in Barcelona, and its grid system and cool aloofness, especially from the road. Turn the corner and the elevated tower, accommodating the rooms, has been swivelled on its axis. Each window is framed in bright red, yellow or blue, heightening the individuality of the interior design of each room. Embedded between the cladding panels, multi-coloured neon lights, scattered randomly over the tower, add an extra dimension at night.

More typical rooms are accommodated in the rectilinear ten-storey block behind the perforated-metal sunscreen, along with the larger restaurants, administration facilities and main reception lobby, which is elevated to the fourth floor. The larger executive suites of the west-facing river-view rooms are shaded from the harsh tropical heat in a similar way to the rooms at Paterson Edge (see pages 62-67). Cat-walks on every floor, enabling external cleaning and maintenance, provide both transparency and privacy. Metal cladding and ribbon windows wrap this corner of the hotel on to the main block and make reference to the warehouse buildings opposite. In front, a covered walkway echoes the pitched roofs of the warehouse with a two dimensional screen, like part of a stage set, framing views of the central business district beyond. This is an example of what Tang calls a 'porous fragment of the city' yet, however it is rationalised, it nevertheless detracts from the more high tech treatment of the rest of the hotel. This is one ingredient too many in an already complex palette of form and colour.

The designers gathered together the facilities of a standard hotel, then radically reassembled them. One of the prime concerns of the team was to break down the scale of the hotel and to blur the boundaries between public and private space. Three drums, housing various cafés and bars, act as a buffer between the road and the hotel. Intended as follies, they also provide the choice of retail outlets demanded by today's hoteliers. Above the drums, on the metal sunscreen, images will be projected to add to the dynamism of the street elevation. From the north, the cantilevered roof-top pool (now *de rigeur* for hip hotels the world over) can be seen through the trees, hovering like a blue-glass tree house.

Gallery Evason balances trend-setting design and first-class facilities with mid-range cost and none of the glitz and overpowering scale of some of its neighbouring hotels, and looks certain to be a magnet for design-related conferences and conventions. Visiting architects would do well to check in. **wa**

1 Detail of the cat-walk running around the metal-clad south-west corner
2 The cantilevered roof-top pool appears to be suspended in the trees



1

Client
Robertson Quay Investment
Architect
William Lim Associates
TangGuanBee Architects
Structural engineer
Steen Consultants
M&E engineer
J Roger Preston
Cost consultant
Rider Hunt Levett & Bailey
Acoustics
CCW Acoustics
Landscape architect
Tierra Design
Lighting consultant
Vision Design
Main contractor
Greatearth Construction

2

Only connect

1

Singapore's Henderson Community Club and the Bukit Merah West Neighbourhood Police Centre make strange bedfellows in a new development by Forum Architects. Hee Limin reports. Photographs by Albert Lim

Singapore's People's Association (PA) was a statutory board formed in the turbulent 1950s to foster racial harmony and social cohesion as a basis for nation-building. Development of its community centres began with the remodelling of existing buildings, then moved on to new complexes with a conglomeration of diverse and unrelated elements.

Now in what has been called its first co-location project, comes a complete restructuring of the brief for the new Henderson Community Club, involving integration with the Bukit Merah West Neighbourhood Police Centre. While it is not a new concept to combine community clubs with other public facilities, the amalgamation with the police centre could raise eyebrows – invoking the days of riots and political strife. Or could it be that the PA is serious about its mission to 'bring the people closer to one another and to the government'?

The double function brings to mind Foucault's idea of heterotopia, a place that has the power of juxtaposing in a single place different spaces that are seemingly incompatible with each other. The architectural problem of creating a marriage of the institutionalised form of discipline and the law and that of a veritable 'social condenser' had to be met by understanding of the issues involved in combining such binary opposites, and not merely providing the styling of the container.

The architects were initially awarded the project with a limited scope of upgrading the old Henderson Community Centre. The additional brief of the much larger police centre came, in part, due to the need to intensify land use. Forum Architects' strategy was to 'try to ameliorate the differences and to focus on the common points of the brief'. Presenting the right 'face' and scale of building to the community at large would be half the problem solved. Instead of opting for a fortress or castle in the residential landscape, an elegant solution in the form of an articulated mesh screen was used to create a neat and structured facade.

Approaching the community club, the building grows out of the hillock site, unveiling first a two-storey high curved glass block which turns round to reveal the articulated curved screen wall and finally the more solid form of the police centre. The screen offers tantalising hints of what may be behind it, while a jaunty canopy, uplifted by flamboyant yellow struts, invites the visitor entering from the street. A small amount of anxiety, entering via the stairs

Singapore community centre

Key

Henderson Community Club

1 Entrance foyer
2 Activity room 2
3 LV consumer switch room
4 Storeroom 1
5 AVA Room
6 Timber stage
7 Storeroom 2
8 Activity room 2
9 Facility Room
10 Manager room
11 Meeting room
12 Office
13 Badminton court
14 Karaoke lounge
15 Computer room

Police Centre

16 Lift waiting area
17 Public area
18 Interview room
19 Utility room
20 IP/Exhibit room
21 Holdingroom
22 General store
23 C3 Comms room
24 Server room
25 NCC room

Client
People's Association
Architect
Forum Architects (Design team: Tan Kok Hiang, Kenn Yeo, Stella Tan)
Main contractor
Union Contractors
Civil & structural engineer
Ronnie & Koh Partnership
M&E engineer
Belmacs Consulting Engineers
Cost consultant
RJ Consultants

1 The angled static mesh screen links the old with the new and provides a lantern effect at night
2 View of the complex from above
3 Stairs, lifts and external corridors link the two facilities

or lift, gives way to a pleasant surprise of a sudden opening out of the space into an upper level courtyard. Here, the organisation of the massing and space becomes clear, with the community club and foyer on the right and police centre on the left.

Circulation elements – stairs, a bubble-lift and corridors linking the two facilities – are found behind the mesh screen, defining itself as a three-dimensional facade. Bright primary red, blue and yellow colours are used as highlights, to project the fun and recreational function of the club against the more neutral and serious front for the police centre. Colour is also extended to the floor finishes to emphasise circulation nodes. The neutrality of the articulated mesh screen gives the building an air of quiet reserve, but at night, the screen magically transforms the building into a luminous lantern.

New areas have been added to the old structure of the community hall by wrapping facilities around the north and west facades, at the same time creating a new image. Light now bathes the largely intact hall from a new skylight and ceiling. Across the courtyard, the gravitas of the police centre is accentuated through the use of floating sunscreens on the walls, and via the translucent but blank secrecy of its windows facing the courtyard. This creates an uneasy feeling of being watched by unseen eyes.

A characteristic of heterotopia is that real space is more illusory. Anyone can enter the heterotopia, but in reality, this itself is an illusion. Here, binary opposites are played out: the porosity of the mesh facade versus the solidity of the police centre and the shared courtyard space which is, from the point of view of the police centre, a space to watch but not to partake in. In addition the seemingly well-linked complex is really separated by the link way, with different flights of stairs for each facility, due to the high security required by the police centre. The nature of trips made to this complex are also mutually exclusive – either visiting the community club for a social activity or to have some dealing with the law. No matter how friendly the architectural treatment of the shared space, a trip to the police centre may be viewed with trepidation.

Given the diametrically opposite requirements of the community club and the police centre, the PA may want to review if such a marriage is tenable or simply an act of convenience that cannot be consummated. Only through a process of community participation, of negotiation and even contestation of space can a synergy come about. **wa**

region

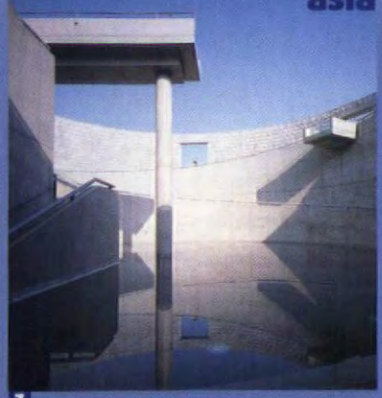
Out of the ashes of the Asian crash have risen four projects which herald a new era for architecture in the region. We have chosen them for their diversity of scale, subject and location.

WONG CHUNG WAI

1

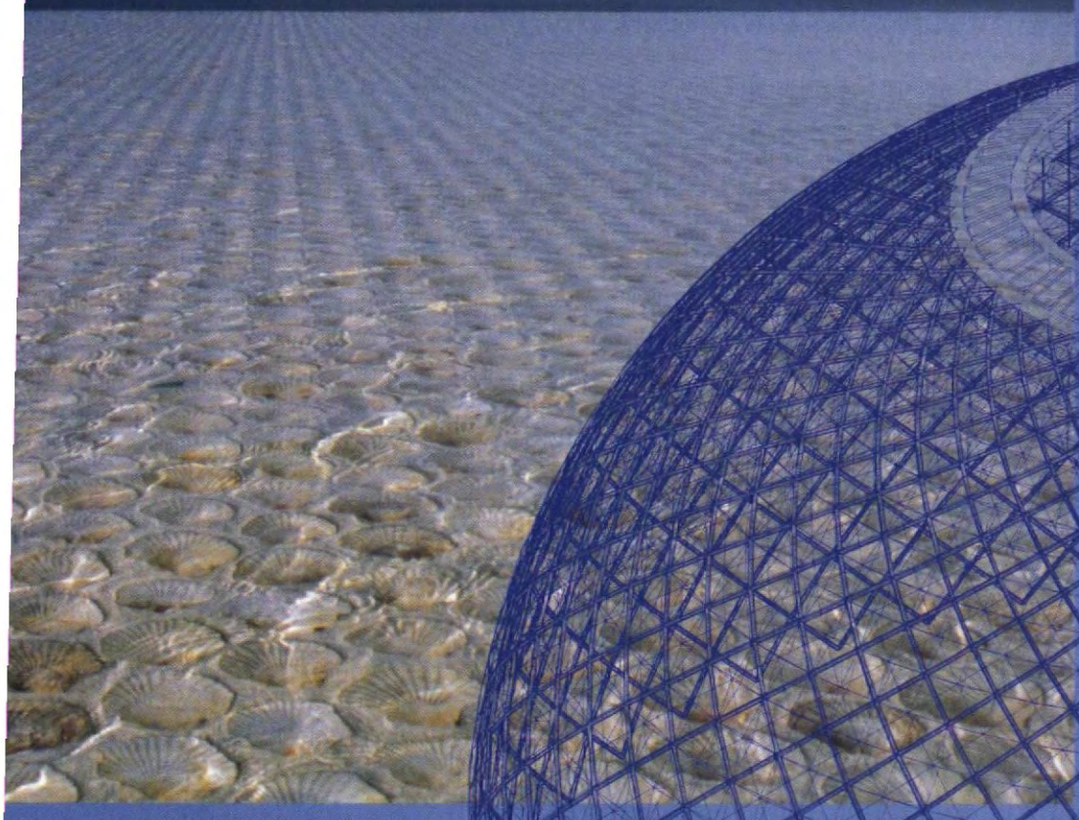
2

1 Inside Hong Kong's largest data centre
2 One million shells embedded in the sand at Ando's Yumebutai
3 Inner view of the circular forum at Yumebutai
4 The 70m-diameter hemisphere of the Osaka Maritime Museum



MITSUO MATSUOKA

3



4

al report asia

92 IM Pei's sons have paid homage to their father's famous Hong Kong Bank of China in the bank's new Beijing headquarters.

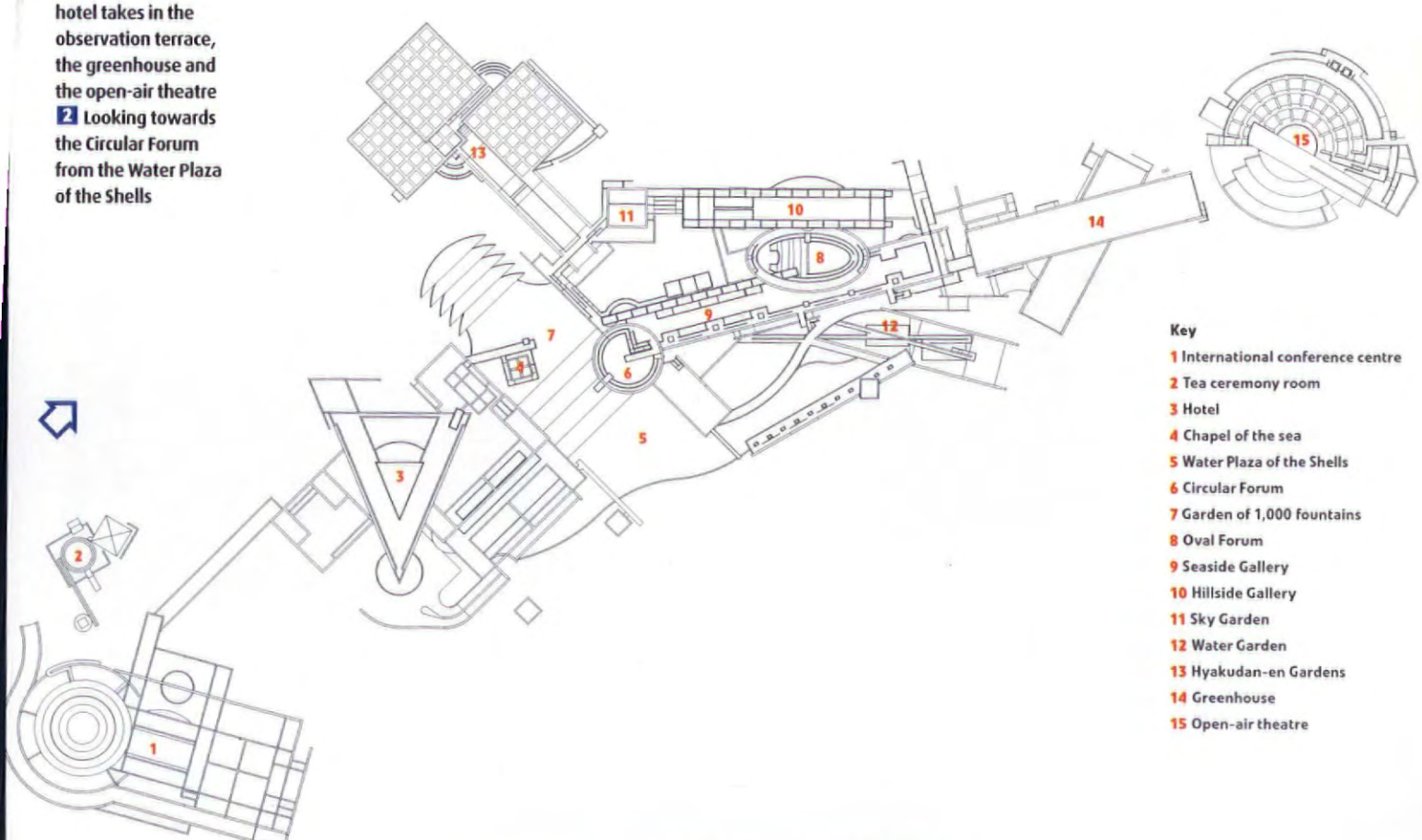
1

2

Life and soul

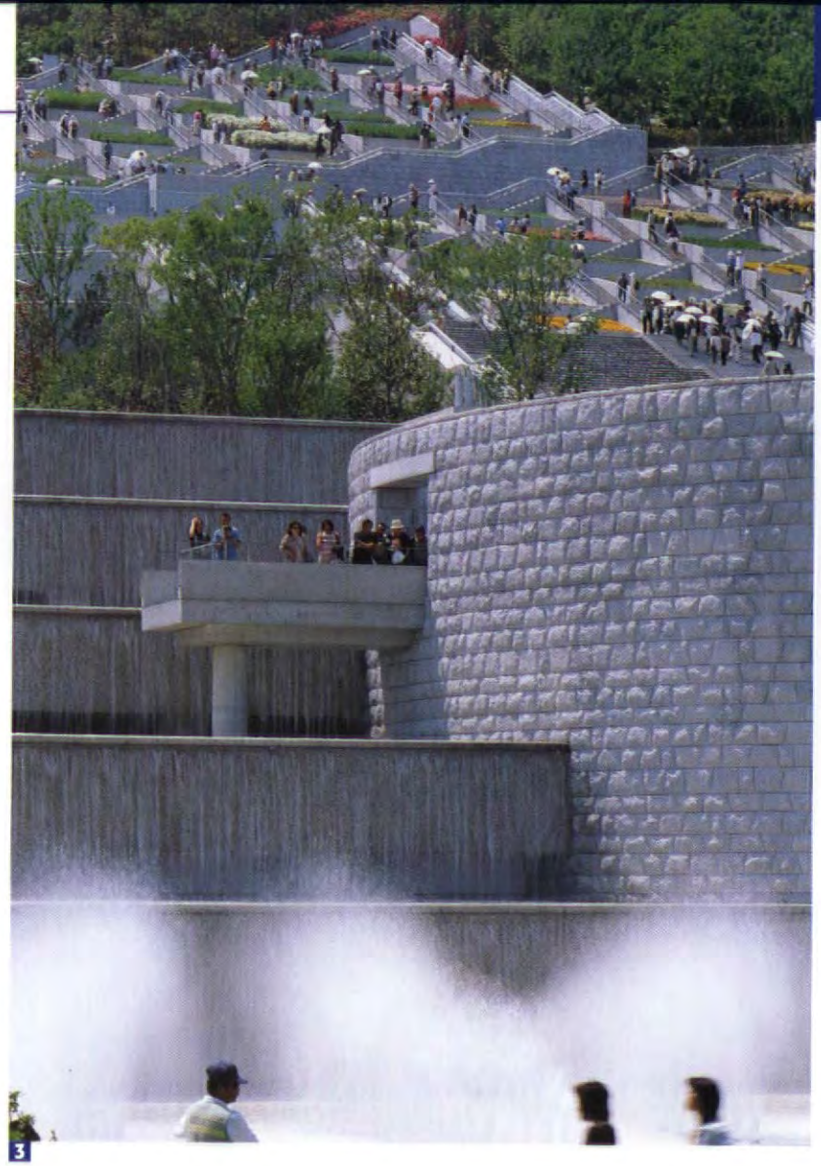
Tadao Ando conceived Yumebutai, his reconstruction of Awaji Island, as a place of peace, tranquility, and a symbol of the rebirth of the city of Kobe. By Tom Heneghan. Photographs by Mitsuo Matsuoka.

1 The view from the hotel takes in the observation terrace, the greenhouse and the open-air theatre
2 Looking towards the Circular Forum from the Water Plaza of the Shells



Key
1 International conference centre
2 Tea ceremony room
3 Hotel
4 Chapel of the sea
5 Water Plaza of the Shells
6 Circular Forum
7 Garden of 1,000 fountains
8 Oval Forum
9 Seaside Gallery
10 Hillside Gallery
11 Sky Garden
12 Water Garden
13 Hyakudan-en Gardens
14 Greenhouse
15 Open-air theatre

1
2



3

1 Two rectangular volumes intersect within the greenhouse. The huge trussed roof is supported by exposed concrete columns
2 Hyakudan-en Gardens – literally 100 steps of gardens
3 The Hyakudan-en Gardens and Circular Forum are separate but interlinking parts of Yumebutai

Yumebutai – meaning 'place of dreams' or 'place in which to dream' – is the name given by Tadao Ando to his latest, and largest, work. He describes it as a 'spatial theme-park' on Awaji Island, facing across Osaka Bay towards Kobe, the city devastated by the 1995 earthquake that claimed 6,000 lives.

At the time of the earthquake, construction was poised to begin on Ando's original design for the site. But the project was given a new dimension when the disaster struck, as Awaji Island was directly above the epicentre of the earthquake. Ando insisted on beginning the design again, and re-conceived 'Yumebutai' as a symbol of the rebirth of Kobe – both physically and spiritually. Yumebutai commemorates death and devastation by celebrating their opposites – life and beauty. Visitors are surrounded by the richness of nature, and can find sensory pleasure in their existence.

Called to the mountain site 11 years ago by the original owner, Ando was outraged to find a landscape ripped and scarred by greed: for 30 years rocks and earth had been gouged out and sold for reclamation projects, including Renzo Piano's Kansai Airport.

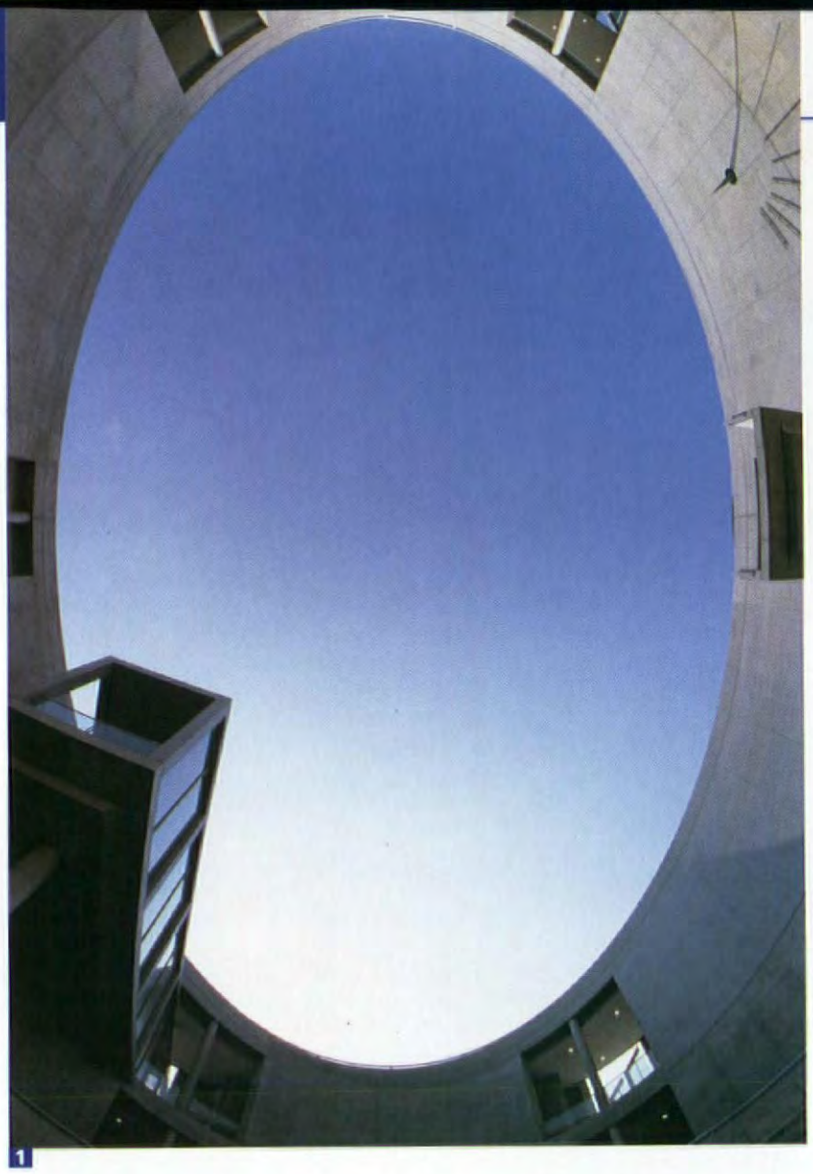
Ando was invited to design a golf club to mask the ravaged land, a job he instantly refused. He then spent 10 years bending ears and twisting arms to get the place taken into public ownership, and re-landscaped and re-forested, while he invented a programme of buildings, gardens and water-parks that would restore the landscape to life.

'The big challenge,' says Ando, 'was to find ways of reacquainting visitors with aspects of nature that they ordinarily disregard – water, light, wind, shadow, sky, sun and sea – and getting each individual to make new discoveries for themselves.'

Because of its vast scale, Yumebutai cannot be discussed as architecture or planning alone. It is at an overlap between architecture, landscape design, event planning, social programming, and environmental art. This is 'narrative architecture', in which the simple, geometric forms act either as background to, or 'facilitator' of, the visitors' experiences.

Much recent architecture (particularly in the US and Japan) is increasingly abstract and neutral, often conceived and discussed as if part of virtual rather than actual reality. Ando, however, continues to explore the idea that architecture must be primarily a device for relating man to his place in the world and in nature. And this explains why, probably more than any other contemporary architect, Ando holds the respect of both ordinary members of the public and major international artists such as Richard Serra and Dani Karavan, whose site-specific art explores similar issues.

Yumebutai is a complex of overlapping, intersecting, →



multi-directional, linear, circular and irregular spaces, none of which has any particular precedence over the other, and through which there is no prescribed route or sequence. The spaces differ not by function or material, but only by their spatial meaning.

The central part of Yumebutai is the series of long rectangular platforms ('stages') which run along different contour lines, intersecting at irregular angles, and bounded on three sides by the square-grid-terraces of the flower gardens which step up the side of the hill, by the tall wedge-shape of the hotel, and by the botanical greenhouse which is conceived as two more intersecting stages, this time roofed as rectangular volumes.

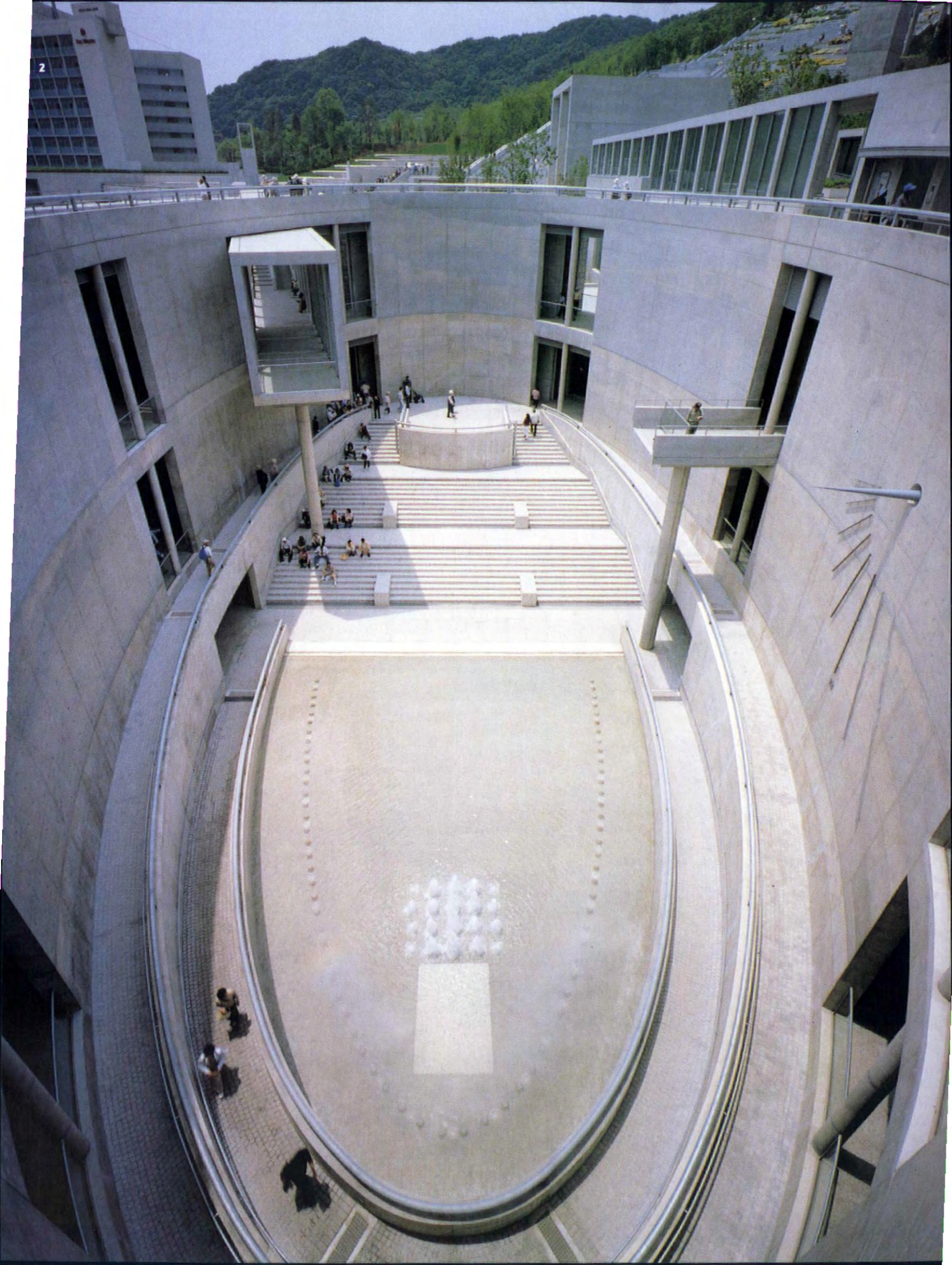
At the two opposite ends of this group are the international convention centre and the open-air theatre, which occupy quieter parts of the site. The long 'Seaside Gallery', animated by its gentle water cascades and overlooking Osaka Bay, is linked by the Oval Forum to the sunken Water Garden, with its dynamic ramps and deeply echoing waterfalls, and to the quiet, tranquil roofed cloister of the Hillside Gallery, from where only the sky and the mountain can be seen. The brightness of the gardens, with sunlight reflecting off the water surfaces and the whiteness of the concrete, is answered by the rich, cool shadows at the deep bottoms of the oval and circular forums.

The horizontality of the 'stages' is answered by the verticality of the prismatic hotel and the tall, free-standing elevator tower, with its long glass bridge which leads to the top of the 100 flower-garden terraces. The stasis of the built forms is complemented by the constant movement of water and visitors.

The project is composed of independent loosely linked 'architectural promenades'. Ordinary garden paths suddenly terminate as bridges which jut out over the voids of the sunken courts, making those on the bridge both observers and performers in the life of the space. The complex pathways of the 100 flower gardens, much like an Escher staircase, display a constant flow of visitors moving on a three-dimensional grid cut into the randomness of the forested hillside.

Such an unashamedly picturesque approach to design is refreshing. The composition can be seen to have much in common with that of painting or music, in which 'themes' are examined, departed from, then returned to. Although everything was designed by a single person, it is not a single, monumental statement. Instead, Ando has created a series of separate but interlinking parts of different sizes and characters to give Yumebutai a surprising sense of richness, and an almost infinite number of routes and ways by which these places can be experienced. →

1 The brightness of the sky contrasts with the shadows at the bottom of the Oval Forum
2 The Oval Forum links the Seaside Gallery with the sunken water garden



Yumebutai

1

Architect
Tadao Ando Architect & Associates
Client
Hyogo Prefecture
Structural engineers
Wada Structural Engineer
Hojo Structure Research Institute
Mechanical engineer
Setsubi Giken Architectural Engineers Associates
Landscape architect
Environmental Site Plannings
Acoustic design
Karasawa Architecturals
Contractors
Obayashi-Arai-Awajidoken JV
Takenaka-Aoki-Zenidaka-Sato-Kanzaki JV
Takenaka-Aoki-Shibata JV
Shimizu Izumo JV
Moricho

Yumebutai uses, at a very enlarged scale, many of the same planning principles of Ando's 'usual-scale' architecture, and therefore makes their original intentions more explicit. He insists that more important than all the forms are the spaces in between. Such 'inter-stitial spaces' are described in his essay Wedge in Circumstances (1984), 'no matter how dramatic the space itself, I believe that it must not be cut off from the daily life of the occupants. The inter-stitial space offers something fresh to the ordinary spaces, to which it is opposed'.

At Yumebutai the power and importance of these inter-stitial spaces is vivid. Here, being irregularly-shaped informal gardens filled with varied and luxuriant planting, they contrast and balance the plain, formal geometries of the stages, making movement around the site a passage from precise space to relaxed space, from functionally defined spaces to intentionally ambiguous.

Within the project Ando quotes his earlier designs of whole buildings. The amphitheatre echoes his unbuilt Theatre on the Water (1987), the terraces of the flower gardens echo the plan of Rokko Housing 2 (1993), the sunken Water Garden echoes his Garden of Fine Art at Kyoto (1994). But, this repetition of elements emphasises the way that the elements are used, and the places in which they are used, rather than the elements themselves.

At Yumebutai, surrounded by so much 'Ando form' in contact with so much burgeoning nature, his intention is for the first time unmistakable. His plain surfaces and geometric forms are both monumental and recessive. This is not 'form-making', but 'void-making' – a crucially important distinction.

'Yumebutai' challenges contemporary (usually meaning 'Western') architectural debate, and is equally outside current debate within the Asian architectural community, where many are searching for a 'contemporary vernacular'. Ando pursues his own agenda. He has a sensitivity to the themes of place-making, sequencing and 'fantasy' that lie at the heart of his own nation's traditional architecture and landscape architecture, and also an encyclopaedic and empirical knowledge of world architecture.

His architecture focuses on the user, whom he refuses to view as a cultural stereotype. He hopes to reach them through their senses, and that they will be moved by their experience of use, and in that way, sense the unique importance of themselves, and their role and responsibilities, within the natural world. **wa**

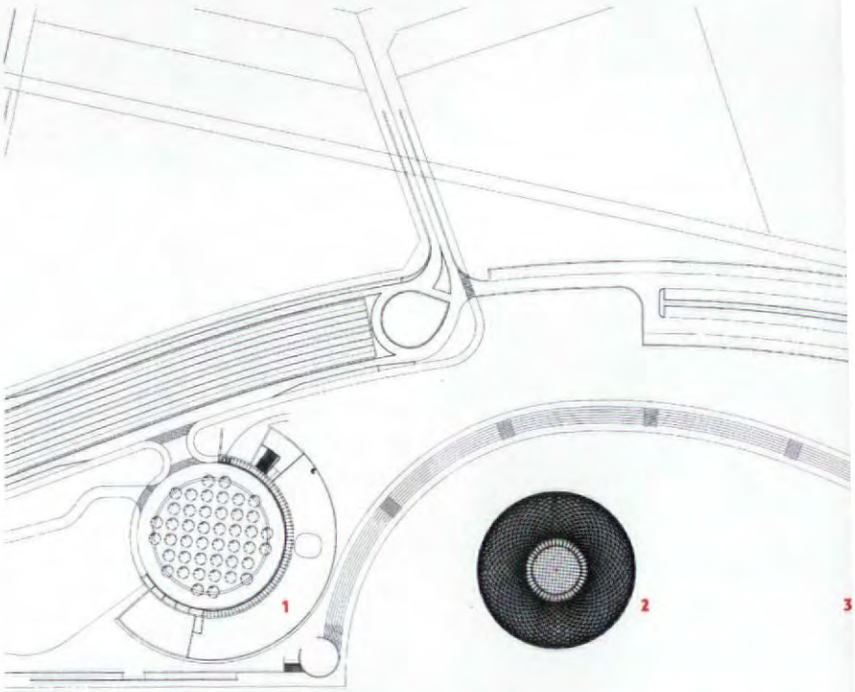
Tom Heneghan is an architect based in Tokyo. He is professor at Kogakuin University and frequently writes about Japanese architecture (see *The Labour of Light*. Phaidon)

1 The vertical entrance of the hotel is set against the horizontal stages
2 The tiles surrounding the International Conference Centre roof garden are a special product of the Awaji region
3 Inner view of the enclosed roof garden

2
3

Water feature

Technical precision has ensured that the glass dome centrepiece of the Osaka Maritime Museum offers a first hand experience of the sea . By Tom Daniell.



Despite its spectacular harbour, Osaka until recently lacked the cultural and recreational activities normally associated with port cities. The waterfront comprised little more than warehouses and shipping infrastructure; closely linked to the rest of the world but unrelated to the city itself.

Over the last decade, major redevelopment programmes have progressively rejuvenated the waterfront stretching from Osaka to Kobe. Most of the new construction is on reclaimed land – vast rectilinear platforms of compacted trash and landfill. In this approach to urban design, there are few contextual or historical concerns; when you need a site, you make one. The result is a clarity, order and spaciousness absent from most of urban Japan.

Osaka Bay now boasts huge amusement complexes (Universal Studios Japan is scheduled for completion next year), sports centres (including facilities for Osaka's bid for the 2008 Olympics), the Osaka Aquarium, the World Trade Centre and the Asia Trade Centre. Landmark buildings abound by architects as diverse as Ando and Hunterwasser.

In the centre of these developments is Paul Andreu's Osaka Maritime Museum, three years in construction. Andreu has gone beyond simply reclaiming a site from the sea; the museum is actually in the sea – a glass dome emerging from the water like an enormous, glittering jellyfish. It sits on a concrete base built on a prepared section of the bay floor and flooded.

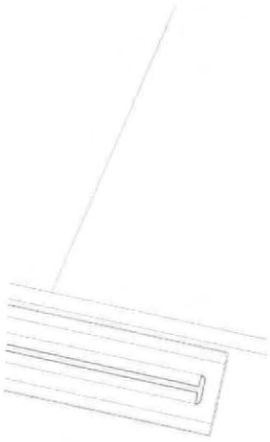
The bare concrete semicircle of the 5,000sqm onshore entry building defines an outdoor plaza the same size as the dome, and contains the gift shop, restaurant, administration and exhibit storage areas. Glazed elevators take visitors down to a 60m-long underwater tunnel leading across the seabed towards the dome. The tunnel is illuminated only by recessed blue lighting and glazed openings in the ceiling, through which fish grazing at seaweed are clearly visible. Ascending the escalators and emerging onto the brightly lit floor of the glass dome, there is a dramatic amplification of light and space.

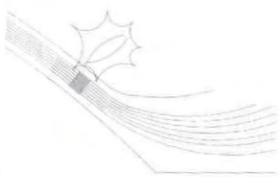
The dome is a glass and steel hemisphere, 70m in diameter. The bottom level is below the surface of the sea, above which float three donut-shaped platforms, supported on independent columns and connected by elevators and wide, curving staircases. More intimate gallery spaces, mini-cinemas and offices are contained in free-standing cylindrical volumes that intersect the floor plates.

The centrepiece of the museum is a Japanese wooden sailing ship that was fixed into place first. The ship is a replica, but a spectacular set of figureheads displayed elsewhere are the real things. Other exhibits range from historical prints of Osaka port to Roy Lichtenstein's America's Cup graphics. There are a number of interactive displays, including a full-size yacht simulator, and two


1

2





Site plan showing entry building and museum

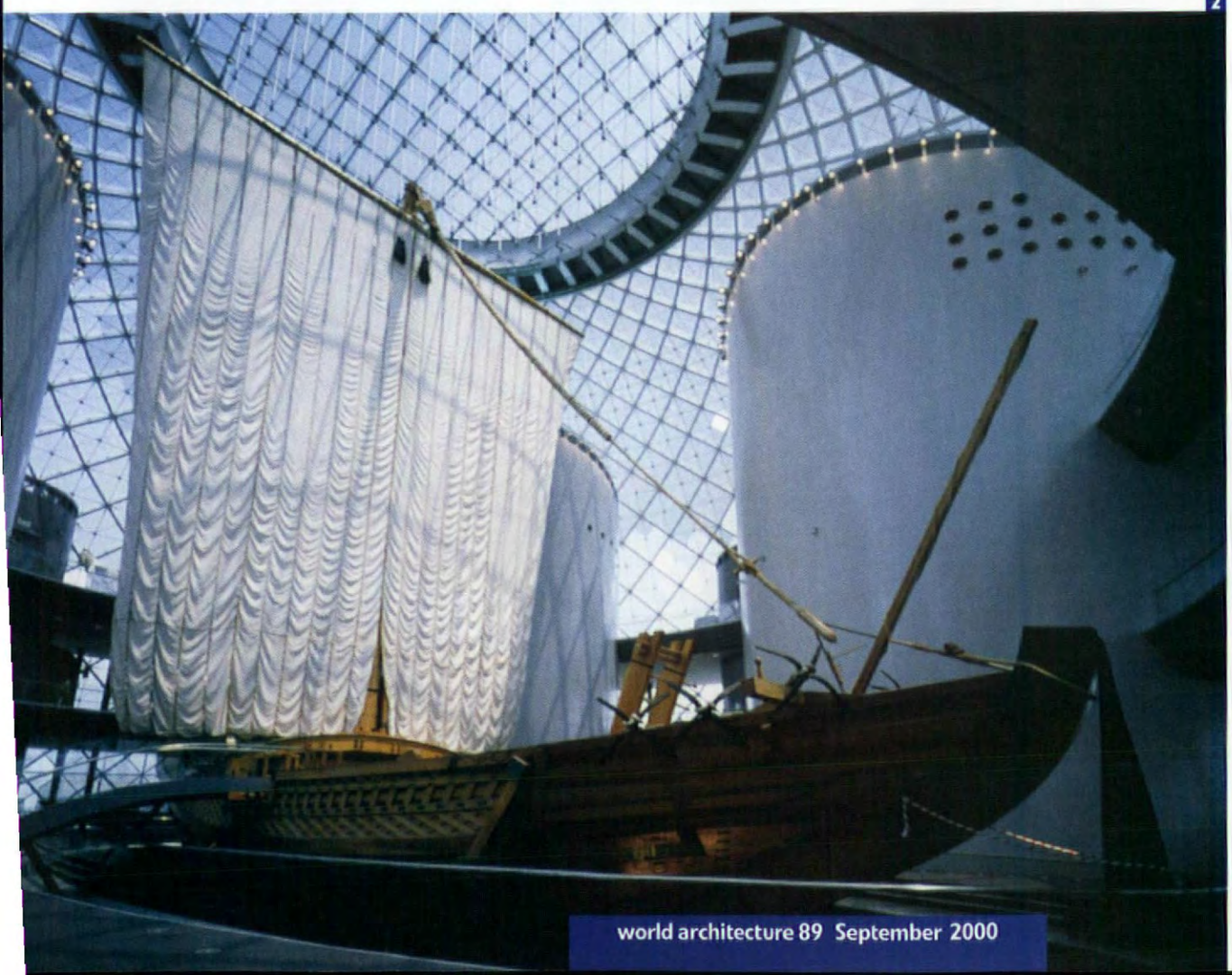
Key
1 Onshore entry building
2 The Maritime Museum
3 Osaka Bay

1 The centrepiece of the museum – a replica of a traditional Japanese sailing vessel – was installed first
2 View over Osaka Bay, through the 70m-diameter glazed dome

1

Client
Port and Harbour Bureau of Osaka
Architect
Paul Andreu/Aéroports Paris
Structural and mechanic consultants
Ove Arup Japan
Tohata Architects
Contractor
Taisei, Fudo and Toyo JV
Lighting design
Lighting Planners Associate
Dome
Kawasaka Heavy Industries
Glazing
Asahi Glass

2

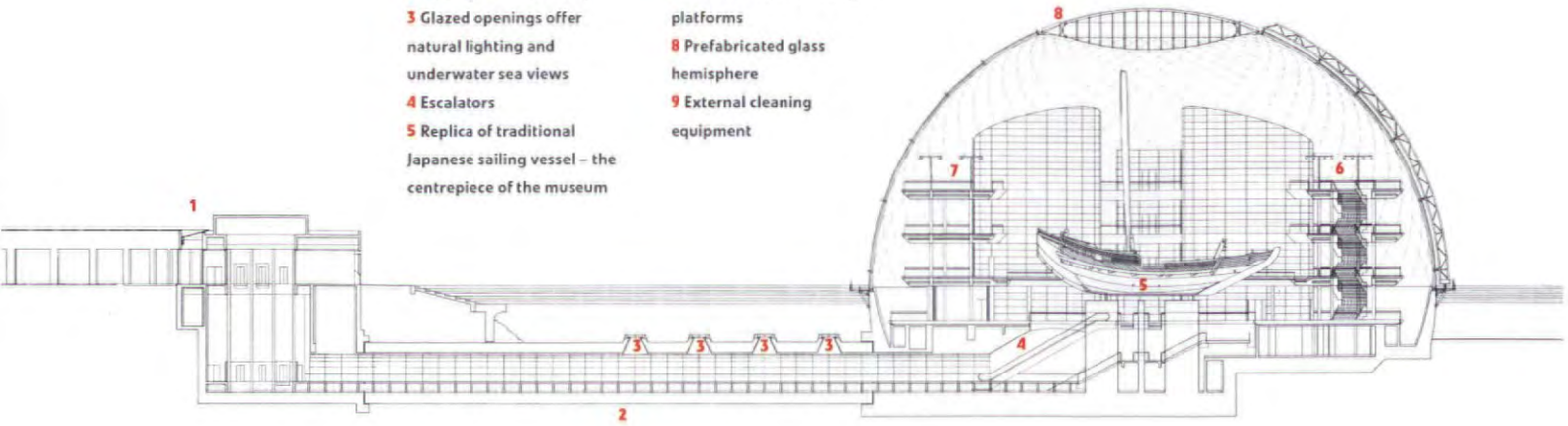


1 The museum appears to float on the surface of the bay, creating a sense of clarity and spaciousness absent from most of urban Japan
2 Emerging from the 60m underground pedestrian walkway, visitors are greeted by a dramatic amplification of light and space

Section through entry building and museum

Key

1 Onshore entry building
2 Underground walkway
3 Glazed openings offer natural lighting and underwater sea views
4 Escalators
5 Replica of traditional Japanese sailing vessel – the centrepiece of the museum
6 Internal access – lifts and stairs
7 Circulation and viewing platforms
8 Prefabricated glass hemisphere
9 External cleaning equipment



3-D cinemas with moving seats and simulated smells for the full maritime experience.

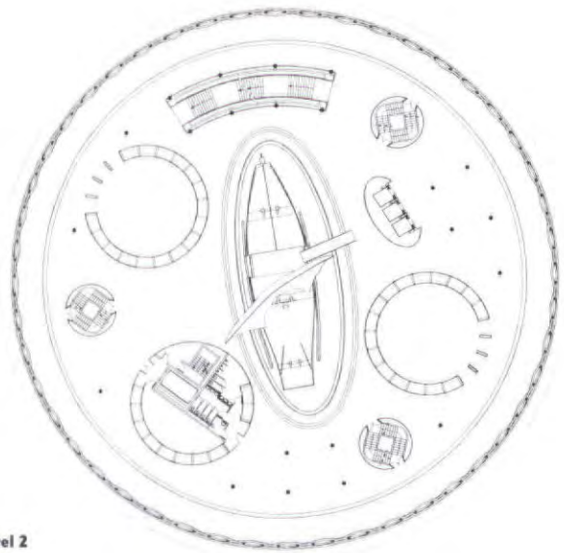
The glass shell is beautifully crafted. Andreu demanded a level of precision that could only be achieved through prefabrication. Although the costlier option, it at least had the advantage of reducing construction time – the dome was built at the same time as the foundations and lower levels. After assembly in Kobe, it was brought to the site by barge, using meteorological records to determine the calmest day of the year. The dome was then lowered by crane onto the concrete base – an incredibly precise operation, with tolerances of only 15mm.

The dome was assembled using a lattice shell truss system Andreu calls the lamella grid. Each of the square panels is made up of a sheet of perforated metal sandwiched in a 15mm space between two layers of glass. Sunlight is controlled by varying the degree of perforation across the surface of the dome, ranging from 10% to 100%: more open to the north, more closed to the south. The glass panels are combined in groups of four, held in rigid diamond-shaped frames and criss-crossed with tension cables to prevent the glass popping out in strong winds.

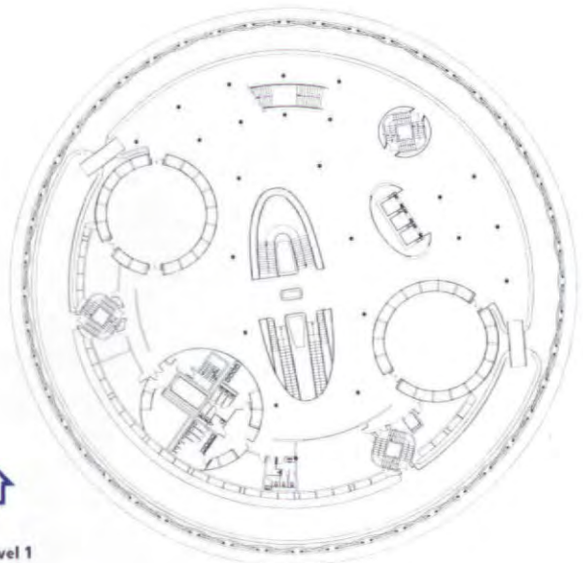
It is perhaps easier to discuss the Maritime Museum as a technical/engineering achievement rather than a spatial/architectural one. Buckminster Fuller's research into geodesic domes and tensegrity (tensile rather than compressive structural load paths) is the obvious antecedent. Yet Andreu talks about the project mainly in terms of his desire to create a free, transparent space. There is very little structural exhibitionism; the glass is suspended as discreetly as possible. From outside, the result appears solid, almost crystalline. An alternative historical reference is Bruno Taut's glass pavilion at the Cologne Werkbund exhibition in 1914 – like Andreu's project, a monumental hemisphere of diamond-faceted glass, the surface engraved with slogans from poet Paul Scheerbart: 'Glass brings a new era'; 'We feel sorry for the brick culture', and so on.

From Taut's time on, glass architecture has always had a political component, equated with institutional transparency. In Osaka, even without this dimension, the building's clarity and openness is a radical and beautiful break from established museum typology. **wa**

Tom Daniell is an Osaka-based architect and writer



Floorplan level 2



Floorplan level 1

Taking advantage

Gary Chang has taken the Hong Kong data centre boom by storm. **Nicola Turner** reports from his latest 'computer hotel', the Jumbo iAdvantage. Photographs by **Wong Chung Wai**

1

Hong Kong

1 The lounge, on the outer layer of the interconnecting rooms, has views through to the control room

2 The refurbished factory has been given a face-lift with lime green paint and three-storey high lettering

3 In the lounge, the stretch ceiling is pulled down over the ribbon windows, framing the contrasting scenes of chaos outside

Eigth-floor plan

Hong Kong is experiencing a new booming sector – the data centre, a kind of 'computer hotel'. Not one in which you can stay and use computers, but one in which the computers themselves are the customers, and the tariff payable is dependent upon the level of servicing required.

You might wonder how architects could contribute to what is essentially a warehouse, containing rows and rows of intensive care units for the hard discs of internet-related companies across Hong Kong. On visiting the Jumbo iAdvantage data centre, all becomes clear. This new project type represents a whole new challenge for architects around the world, such as Gary Chang of Edge (HK). This young designer is known primarily for his work on interiors projects, but his work on four cinemas and three data centres for iAdvantage has brought him wider recognition. Soon he should be snapped up for larger-scale, new-build commissions.

Anyone in any doubt should pay a visit to his latest project, the third and largest of the iAdvantage family. The Jumbo iAdvantage is situated in central Tsuen Wan, an area populated by large warehouses in various stages of dereliction, and a short cab ride from central Hong Kong. Chang started with a dramatic but simple face-lift to the factory building. He washed the street facade in his trademark lime green, over which he painted the words 'Jumbo iAdvantage' in two rows of letters three storeys high, running the length of the building. The effect is clear, arresting and surprisingly new. At first glance this might be an entirely new building.

The iAdvantage centres provide round-the-clock facility management and server co-location services with impressive back-up and disaster recovery services. The idea is to help the businesses lower their operating costs and pass the savings down to the end user. The Jumbo centre is, as the name suggests, the largest in Hong Kong, with each floor accommodating up to 650 racks. Given the demands for uninterruptible power supply systems, dedicated diesel generators and sophisticated alarm systems (as well as more standard M&E requirements), the whole of the entry level is given over to plant rooms, except for the reception in the far corner.

In the reception lobby, a stretch ceiling reflects the epoxy painted floor, rippling and vibrating in response to the heavy traffic rumbling outside. Lightweight, cheap materials have been used to dramatic effect. Florescent blue lighting illuminates lightweight polycarbonate panels, which are overlaid with a sloping aluminium channel system.

In the lift lobby, a curved wall runs seamlessly into the floor. This at first appears a gesture to industrial hygiene, but it soon becomes apparent that harsh corners and planes have been banished by Chang throughout the interior. It is all part of softening an otherwise harsh, industrial environment and appropriating it for human use. The more 'peopled' an area, the more friendly the materials and use of colour. In the computer stack rooms, for example, plain industrial materials are used and no money has been spent on detailing. In the conference room, however, Chang designed an imposing table of steel frame with timber infill. The doors are lined in James Bond-style white leather, as are the elevator interiors. Where colour is used, it is most often blue or green, such as the glass panels glowing along the conference room wall facing the corridor. Chang describes his use of colour as 'people detectors'.

Throughout the scheme, walls of lighting, glass or metallic finishes divide the space, forming what Chang describes as 'three reference planes' to define the zones. At the heart of the data centre, the primary areas – lounge, engineer's room, control room and conference room – wrap around each other, with the imposing conference room at the heart. Varying levels of transparency allow views through the walls of each layer.

The stretch ceiling in the reception at ground level is used throughout the centre. It is refreshing, in a warehouse refurbishment, not to find the tediously standard exposed ceilings – except in the purely functional spaces of the control room and computer stacks. In the lounge, the stretch ceiling is pulled down like an eyelid over the top half of the ribbon windows, displaying the views of industrial Hong Kong in slightly idealistic frames.

Perhaps the most notable thing about this project is the remarkable standard of detailing and finishes using cheap materials, within a restricted budget and ridiculously tight schedule. The Jumbo iAdvantage was completed in five months, from commission to occupancy. **wa**

Key
1 Reception
2 Lift lobby
3 Conference room
4 Control room
5 Engineer room
6 Meeting lounge
7 General office
8 WC
9 Pantry

Hong Kong

1 The stretch ceiling, blue fluorescent lighting and polycarbonate panels of the reception lobby are used throughout
2 From the conference room it is possible to see through to the control room, and the lounge beyond

Family affair

Attention to detail and finish on the Pei Partnership's Bank of China headquarters building in Beijing have created a new idiom for Chinese architecture. But this has become something of a family tradition. By Ulf Meyer.

Slowly but surely, the western half of central Beijing is being converted into the city's financial district. In recent years, almost all the major Chinese banks have established glossy new buildings in the neighbourhood, notably SOM's Industrial and Commercial Bank (see wa67 p66-68) and the International Financial Building by Group 5. But the pick of the bunch has to be the new Bank of China headquarters by IM Pei's two sons, who together form the Pei Partnership, which they established in 1992.

The Peis were initially reluctant to accept the commission, but a long-standing relationship with the client – Pei senior's father was one of the founders of the bank – and an opportunity for the family to work together, changed their minds.

In fact, one of the first projects that Chien Chung Pei and Li Chung Pei, nicknamed 'Didi' and 'Sandi' ('Little Brother' and 'Third Brother'), worked together on was the Bank of China, in Hong Kong. But other commitments and Pei senior's role as design architect limited their input. Today the tables have turned: Didi and Sandi are the design architects, and the now-retired Pei senior offers support. 'Since his "retirement", our father has taken a keen paternal interest in our continued professional development, which started and flourished in his office,' says Chien Chung Pei.

The Bank of China headquarters creates an imposing presence in a prime location on the corner of the great East-West Chang-An Avenue and Xi'dan shopping street. Compared with the surrounding low-rise housing areas, the bank represents an immense jump in scale.

The state-owned bank – China's largest – makes a necessarily powerful statement of its ambitions, in a similar way as Pei's 'crystal' Bank of China tower in Hong Kong. But height restrictions around the Forbidden City meant that a repeat performance was never a possibility. Instead, the monumental facade, clad with Italian travertine and Chinese granite, is reminiscent of one of Pei's early milestones, the addition to the National Gallery in Washington DC. Vertical cuts and windows are punched into the facades in only two formats. The trading floor, which required a large, column-free space, is on the second floor and spans across the entrances, and is defined externally by bracing in the facade, with the diagonal girder creating rhombic windows. Only the corner 'tower' is reminiscent of the Hong Kong approach, in terms of colour, material and its diagonal pattern.

The building's most striking element is its vast 45m-high column-free atrium, which allows natural light into the depth of the building and also functions as a semi-public space. Its glass-roof is divided into 16 elements, which will no doubt be caused some maintenance problems by Beijing's regular sandstorms.

Despite its uninviting exterior, the interior is a different world. The Pei family comes from the south Chinese city of Suzhou, famed for its gardens, an influence hard at work here. Below rocks imported from Kunming lies a pool, with crooked stones forming a miniature landscape. The glass roof creates a light play on the rocks and on the big bamboo trees at the side from Hangzhou.

The courtyard is flanked by smooth surfaces and flush windows which, since the building is fully air-conditioned, do not open. The glass roof has no shading device either: only the VIP area has sun protection, via thin aluminium lamellas like those in the Miho museum in Japan (1997).

A small domed roof on the south facade serves as a private entrance for VIPs. Two more entrances serve other clients, while the employees enter from the back.

The building also houses a regular branch office. In the corner below the bank's logo, two banking halls sit on top of one another, with the big auditorium on the lower level – courtesy of the large atrium.

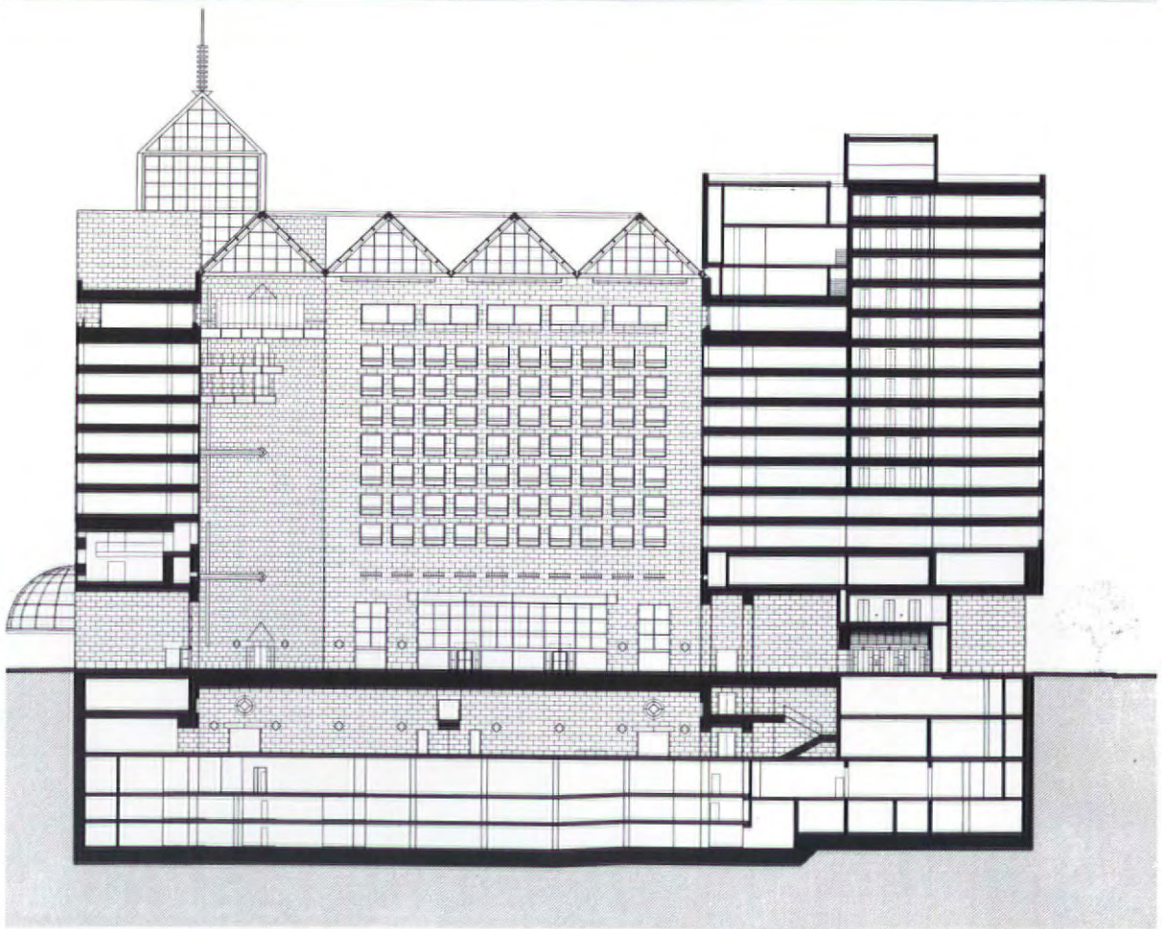
What differentiates the bank from many of its neighbours is a sense of serenity which make its presence felt without needing to shout. A huge effort was invested in the details, finishes and services, such as the lamps from Alabaster and a great wheel-shaped chandelier which work as sculptures in the main hall. Such attention to detail is unusual in China, and caused numerous delays while the architects had to teach the craftsmen.The result is impressive, with a precision unrivalled in China.

If the bank becomes the benchmark for a new era in Chinese architecture it won't be the first time that a Pei has changed the way China looks at architecture. IM Pei's Xiangshan Hotel (1982) achieved as much, combining post-modern thinking with a respect for Chinese spatial principles. wa

Ulf Meyer is wa's Berlin correspondent. He co-authored The Chinese City, published by Jovis, 2000

Client
Bank of China
Architect
Pei Partnership Architects
Design consultant
IM Pei Architect
Consulting structural engineer
Weidlinger Associates
Consulting mechanical engineer
Jaros, Baum & Bolles
Design Institute
China Academy of Building Research
General contractor
CSCEC Construction Co

Height restrictions meant the Peis were unable to repeat the height of Hong Kong's Bank of China, but the corner tower pays homage to it



East-west section

High-traffic public areas:

the other face of Spanish ceramic tiles

Today, architects the world over are using ceramic tiles produced in Spain to cover innumerable spaces. Thanks to Spanish manufacturers' constant drive to innovate, Spanish ceramic tiles now offer technical specifications that make them a highly versatile construction material.

What we are talking about here is a product that is ideal for high traffic outside spaces and public places that are subject to a lot of wear and tear, and also to sharp swings in temperature. Ceramic products applied in such areas need to be non-slip, frost-resistant, stain-repellent and very resistant to high stress levels. This type of product is referred to today as 'high-traffic paving' and can be seen in buildings, major sites and large architectural projects.

Commercial and industrial buildings

Commercial and industrial buildings come in many different shapes and sizes according to what they are being built for, are part of very different architectural projects and have their own distinct interior design agendas: sporting facilities, shopping centres, airports and railway stations, hospitals and laboratories, places of worship and study centres, and buildings for all manner of industrial activity.

Contemporary architecture is returning to ceramic coverings having discovered a huge array of both extruded and pressed non-vitrified stoneware tiles, including the so-called porcelain stoneware tile. There are however vitrified stoneware tiles with specifications that make them suitable for heavy use areas, and the possibility they offer of combining different colours and formats gives fresh scope to creative interior design.

A number of issues turn on the end use of the building, and each must be taken into account and studied while the project is on the drawing board, as they affect the choice of materials and dictate how they should be applied. The common denominator in all these buildings is heavy use and high traffic and the concomitant high or very high level of exposure to the actions of mechanical, physical or chemical agents. On the whole, large, continuous expanses can expect high or very high levels of mechanical action, along with probable exposure to strong static charges, a high degree of abrasion and heavy impact. On occasion, therefore, the solution will have to be to use thicker tiles than are the norm in other types of space.

Gres Breda. Range of natural and rustic extruded porcelain tiles

Cerámica Sugrañes. Indugres model

Porcelanite. High-traffic floor tiles series, rustic stoneware

Navarti Cerámica. Universo series, Urano model, polished porcelain tile

The type of surface mechanical action that needs to be taken into account is inevitably very high intensity: the abrasion to which these areas are exposed and which is greatest where a floor meets the outside, comes not just from the high level and diverse nature of the traffic that crosses them but also from the industrial cleaning methods to which they are usually subjected.

While the chemical and cleaning agents will vary and exposure to abrasion will be greater or lesser depending on the type of site involved, it is advisable to choose tiles with the very greatest resilience to such agents. Chemical, pharmaceutical and dairy plants in particular need ceramic coverings that are resistant to the kind of chemical agents that will foreseeably be used in such sites.

Exterior paving for residential buildings

Ceramic has always been a feature of single family dwellings to some extent. Sometimes it has been used boldly to create skirtings or decorative garden items, but it has also played a more humble role, either simply paving the ground outside, where traditionally rustic, non-vitrified tiles would be used, or paving terraces, for which Catalan floor tiles, often combined with dots would be used.

The options have been considerably enhanced by high-specification vitrified and non-vitrified stoneware tiles that are stain resistant, do not develop mould as a result of damp and are resistant to cracking by frost.

When choosing exterior paving for homes it is important to take into consideration the potential mechanical action of either high or very high intensity, whether internal (as when the area has to bear heavy loads or impacts) or external (for instance if abrasive materials are to be dragged across the area). While the action of chemical agents can be light or even moderate, ease of cleaning must be assured as must, therefore, resistance to the products in regular use domestically. In areas at risk from low temperatures, frost resistance is essential. Lastly, in rainy areas and in spaces where water is around, slip resistance becomes a priority.

Interior spaces in non-residential buildings

Midway between heavy-use residential spaces and industrial buildings is a range of public places where the use of ceramic

Keraben. Marathon series, floor tiles for high-traffic areas

Alcalagres. 228 Mijares model, Rios series, porcelain

Ténica series from Ceracasa. Suitable for , pools, gyms and hospitals

Transit and Veneto series from Cerámica Mahor. Rustic stoneware

covering originates from health and hygiene concerns as well as from a requirement for the surface to fulfil a certain function and be easy to clean. During the last few decades of the 19th century ceramic was adopted by restaurants, bars, dairies, butchers' shops and fishmongers and also in medical and pharmaceutical establishments and by public hygiene services. Later, it was used in places where décor was more important than functionality, a development that reached its peak in modernist architecture. Thereafter, things moved backwards until ceramic tiles either disappeared altogether from such places or were used for purely utilitarian ends, even then just on walls as other materials were brought in to cover floors.

The situation has changed since the beginning of the last decade as ceramic products have adapted to offer the specifications demanded by this kind of use. They have also taken great leaps forward in aesthetics. Today, it is quite common to find ceramic flooring in shops, bars and restaurants as well as ceramic tiles on the walls.

Heavy to very heavy mechanical action, or action by chemical agents, have to be taken into account when planning a ceramic indoor floor for a non-residential building. Cold-stores have a requirement for frost and slip resistance, with the latter also being a pre-requisite for fishmongers and sites where there is a strong possibility of liquid spillage.

In projects for the interior design of shops or other sites subject to medium levels of traffic where the decorative element is a special consideration, it is essential to predict the kind of surface mechanical action to which the floor will be subjected in those areas where traffic will be higher and which will be exposed to abrasion (entrances and exits and areas in front of pay points in shops). The choice should be tiles with the very highest levels of resistance to abrasion.

For further information contact:
Europe: ASCER (Spanish Ceramic Tile Manufactuers' Association) tel +34 964 72 72 00, fax +34 9643 72 72 12, email global@ascer.es, or visit website www.ascer.es
North America: Spanish Commercial Office (US) tel +305 446 4387, fax +305 446 2602, email buzon.oficial@miami.ofcomes.mxc.es
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Everest Plus from Keros Ceramica. Resistant to superficial waste

Castilla Bronce-Triangulo series from Porcelaker Cerámicas

Kyrah

gres porcellanato

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ing them into ageless stones.
ah is the poetry of distant worlds, and calls to mind harmonies of
ours: the blue of nights at sea, the yellow of sunset-caressed
ers, the white flash of the surface of the moon, the enchantment
ed wind-eroded earth, the green of unpolluted forests.
ne of porcelain stoneware which is the ideal for indoor laying,
rs and walls all bearing the unique mark of the Cerdomus style.

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1 Synthetic ice – Viking Ice
2 Seasonal – HarveyMaria
3 Comfortable Concrete – Milliken
4 WalkWear – Milliken
5 Interior, Foundry apartments

products

Floorless performance

Even though you can ice-skate on plastic these days, traditional sports flooring surfaces still dominate the sector. Dan Fox asks whether new precision-engineered synthetic surfaces will ever be able to compete with good old fashioned wood, grass and ice.

The professional sport industry has benefited from new technology more than most. As digital TV companies and consumer product manufacturers queue up to lavish their billions on organising bodies, teams and athletes, few would deny that sport has re-invented itself for the communication age. But despite sophisticated synthetic alternatives, at the top level, ice hockey is still payed on ice, basketball on wood, tennis on clay, and football on turf. Can it be that in the age when we can decode the human genome, we can't produce an artificial turf that behaves in the same way as grass? Or is it simply inertia in sport's corridors of power that prevents artificial alternatives from gaining acceptance?

Ice vs plastic ice

In the US National Hockey League, players are registering their dissatisfaction with the quality of the ice surfaces they play on. Overpaid, they may be; primadonnas, perhaps; but when they present a united front, people take notice. As a result, artificial ice is being considered as a viable alternative to the real thing for the first time. The newest artificial ice surfaces are said to be inferior to the genuine article by a 'glide factor' of 10%. Closing that 10% gap could revolutionise the arena design sector.

It's not that good quality ice isn't easy to achieve. The problems come on matchdays when the complex 'ecosystem' needed to maintain an ice sheet is disrupted by indoor fireworks, body heat, cigarette smoke, influxes of outside air and intermission features on the ice. In the multi-use marketing playgrounds that are modern ice rinks, architects and subsequently ice specialists have almost no control over the atmosphere within their building.

It doesn't take a rocket scientist to see the advantages of artificial ice surfaces. The cost of operations for real ice is estimated to be 10 times that of maintaining a plastic surface – and that doesn't include the capital expenditure of refrigeration plant, the sealing of the structure, and the extended installation time. Then there is the increased multi-use capability, which broadens the revenue-earning potential of the facility, and the versatility of application – plastic ice can be laid on any hard surface, whereas real ice needs a complex concrete or sand base.

Alan Wier of Viking Ice, one of the few firms developing artificial ice, claims that it will have a product which compares to the real thing in a year's time. 'When we're talking about synthetic or plastic ice those are very generic terms. This is high density polyethylene with silicon coating. We're working on improving the surface and a new skate that will glide perfectly. At the moment our product has a 90% glide factor, but it stays at 90%. Real ice has 100% glide factor but it deteriorates to 85% after an hour's use.'

With fewer private rinks, the need for economy in Europe and Asia may not be as acute as it is at the moment in the US. A flurry of rink-building in the southern states has forced clients to confront the idea of plastic ice, and resistance seems to be melting. Most professional venues now have plastic training surfaces, and small-scale plastic pleasure rinks are becoming more common. It's now up to the manufacturers to show that a true alternative to ice can be developed for the main attraction.

Further information:
Viking Ice: www.vikingice.anthill.com
SuperIce: www.aiecorp.com

Wood vs synthetic flooring

It takes some serious science to come up with plastic compounds for gymnasium and basketball floors, but the sprung wooden floors that dominate in top-level sports facilities are the product of equally precise engineering. That might be why a fistful of new reports show that wooden sports floors are cheaper, safer, and longer-lasting than their synthetic counterparts. So how does a traditional material perceived as inflexible in both the literal and the aesthetic sense win out over the latest technology?

In fact, few surfaces are as soft and responsive as wood. When an athlete impacts a sports surface, the force is translated into impact force (the degree to which the floor absorbs the impact) and impact return force (the amount of force returned to the athlete). Wood floors can be specified soft or stiff, but in most cases they will have a far lower impact return than synthetic floors, which are laid directly on concrete surfaces. A recent Incidence of Injury study showed that of a sample of 967 sports injuries in US gymnasiums, 606

Viking Ice's synthetic ice skating surface – a wooden core panel is laminated on both sides with grooved thermoplastic

were on synthetic floors – representing a 70% higher chance of injury.

Another survey to determine life-cycle costing compared maple sports floors with PVC or poured urethane alternatives. Maple is around two thirds more expensive than urethane and PVC, but is cheaper to maintain. In US units the price is around US$8/square foot, but it is 78 cents/square foot per year cheaper to maintain. Since lifespans can reach 38 years, this represents a significant amount of money.

Poured urethane and plastic floors do have certain advantages – the ease and versatility of installation are as crucial to specifiers as their low price. But boards on a sprung base are inherently more flexible than material poured onto a solid surface. Until the fundamental principle of laying synthetic sports flooring is altered, it is destined to remain a cheap and cheerful alternative.

Further information:
American Hardwood Export Council:
www.ahec.org
Maple Flooring Manufacturers Association:
www.maplefloor.org

Turf vs Astroturf

Grass is dying in stadiums around the world because their structures block out light. And the push for state-of-the art roofing and the inevitable grander scale of premium-seating means the problem is getting worse. Solutions are expensive (moving pitches) or fledgling (turf in interchangeable trays), so why does artificial grass continue to be ignored? An NFL survey reveals why millionaire sportsmen prefer not to play on thin green carpets. Some 90% of its athletes think they are more likely to suffer injuries on artificial turf. But surely it is possible to develop artificial turf that performs in the same way as the real thing.

It's been a holy grail for firms like Astroturf for many years, but manufacturers are under no illusions that their efforts to develop the right products may be dwarfed by the effort to persuade sports bodies to endorse them. But while turf producers have had to grapple publicly with a variety of problems over the last few years, artificial turf manufacturers have been quietly upping their game.

Astroturf has come up with Astrograss, semi sand-filled to provide durability and extra traction. But Canadian firm SynTenni's Fieldturf gets even closer. The concept is based on the tee boxes found on golf courses, which has individual fibres 50-75mm long, tufted in a similar pattern to real grass. Each fibre is surrounded by grounded silica and ground pure rubber with similar characteristics to natural earth holding each blade.

Several soccer teams now use Fieldturf for training, and its manufacturer reckons the key to acceptance lies in getting the material installed in countries with poor conditions for growing natural grass. It's hard to say how long this might take – but Fieldturf is likely to be one of the first artificial sports surfaces to match grass for performance. What happens next is open to debate. wa

Further information
Fieldturf: www.fieldturf.com
Astroturf: www.astroturf.com

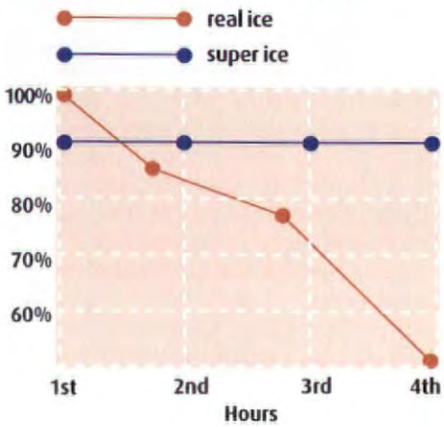
Turf vs artificial turf – injuries

Ave per game	Minor	Moderate	Major
Grass (8)	71%	9%	21%
Fieldturf (4)	93%	2%	5%
Astroturf (13)	85%	–	15%

Sports flooring – costs (US$ per sqft)

	Maple	PVC	Urethane
Installed costs	8.13	6.5	5.0
Daily maintenance	0.20	0.20	0.20
Annual repair	0.28	0.19	0.19
Major repair	0.08	–	0.25
Life expectancy (yrs)	38	15	38

Ice vs plastic ice – surface quality



Mixed metaphors

Carpet that looks like concrete and cork tiles that look like fallen leaves are part of a trend to interchange the hard and soft qualities of different flooring materials to blur the boundaries of interior space. By Dan Fox

The lobby flooring of the Foundry, New York's newest luxury apartment scheme, is such a focal element of the interior design, visitors are expected to sit on it. The Foundry's architect, Joel Saunders, is one of a number of contemporary designers defying the conventional idea of the floor as a mono-functional plane. Zaha Hadid replaces right-angled floor-wall-ceiling joints with curves in her search for 'contemporary spatiality', as did Diller + Scofidio recently with its Seagram Brasserie renovation (**wa**88 pages 86-89).

But this discourse no longer needs to be the sole domain of avant-garde architects. In tandem with high-end experimentation have come off-the-peg flooring ranges that blur the traditional boundaries between soft and hard materials, and present vibrant new interpretations of the floor's place in the interior scheme.

For the Foundry, Saunders' (who made his name designing loft interiors on Manhattan's upper west side) was asked by his client to tap into oriental notions of spirituality, without descending toward another uncomfortable pastiche, replete with knee-level tables and ersatz feng shui. The Foundry's lobby is a new reading of the floor's function. 'I was looking at ideas of architecture and enclosure, and found myself questioning the role of the floor as it relates to freestanding furniture,' says the architect.

The Foundry's concrete floor plane is suspended a few inches above a Japanese-style pool which covers the entire space – replenished continuously from a ceiling-height water feature on the entrance wall. In some places the concrete is cut away to reveal water, in others it folds upwards to delineate spaces. But the key feature is the seating and concierge desk, which are formed solely from folds in the floor plane. 'Where the stark concrete becomes furniture, panels of red leather are set into it,' says Saunders. 'It's token, but people don't feel comfortable leaning on concrete – even though they may relax perfectly happily on wood.'

Saunders worked with his concrete manufacturer in the same way that he might have for exterior features, establishing a mould and having the components realised. 'The juxtaposition of the concrete and water is important – their properties give a refreshing and challenging experience of the space. But I'm more interested in the biomorphic aspect of the work – how can we break down the planes of the interior space, and make them work more efficiently together?'

Concrete, with all its modish urban chic, presents the same contradictions to any designer using it as an interior material. It lends uncompromising, edgy and raw qualities to a space – but not luxury. Until now, at least. US carpet producer Milliken has been asking the same questions as Saunders, and earlier in the year it launched Comfortable Concrete, designed by UK-fashion pundit Wayne Hemmingway. These cushioned carpet tiles are aimed at corporate interiors like banks, museums, and advertising agencies as well as fashionable loft-style apartments. Potential clients might also include Dotcom agencies which have money to burn and a willingness to take a risk on potentially faddish fashions.

1 HarveyMaria's Seasonal cork-PVC floor tiles – fallen leaves version
2 Interior rendering of Joel Saunders' Foundry lobby, with folding concrete floor plane
3 Milliken's Comfortable Concrete cushioned carpet tiles
4 Milliken's WalkWear denim pattern

Where to look

✶ Milliken Carpet
Tel: +1 706 880 5758
Fax: +1 706 880 5448
Web: www.millikencarpet.com
✶ Interface
Tel: +1 770 437 6800
Fax: +1 770 803 6950
Web: www.interfaceinc.com
✶ HarveyMaria
Tel: +44 208 516 788
Fax: +44 208 516 7789
Web: www.harveymaria.co.uk
✶ Forbo (Linoleum)
Tel: +31 75 64 77 477
Fax: +31 75 64 77701
Web: www.krommenie.forbo.com

Milliken's design resembles a wet, grey urban pavement complete with three-dimensional cracks, studs and slightly caricatured gas meter indent tiles. New patented dye injection patterning technology delivers 400 placements of colour per square inch, bringing a new level of photo-realism.

Having successfully mixed up the conventional associations of concrete – Milliken and Hemmingway have gone a step further, with WalkWear, which mimics denim clothing with spectacular accuracy. Denim is not quite as familiar a material to architects as concrete, but Hemmingway believes that there is a real demand for carpet designs which can offer the same design dynamism as other, less forgiving materials: 'Interior design is part of a creative industry. I can't believe that the proliferation of wood flooring hasn't frightened the carpet industry into outright fashion war before now.'

It appears it may have – a new British initiative aims to get carpet back onto the agenda for style-conscious specifiers. The Carpet Foundation is an umbrella group for companies like Britton Carpet, which produces a staggering range of carpet finishes but doesn't feel it connects directly with high-end architects. With the endorsement of top British architect and carpet fan Nigel Coates, the venture looks likely to carry some considerable weight.

But if a soft concrete or denim carpet is challenge enough, try HarveyMaria's Seasonal range, an innovative cork and PVC mix with photorealistic images of ice, sky or a blanket of leaves. Cork flooring, with its natural insulating qualities and durable PVC, excellent for printing colour, are rarely used together, but provide a strong basis for a hybrid floor tile.

Interface's Solenium floorcovering for the healthcare market also seeks to fill the gap between soft carpet and resilient hard-flooring – using scientific rather than aesthetic creativity. Solenium comes in response to the needs of specifiers who traditionally use hard-floors, but require better acoustic performance, aesthetic appeal, traction and comfort.

The face of Solenium is made from Corterra poly trimethylene terephthalate, a specialised proprietary polymer that offers excellent stain resistance qualities, an anti-microbial agent to combat bacteria and a high-density foam cushion. Solenium is the latest in a long line of products which attempt to fill this niche, but early sales in Europe suggest that this one may succeed.

And for a truly versatile material which originally made its mark in the healthcare sector, linoleum is making a comeback. Companies like the Dutch firm Forbo, which produces Marmoleum and Artoleum, are convinced that linoleum's qualities are specific to the age, and will perform in the same way as wood and concrete in the future. Linoleum is one of the more environmentally-friendly of flooring materials – consisting of homogenous mixtures of natural raw materials, such as linseed oil, natural resins, wood and cork flour, limestone and jute.

Printing accuracy, and a broad range of production colours and textures has seen Marmoleum, Artoleum and their peers breaking out of their traditional sectors into banks, high-level housing, and various types of public space. **wa**

Covering all bases

Coverings 2000, the largest tile exhibition in the American continent, may well be the best crash course on ceramics and stone an architect can get. Tile guru Ron Treister went along to see why, and found design and technology to impress the most discerning of specifiers.

For four days during the first week of May, Coverings 2000, the largest international ceramic tile and natural stone exposition in the western hemisphere, took place in Orlando, at Florida's Orange County Convention Center. In just 48 hours prior to the expo, workers from more than 40 different countries began a labour marathon; recreating state-of-the-art exhibits from the myriad blueprints generated by architects and designers during the past year.

Some 1,200 exhibits from 37 nations, showcased in perhaps the most modern and visitor-friendly trade fair venue in the world, offered a visual and informational smorgasbord. In addition to more than 100 free conference sessions, there was a keynote address delivered by Michael Graves – who discussed the use of natural stone in architecture throughout history, and the structural and symbolic significance of stone building materials as well as the reinterpretation of the use of stone in the 20th century.

Demand for ceramic tile and natural stone in the States has been growing at a staggering rate. Tile Council of America figures show a 14.9% increase in sales volume for ceramic tiles from 1998 to 1999. A US$1.3 billion industry in 1995 reached nearly US$2.1 billion in 1999.

Market share for tile has grown to 18% of the hard surfaces marketplace; and 9% of the overall floor covering market. Growth has been driven by strength of the US economy, rising disposable income and growing appreciation for the quality, beauty and easy-care aspects of tile. All of this and more helped raise Coverings' professional attendance to 19,766, a 19.3% increase over last year.

What was seen at Coverings? The latest looks included ceramic tile emulating natural slate, large-format porcelain tiles with textured glazed surfaces, every type of mosaic imaginable, agglomerated marble inlaid with Venetian glass, and stone tiles with different surface treatments including polished, honed, flamed, hammered and acid-etched. 'The rustic look is still in,' states architect Michel St Germaine. 'But, I saw so many more ways for it to be used; in particular, specifying one style and one colour of a certain floor tile collection with various different modular sizes.'

Some of the materials seen at the Italian pavilion ranged from tiny, mesh-mounted mosaics to oxidised terracotta versions, smooth matte-porcelains, antiqued artisan tiles and glazed, extruded formats. Metallic looks and iridescent effects were prevalent.

Brazil, a leading ceramic tile producing nation and the source for some of the world's most colourful stone materials, was represented at Coverings in force. 'Stone-look' ceramic tiles in colours and textures reminiscent of Brazilian natural stone were introduced.

'A great deal of research takes place before we bring any product to market,' says Adriano Lima, president and CEO of Eliane Ceramic Tiles, Brazil's

Find out more about tile ...

- **Coverings:** www.coverings.com
- **Waterjet cutting:** www.waterjets.org
- **Ceramic Tile Industry Information Centre:** www.ceramic-tile.com
- **Ceramic Tile Education Foundation:** www.tileschool.com
- **Tile Council of America:** www.tileusa.com

1 The floors of Coverings were alive with the sound of tile talk
2 Elian Ceramic Tile's natural stone look
3 Marsha McCarthy 'Tile as Art' zebra pattern.
4 Metallic looks were prevalent: Boyce and Bean Hollowcast aluminium tile
5 Interstyle's 'Watercolours' range. New large formats are functional, but not necessarily fashionable
6 The rustic look survives: Garden Grace's 'Leaves'
7 Metallic finish from Crossville Ceramics
8 Azulev SA's large-format 'DM Montreal'
9 Ege Seramik 'Corona Blue' – oxidised terracotta

largest producer. 'The technology has progressed to the point where many of our stone-look ceramic tiles upon installation, are mistaken for the real thing.' Lima's firm worked for two years in conjunction with acclaimed Brazilian architect Joan Armentano to develop the porcelain-tile 'Travertino Romano' which indeed looks like travertine ... but performs like ceramic tile.

The worldwide growth of ceramic tile and natural stone is predicated on another factor – correct installation. In addition to the various seminars on installation techniques held via Coverings' conference programme, the Ceramic Tile Education Foundation offered hands-on training sessions in a large tented area just outside the expo centre. One of the most unique installation exhibitions was by Laticrete International. During the first three days of Coverings 2000, Laticrete constructed a three-dimensional, completely tile-clad miniature golf course right in its exhibit. On the last day of the show, attendees were let loose on it.

Italy and Spain, which represent the two largest exporters of ceramic tile to the United States (see over), plan to increase their respective efforts in marketing and internet programs to assist their member companies expose their products to architects across the Americas.

According to the Italian tile manufacturers' trade association Assopiastrelle, Italy ships more than 500 million square feet of ceramic tile to the United States annually and more than 200 Italian producers were exhibiting at Coverings. An ambitious government-funded advertising programme to promote Italian-made products is planned to debut in the United States shortly.

Tiles of Spain has launched an interactive website, www.tilespain.com, which includes links to related sites, an updated list of international contacts and information on how to specify tile and other useful items.

Waterjet design and fabrication is still central to many of the developments in the sector. 'Architects and designers still don't realise the full potential of this service,' declares Randy Stertmeyer of Creative Edge Corporation, the United States' largest waterjet cutting, design and fabrication company.

'For years, the A & D community has called upon firms like ours for custom-cut floor medallions in natural stone and more recently, ceramic tile. Now it's time to be aware that these hard surface materials can be precisely cut in repeated patterns at a fraction of the cost of doing it by hand.'

At Coverings, Creative Edge unveiled an innovative line of waterjet-cut listellos, accent tiles and medallions in both ceramic and stone. 'With waterjet, inlays containing curved flowers, ogees, many different colours and more, all can be accomplished.'

If an architect or designer wants to take a comprehensive four-day course on ceramic tile and stone, there is no better place in which to do so.

Next year Coverings will take place at the same location, but moves to a later date, 12-15 June. **wa**

The Latin quarter

Italian and Spanish tile exhibitors were surprisingly conspicuous at the US' Coverings 2000, and this is just the beginning. Latin tilemakers are out to conquer the world, so it pays to know Catalonian floor tiles from white body terraglia.

1 'Smirne' beige tile from Alfa Ceramica
2 Italgres' 'Ambra Marrou' stoneware

If you specifiy tiles you'll come across Italian and Spanish varieties sooner rather than later. Their respective manufacturing organisations, Assopiastrelle (www.assopiastrelle.com) and Ascer (www.ascer.com), are campaigning to promote awareness, availability and familiarity with their products in Asia and the US. So what do you need to know before you go looking for them?

Italy

Italy manufactures more ceramic tiles than any other country in the world. Most Italian tiles meet not only Italy's UNI standards but also satisfy European standards (UNI EN standards), which will qualify them for the soon to be awarded world standard, UNI ISO).

Typical tiles:

Majolica, Cottoforte, white body terraglia

Glazed double fired tiles - the clay is fired, then the glaze is applied and the body fired again. The tiles are then formed by pressing, giving excellent outward durability. The body is porous and coloured, or clean white for the terraglia version.

Monocottura

Special types of single-fired tiles include dust pressed, where the glaze is applied in powder form at the moment of pressing, and glazed on an incandescent base. Both methods give a unique range of organic finishes.

Clinker, Cotto

Unglazed or single fired glazed tiles on bodies in different colours. Clinker is usually compact, strong and watertight.

Porcelain stoneware

Unglazed tiles on a clean body, coloured or polished – the colour may be solid or grainy (to give the look of granite), or smooth. Vitreous tiles are also available.

Where to get them

There are more than 300 ceramic tile manufacturers officially registered. Keep your eyes open for those listed below – the designer labels for those in the know:

Aristoea Spa (porcelain stoneware)
Tel: +39 0536 816811
Fax: +39 0536 816838
Cerdomus Ceramiche Spa (white body, porcelain stoneware and clinker)
Tel: +39 0546 652111
Fax: +39 0546 50010
Ceramiche Gardina Orchidea (white body single fired, full cycle double fired)
Tel: +39 0536 849611
Fax: +39 0536 849856
Finibec Spa (white body single fired and porous, porcelain stoneware)
Tel: +39 0536 861300
Fax: +39 0536 861400
Florim Ceramiche Spa (white body double fired tile, porcelain stoneware)
Tel: +39 0536 840111
Fax: +39 0536 844750
Impronta Spa (white body double fired tile, porcelain stoneware)
Tel: +39 +0522 336611
Fax: +39 +0522 392067
Italgres (double-loaded porcelain)
Tel: +39 886 60 18
Fax: +39 886 62 48

Spain

Almost all of Spain's considerable tile production centres on the Castellon region around Valencia (see wa86 pp 122-123). Basic Spanish tiles are included in the BIII group of the ISTO 13006 and UNE 67-087 standards (dry pressed ceramic tiles with less than 10% water absorption).

Typical tiles:

Basic tile

The stock Spanish ceramic tile is highly porous, with a bisque of majolica (fine earthenware). The glaze can be single-coloured, marbled, or multi-coloured.

Catalonian floor tile

The unglazed Catalonian floor tile is the dark red colour of burnt clay. Hexagons, regular octagons and oblongs and tiles with curvilinear sides can be achieved.

Rustic tiles

Covers 'quarry tiles', moulded by simultaneous extrusion of two tiles, separated after firing leaving the strias with a distinctive profile of the breakage. Also 'salt glaze' tiles, where salt is applied during firing, giving a shiny, uneven bronze film.

Porcelain stoneware

Spanish porcelain stoneware tiles are often installed directly after firing. The face may have reliefs for decoration (similar to natural stone) or be non-slipping (diamond tips, strias, angles...).

Where to get them

Spain's leading tile houses offer the full range of ceramic products, plus some avant-garde takes on the nation's historic manufacturing industry.

Alcalagres (porcelain tiles)
Tel: +34 91 8865920
Fax: +34 91 8866248
Alfa Ceramica (basic rectangular tiles and decorative accessories)
Tel: +34 964 670542
Fax: +34 964 673113
Aparici (basic tiles and porcelain)
Tel: +34 964 701010
Fax: 34 964 32 8337
Ceramica Saloni (rectangular basic tiles, polygonal basic tiles with equal sides)
Tel: +34 964 343434
Fax: +34 964 343471
Porcelanatto (Glazed floor tiles, porcelain tiles)
Tel: +34 964 657606
Fax: +34 964 321655
Pocelanosa (polygonal basic tiles with equal sides, curved basic tiles)
Tel: +34 964 507100
Fax: +34 964 507121
Tau Ceramica (glazed floor tiles, porcelain tiles, rectangular basic tiles)
Tel: +34 964 250105
Fax: +34 964 254544

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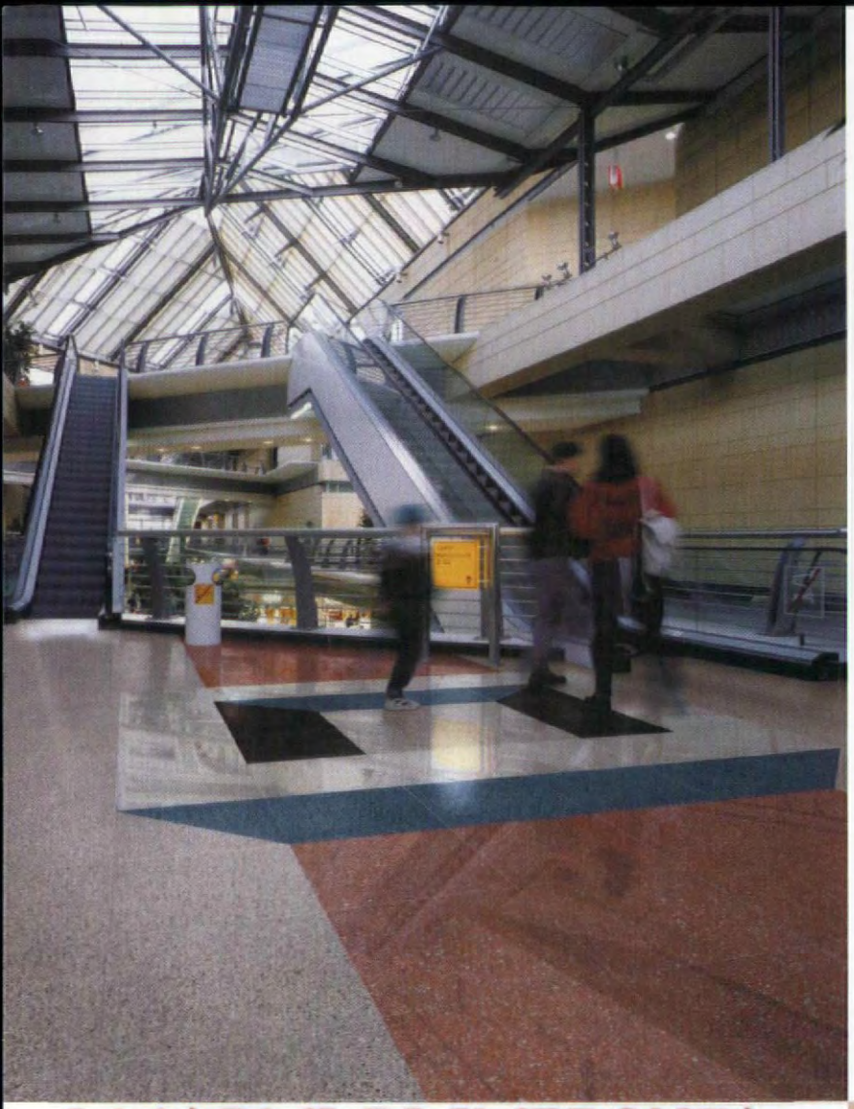

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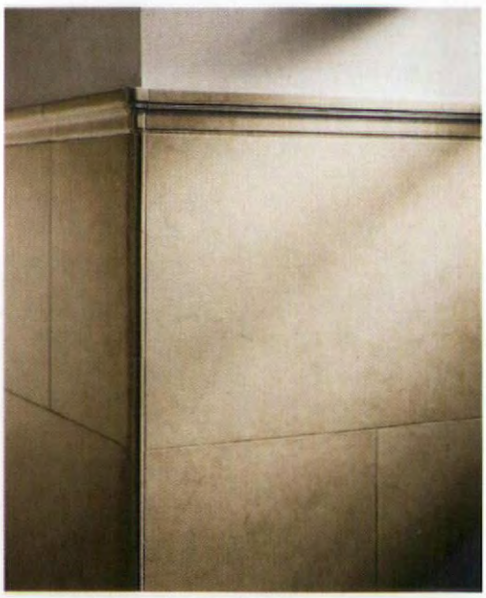

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Osterrechische Heraklith
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SPS
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Fax: +39 0429 899294
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Trilux-Lenze
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Fax: +49 2932 301507
Web: www.trilux.de
Email: tx-world@trilux.de
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Venue 2001
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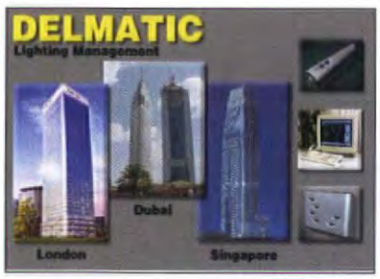
ERCO Lighting Limited

www.erco.com provides a world of information for those involved in the decision-making processes in lighting design. The range of information on the ERCO website has developed into an extensive range of lighting knowledge and information about ERCO, its products and philosophy.

Prospective international customers who may be making their first contact with the company will find that erco.com provides an ideal opportunity to experience ERCO in its entirety. All the information which would be expected from one of the world's leading manufacturers is available here for lighting designers and users of light-calculation and simulation software.

http://www.erco.com



Delmatic Lighting Management

Delmatic's website illustrates the latest in advanced lighting management, and combines design information with case-studies of major international projects equipped with the latest flexible and inter-operable LonWorks environmental controls.

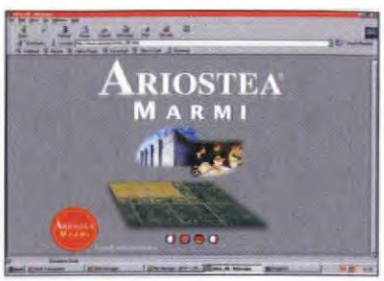
Systems offer total flexibility and liberate architects and designers from the rigidities of electrical installation, enabling lighting moods to be created, adapted and personalised from desk PCs and telephones and personal transmitters.

http://www.delmatic.co.uk

Wilkhahn GMBH

Wilkhahn develops design-oriented products and interior concepts for application in the high quality segments of contract furniture and for Airports (eg. Chek Lap Kok, Hong Kong) The German Marketing Prize, the German Ecology Prize and the participation in the world exhibition EXPO 2000, Germany, with the project "The future of work in the tense and exciting interplay of humankind, nature, technology and the market" underline Wilkhahn's endeavour to assume the role of a responsible-minded pioneer, which goes beyond the development of enduring products.

http://www.wilkhahn.com



Ariostea Marmi

Ariostea Marmi has completely redesigned and expanded its website to provide visitors with an extensive menu, from complete catalogue of its flooring materials to the services offered to designers and customers. The new Ariostea Marmi brand shows the company's explicit evolution in the research and production of marble and natural stone.

In fact Ariostea Marmi maintain all the natural features of quarry marble, thus providing superior wear and chemical resistance.

http://www.ariostea.it

Polar Blox

Polar Blox, Inc. manufactures a polycarbonate snow guard that is U.V. protected. They carry four different models: Universal Guards, Minor Rib Guards which can be adhesive mounted or mechanically fastened; Slate and Shingle Guards which can be used for retrofit or new construction; and Standing Seam Guards which clamp on to the seam with no panel penetration or adhesives. These guards are available in clear and an array of colours.

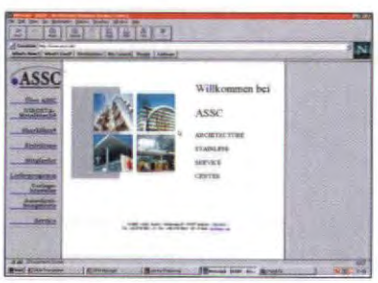
http://www.polarblox.com

NACO Srl

Naco's presence on the Internet since 1997 provides a general overview on its products which consists of adjustable louvre mechanisms for glass, wood and aluminium windows, as well as for external Sunbreaker Systems. As one of the leading producers of both product types, Naco Srl provides the best solution for air, sun and light control. New products are constantly being developed, such as the adjustable sunbreaker with perforated aluminium blades or custom shaped extruded profiles. For more information call

Tel: +3906 841 5949.

http://www.naco.it



ASSC GMBH

Services of the ASSC GmbH. ASSC is a system manufacturer of roof coverings and wall cladding for installations of stainless steel or titanium. Arguments for the NIROSTA/Titanium-Metall Roof System:

* almost unlimited life expectancy * no maintenance * low weight * heat reflection * suitable for 0° roofs * algae and root resistant * assembly which is independent of the wheatear * improved fire protection * easy lightning conduction.

ASSC provides advice for architects and planners about stainless steel and titanium material uses. ASSC offers matt, shiny and a "Sharkskin" non-reflective surface.

http://www.assc.de

Reggiani Group

The Reggiani site is not merely a facsimile of a printed catalogue, but rather is a wide portfolio of interior and exterior luminaires which can be examined in a variety of ways:by application, light source, IP rating, cut-out size and control gear type for example. There are full colour images of products and projects, text, technical and photometric data all available by simply clicking on to the images and going deeper and deeper into the information.

There are also quicktime movies providing information on particular products illustrating their many features and installation methods

http://www.reggiani.net

Earning curve

How do your earnings compare with other architects in the same region, and of the same age?

Members can find out by securing a copy of the annual UK RIBA Employment & Earnings Survey. Highlighted in July's *RIBA Journal*, the full report is now available free to members in hard copy or email format; it can also be downloaded directly from Ribanet Conference.

The annual survey canvasses more than 2,000 architects. It is used both to benchmark salaries within the profession and as a guide to architects' comparative earnings in the marketplace. This year it showed architects earnings to have increased by 5 per cent between 1 April 1999 and 1 April 2000. The average architect earns £30,000 (US$48,000) (up from £28,500 (US$45,600) last year).

Sole principals' earnings have increased by 8 per cent to an average figure of £26,000 (US$41,600), though the highest-paid group remains principals in partnership, whose average earnings are £38,000 (US$60,800). The largest rise in earnings was for those aged 45-49, who saw an 11 per cent rise.

The proportion of architects not working has fallen from 5 per cent to 2 per cent (those working full time up from 86 per cent to 88 per cent). Under-employment has halved: 10 per cent at the time of the survey last year, 5 per cent this year.

For a copy of the survey, members can call +44 (0)906 302 0444 (calls charged at 50p per minute), or go to the Practice forum on Ribanet Conference (now accessible via www.architecture.com)

Big push for small practices

A new vice-president post and a specially targetted earnings survey, are the latest RIBA initiatives to ease the lot of the smaller practice

Issues affecting small architectural practices are to come under the spotlight, following the appointment of the RIBA's first vice-president representing the sector – and the announcement of a major new survey.

In a move aimed at raising the profile of the contemporary small practitioner, institute president Marco Goldschmied has created the new role of 'VP small practice'. Elspeth Clements, chair of the RIBA's small practice committee, has been appointed to the post.

One of her first tasks will be to oversee a 'mapping exercise' of the sector. A survey questionnaire is due to go out soon to thousands of RIBA members, aimed at collecting data on aspects of small practice including working methods, staffing, fee calculation, business planning and CPD.

In the light of the recent employment and earnings survey carried out for the institute (see panel, left) the planned exercise will test anecdotal evidence of significant disparities between small practice earnings and those elsewhere. Small practices will be asked for details of turnover and profit, as well as how fees are calculated – this will reveal how closely small practices follow RIBA recommended fee scales and hourly rates.

The survey will also map the proportion of small practices working from home, the busiest market sectors for work, how jobs are procured and work stages covered. Crucially, practices will be quizzed on time management – one of the main sources for concern among members of the small practice committee, which feels sole traders and those in partnerships or limited companies with a small payroll are particularly vulnerable to pressure from clients squeezing more time from a fixed fee.

Practices will be asked to calculate the number of hours spent weekly on site supervision, site meetings, client meetings, supervision of staff, travel, job management, CPD, business management and planning, accounts, marketing – and designing.

The survey will also try to determine the extent to which small practices are networking with each other, and the demand for this to increase. An RIBA report last year revealed a rise in the level of networking among small practices throughout the UK – via CPD groups, technical user groups and regional marketing alliances – and internationally via electronic conferences such as Ribanet.

The small practice committee hopes to produce a report in the future comparing the experience of practices in the UK with their European counterparts.

TV winner

A collaboration between the RIBA and Channel 4 is set to make this year's Building of the Year Award the most accessible – and interactive – ever.

A series of programmes will chart the selection process for the Stirling Prize, won last year by Future Systems' media centre at Lord's cricket ground. And a new category of Channel 4 People's Choice will allow members of the public to vote online for their favourite building.

A Building of the Year website has been created within www.channel4.com, presenting descriptions and images of the 50 RIBA Award winners from which the Stirling winner will be selected. The people's choice nomination will automatically go on to the shortlist. This year's jury includes Marco Goldschmied (RIBA president) and Michael Manser (chair of the RIBA Awards Group).

Deadline for voting is 1 October 2000. Voting forms are online at www.dowerhill.co.uk/vote or may be ordered on +44 (0)9001 11 44 56.

Channel 4 will screen four short programmes celebrating British architecture this month, and on November 4 there will be live coverage of the Stirling Prize and other major architectural awards, including the Stephen Lawrence Prize for the best building costing less than £500,000 (US$800,000).

PMinent

Architects for Project Management, the RIBA Linked Society launched earlier this year, is extending its membership. And its reach.

Membership is now 120 and rising, and includes overseas members from Australia, Singapore and Luxembourg. A number of major architectural practices are represented, and there are several members from other related disciplines.

A4PM plans a website and an autumn conference and a series of industry initiatives, including proposals for introducing project management teaching into schools of architecture, at undergraduate and post-graduate level. For details of society activity, email greg.slater@aww-uk.com

Bookmarks

The RIBA *List of Recommended Books 2000* has been published. Compiled annually by the institute's Recommended Books Selection Group, it offers a general but authoritative guide to the best books on architecture and related disciplines.

The list contains over 900 entries, arranged in subject categories, supported by an alphabetical index of subjects. The number of out-of-print titles has been kept to a minimum, and as a general rule the list excludes books regarded as too specialised, building regulations and bylaws, standards and codes of practice and material issued by the Building Research Establishment and professional or trade associations.

Members can get a copy of the list from the British Architectural Library (+44 (0)20 7307 3707) or download it directly from the Architectural Practice section of Ribanet Conference.

Ribanet Conference

The transport implications of residential development continue to surface in several discussion threads.

In **Planning**, one member reports a dispute with a highway authority about visibility splays for an access on a steep hill. PPG13 sets out stopping distances for vehicles at various speeds on the level. 'My argument is that this distance should be reduced in the direction of traffic approaching uphill. As well as being steep, the road is relatively narrow and lined by stone walls – new visibility splays would change its character dramatically and unnecessarily.'

A follow-up posting urges caution: 'Modern cars go almost as fast uphill as on the level. Sight lines can be over land not in your client's ownership.'

Meanwhile in **Technology**, one local council is reported to be insisting upon radon risk reports on all applications for new houses (which cost at least £35 (US$56)). In **Sustainability**, defenders of the Dome proclaim its green credentials. Problems with sprayed roof insulation are flagged up in **Conservation**.

A new RIBAGuide on conciliation is now available for download.

Bulletins from throughout the world appear in **Market Intelligence**; one member tells how his website landed him a job in the Ukraine.

Software is free to members – 3,000 are now online. Email your member number, specifying PC or Mac, to ribanet@inst.riba.org

RIBA tunes to world service

A series of initiatives are set to strengthen cultural ties and increase trade opportunities around the globe

The RIBA is set to increase its influence on the world stage with a series of initiatives aimed at increasing trade opportunities and strengthening cultural ties.

Signalled by the separation of international affairs and practice within the institute's policy management board (John Wright has become vice-president solely for international affairs) the focus on global services will highlight the strategic importance of the RIBA's 5,000 overseas members.

Expansion of the institute's electronic services has already demonstrated the importance of accessibility to members worldwide. Since the introduction of the library's online catalogue, for example, around 75% of visitors to the site at www.architecture.com have been from overseas members.

The RIBA, in collaboration with the British Council and the culture department, is organising an inward mission on UK 'Millennium architecture' in December. This will bring key individuals responsible for procurement throughout the world together for visits to Millennium projects in London, Newcastle/Gateshead, Edinburgh, Glasgow and Manchester. The RIBA plans to host a reception at Portland Place. Meanwhile, the institute's membership and international affairs (MIA) department is engaged on a number of trade and cultural issues:

- US. There are currently three levels of UK-US architectural dialogue: academic reciprocity between the NAAB and the RIBA/ARB joint validation panel (an exploratory visit to the University of Maryland last will be followed up this month), registration/licensing between the ARB and NCARB, and professional institute membership agreements between the RIBA and the AIA. At the moment, the AIA cannot agree a reciprocal membership deal with the RIBA without a bylaw change. RIBA Council unilaterally extended eligibility for membership to full AIA members (only those practising in the UK are obliged to register with the ARB). Trade negotiations between the EU and US continue (see box below). A guide to US regulations has been posted on Ribanet Conference.
- Ireland. Following publication of Ireland's National Development Plan 2000-2006, MIA has been collaborating with the British Embassy in Dublin to promote the services of RIBA members. IR£40 of construction investment is planned.
- Portugal. This month the Portuguese Trade and Tourism Office, in collaboration with the RIBA, has organised an all-expenses-paid trip to Portugal for a group of RIBA members to visit stone quarries.
- Turkey. The RIBA took part in the Turkey Build exhibition in Istanbul, sponsored by the DTI. MIA is working with the British Consultants Bureau to organise a mission to Istanbul/Ankara in Jan 2001. RIBA has now joined the Entrepreneurs-e-Turkey Business Club, a new initiative to promote dialogue and business opportunities between Turkish and UK organisations.
- UIA. The RIBA, led by John Wright, hosted the UIA Region 1 Presidents meeting; next meeting October/November in Amsterdam. Vice-president international affairs attended the recent UIA Council meeting in Sydney and will attend the UIA Professional Practice Committee meeting in November in Cairo.
- Europe. There has been a 10% increase in EU members during the last year, following a targeted campaign in Ireland, Germany and the Netherlands. John Wright attended the first meeting of the European Forum of Architectural Policies, held recently at the French Ministry of Culture and Communication.

The RIBA continues to lobby for the inclusion of architectural services in an economic agreement being prepared between the EU and the US (the Transatlantic Economic Partnership or TEP). A recent meeting in Washington gave further consideration to the terms of an economic agreement between the two areas. Three professions (insurance, architecture and engineering) are under consideration for inclusion in a sectoral services annexe.

While EU member states are happy to move forward on the basis of equivalence (rather than seeking to harmonise training), US negotiators remain determined to maintain their Architects Registration Examination (ARE) in which the NCARB has invested heavily. Participants have agreed to look at ways in which last year's UIA Accord on International Standards of Professionalism could provide the basis of a mutual recognition agreement.

The RIBA is in favour of:

- pursuing the possibility of identifying a critical mass of states with which an agreement might be reached, given that that licensing appears to be a matter for states rights rather than one of national (federal) competence
- making parallel approaches to other NAFTA signatory countries, Canada & Mexico.

RIBA Council has agreed the appointment of vice-presidents for the 2000/2001 session. Composition of the policy management board is as follows:

- **Marco Goldschmied, president**
- **David Rock, immediate past president**
- **Roger Shrimplin, honorary secretary**
- **Richard Brindley, honorary treasurer**
- **Joyce Deans, VP membership**
- **John Wright, VP international affairs**
- **Annette Fisher ,VP communications**
- **Paul Hyett, VP education**
- **Catherine Hennessy, VP companies**
- **Peter Smith, VP sustainable futures**
- **Elspeth Clements VP, small practice**
- **Roger Zogolovitch, VP strategy**
- **Tim Gough, honorary VP, practice**
- **Tim Drewitt, honorary librarian**
- **Russell Brown, chairman, future studies**

The 21st century metropolis is a mechanism that depends on a dense network of interactive systems that can be thrown into chaos by any environmental disturbance.

Punishment for the past

In 1986, in the wake of the nuclear accident at Chernobyl, an international conference was held in Vienna with the aim of preventing such a thing happening again. Like most international gatherings this one was only partly successful, but it did bring about a fruitful exchange of views, perhaps the most insightful being those of the leader of the Soviet delegation who pointed out that truly safe nuclear energy would always be impossible until warfare was banned and a stable world governmental system had been created.

Securing a stable environment for technology – as opposed to humanity – may sound like looking through the wrong end of a telescope, but increasingly it is what our guardians of the environment – government departments, local authorities, architects and engineers – find themselves trying to do. You can see their concern for the untroubled operation of the non-human environment in the regulation and curtailment of traffic flows and the use of street facades and public open spaces as vantage points for surveillance and security, but there is a great deal more to it than that.

The 21st century metropolis is a mechanism that depends on a dense network of interactive systems that can be thrown into chaos by any environmental disturbance. A heavy snowstorm or flooding after heavy rain can be as destructive of machine order as a terrorist bomb. Often such events are of relatively short duration in themselves, but their knock-on effects in the form of delays, cancellations, re-routings, damage and loss of life can reverberate for months. Furthermore the consequences that flow from cancellations and postponements in the commissioning and purchasing of new buildings or equipment may not be felt for years, striking long after the decisions were taken. In the same way computer systems can be perfect but idle, because of software problems, or down because no back up system was provided for them. Likewise failure to anticipate increased demand or a change of use underlies legion systems failures ranging from buildings that are too small to electricity demands that are too big.

In the field of transportation the general term for equivalent inadequacies is 'congestion'. Estimated costs imposed by congestion are tremendous. In the European Community, road, rail and air congestion costs will top euros 600 billion by the end of 2000 and rise to euros 1,000 billion a year within 10 years. But if costs can be calculated causes are diverse and often irrecoverable. Passenger aircraft, for instance, which need a highly specialised environment on the ground, can suffer congestion as a result of a computer failure resulting from a spending decision ducked years before. During the 1990s, London's aged Underground system ploughed 10 years of resources into an 17km extension eastward into Docklands. In the process the rest of the 400km network was starved of cash and necessary maintenance and repair work was neglected. Now, despite heavy injections of money, it is uneconomic to upgrade the network, instead it is to be stabilised at its present low level of efficiency. Improvement in services will only come from building new lines.

A similar state of paralysis can easily be reached with buildings. Most urban sites are finite, and slab-to-slab heights and floor plate sizes that were acceptable 30 or 40 years ago are inadequate today. Hence elaborate refits, overcladding or (if all else fails), conversion into housing. Who is responsible for this? Clearly technological development in every field is responsible. Who is to blame for it? Only a forensic study of the technologies available at the time of design could provide the answer.

Perhaps it is time that an ambitious construction lawyer got to work whistle-blowing on 1960s designers. Nothing else would speed the return of prefabrication half so well.

Martin Pawley