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he business magazine for the global architect

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Libraries – building in the computer age

Cannon aims for the sky

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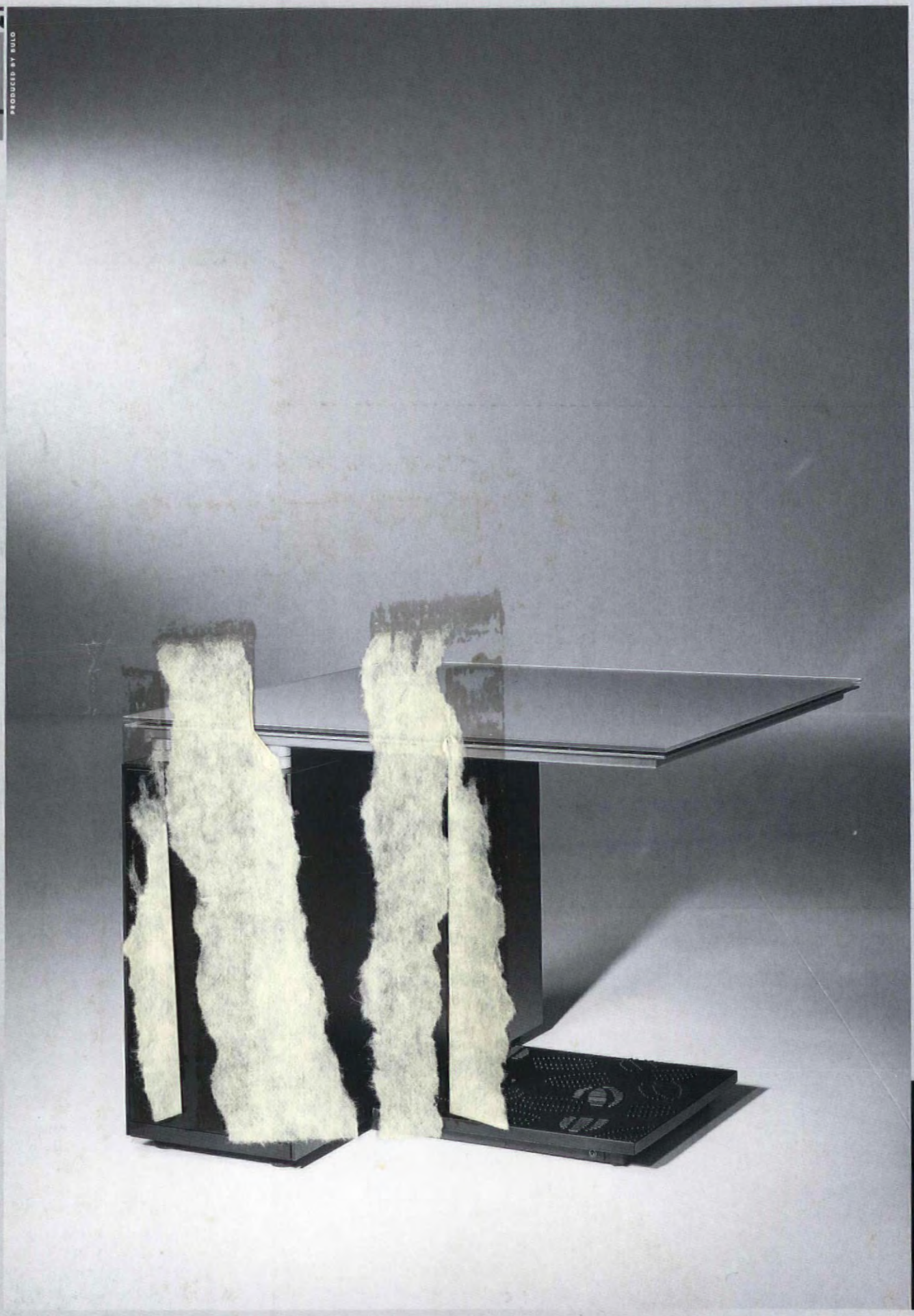

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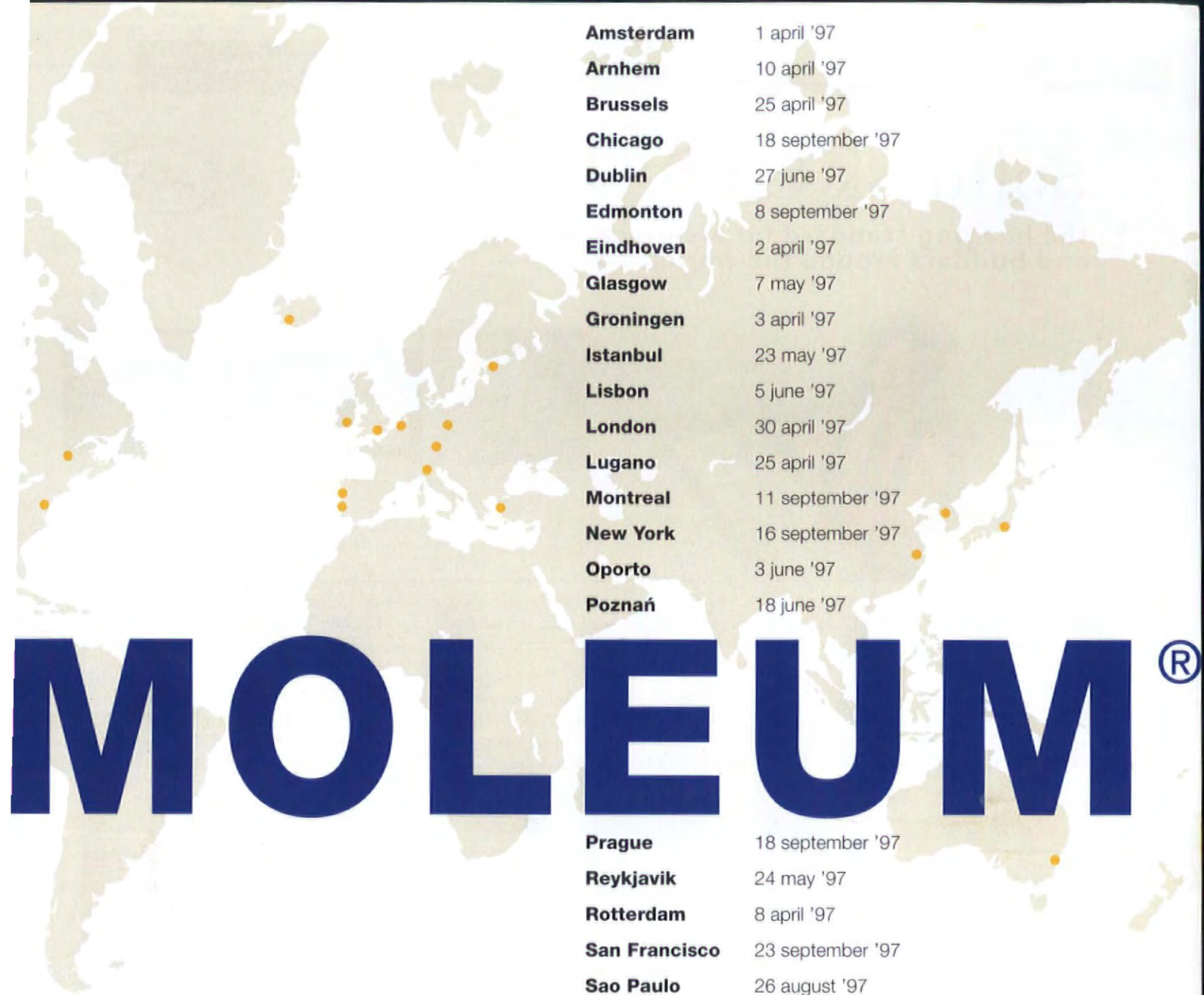

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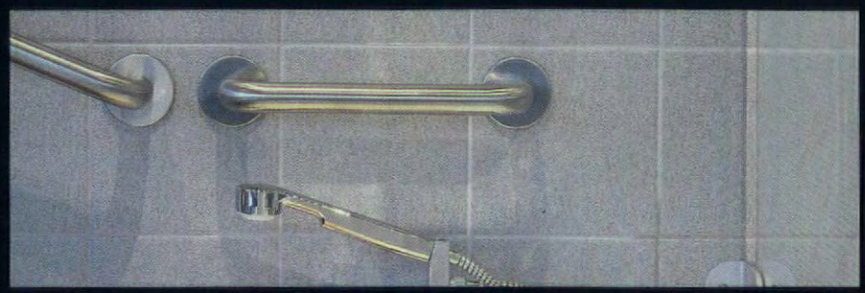

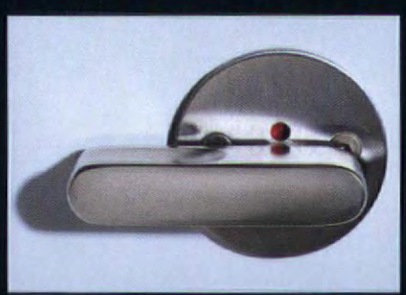

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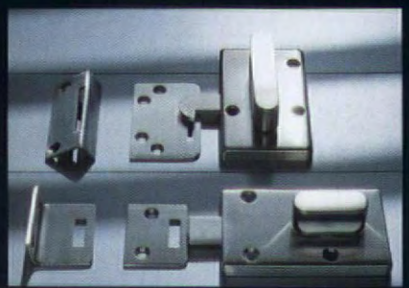

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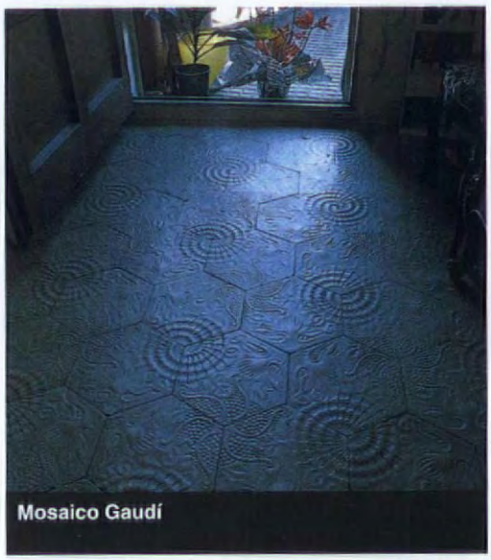
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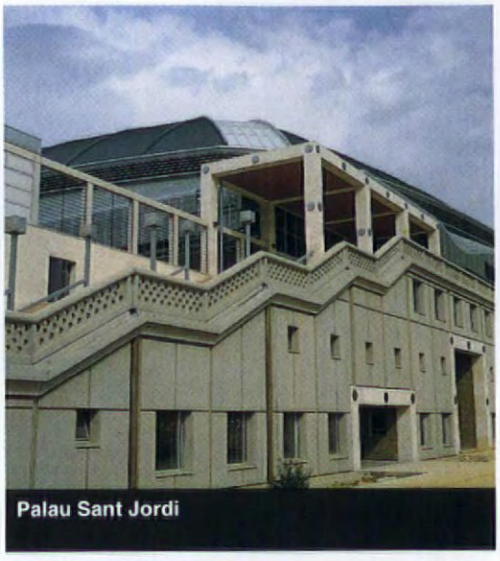
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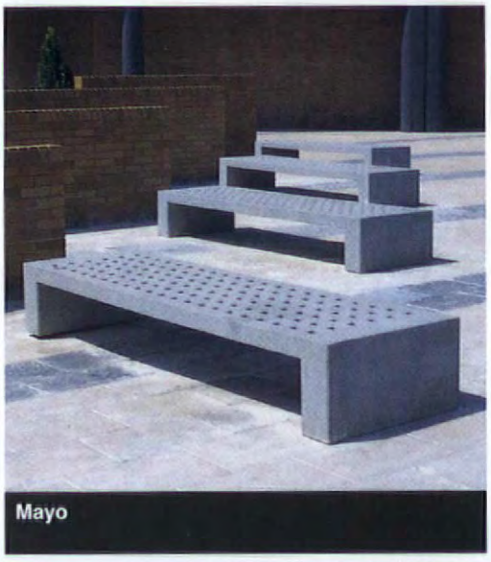
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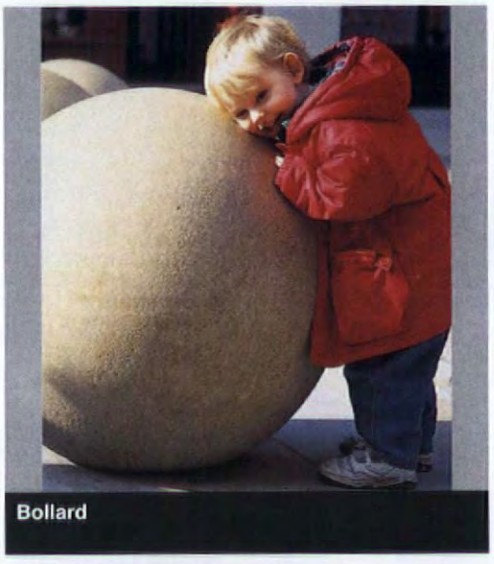
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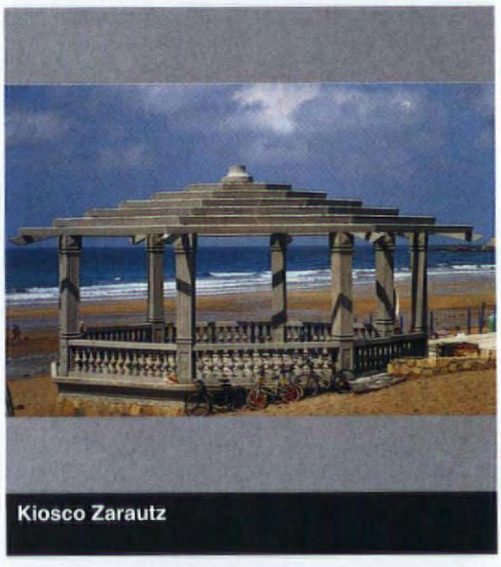
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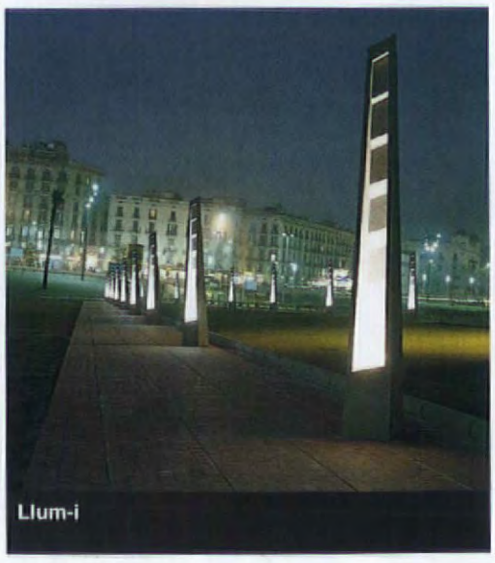
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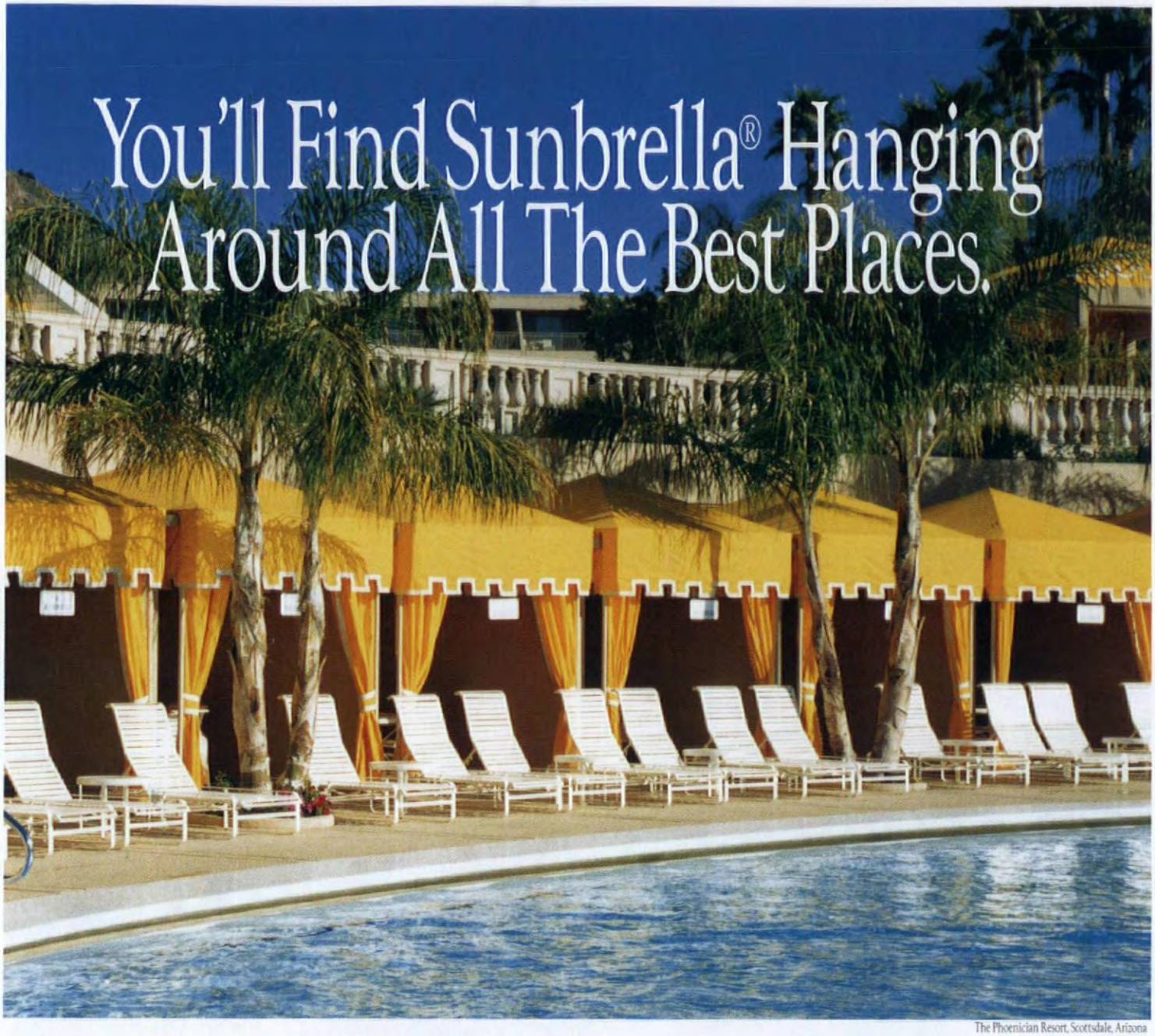

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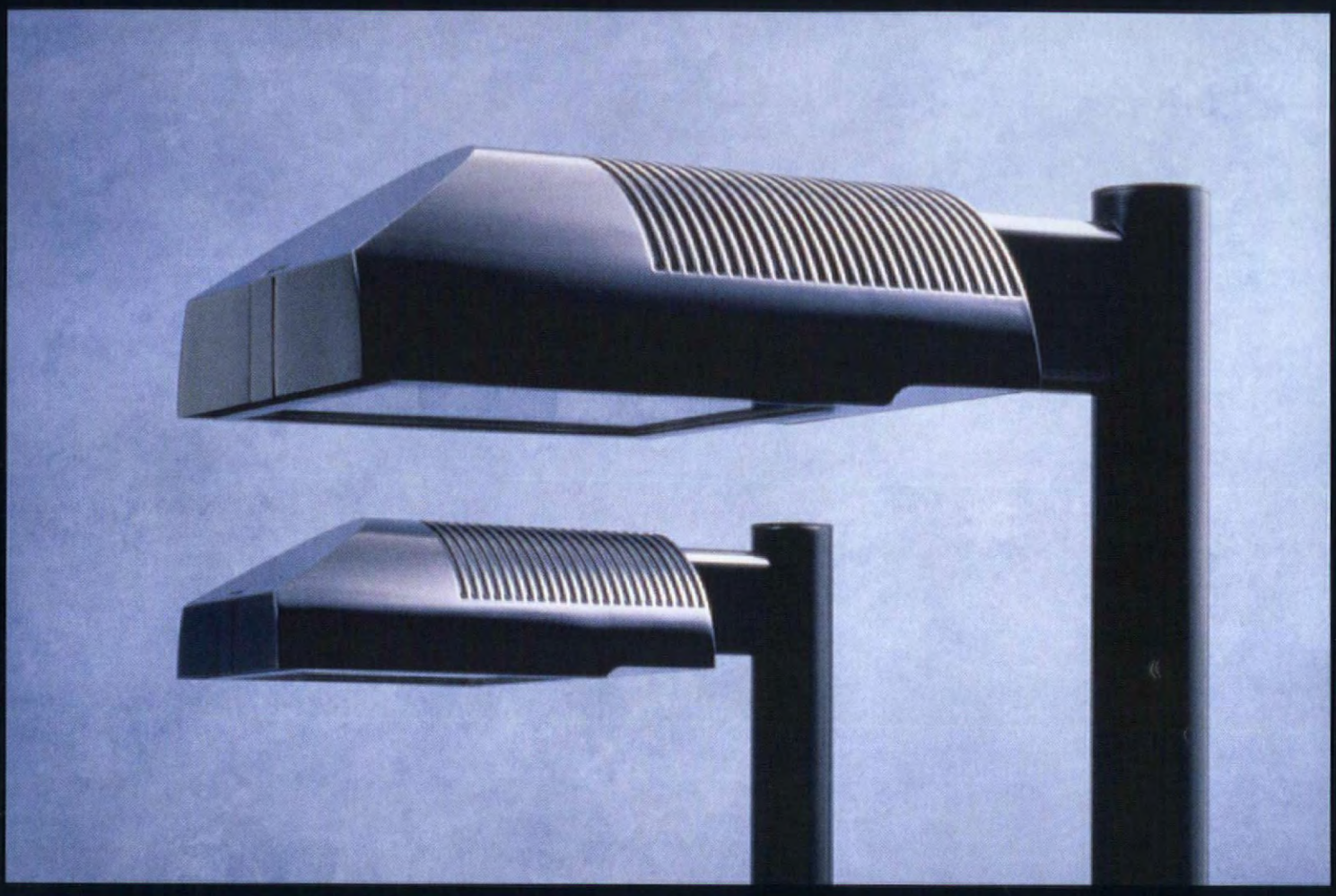

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HP DesignJet key to Britain's largest wooden boat this century

The outstanding performance of a Hewlett-Packard DesignJet 750C Plus has played a key role in the successful design of what is believed to be the largest wooden boat to be built in a British yard for 100 years - a 65m, three-masted, square-rigged sailing barque. It has been commissioned by the Jubilee Sailing Trust, a charity which exists to foster better understanding between disabled and able-bodied people.

The Trust already owns a 40m sailing barque which cruises with mixed disabled and able-bodied voyage crews, all actively helping the professional crew. The popularity of the cruises led to the Trust commissioning a second craft designed by naval architect, Tony Castro, and a team of nine colleagues.

Unique design challenge

Even for a specialist naval architect the new boat presented a unique design challenge, not simply because of the all-wood construction, but also in terms of the special fixtures, fittings and equipment for the disabled voyage crew members. Design was dominated by the need for wheelchair access, with lifts and wide gangways essential. There were also the blind to be considered, and for them, 'fore' and 'aft' signs had to be recessed into all the handrails, as well as other special markings and signs on walls and decks, and even audible compasses to help them when steering the boat.

DesignJet printer speed decisive

At the outset, Tony Castro was using two HP DraftMasters but, with over 3,000 different 2D flat plans to produce, the extra speed of the HP DesignJet 750C Plus proved decisive and he switched over to one in August last year.

"We found we could do more with one 750 Plus than we could with the two DraftMasters," says Tony Castro. "Within three months the DesignJet produced over 3,000 drawings covering the structure, plumbing, electrics, sails and rigging, and all the naval architecture. These were delivered to the boat yard over that period of time, but altogether the design brief, drawings and notes were bound into a document 25cm (4 in.) thick."

Completion by 1999

The Jubilee Trust has effectively set up its own boat building business in a rented yard on Southampton Water and disabled volunteers are working alongside able-bodied boat builders. The keel was laid in September, erection of the frame and decks started in April and completion is scheduled for 1999.

Reliability, speed and networking increase efficiency

Working on such a unique craft, with so many special design features, and to an agreed timetable all tested - and continues to test - the mettle of Tony Castro and his design team. "Because of its reliability and speed of output, having the Hewlett-Packard DesignJet 750 Plus on board makes a big difference to our peace of mind," says Tony. "Then there is the quality of output, which is equally important and it also delivers excellent colour. What with it being networked as well, everyone has access to it and we are working more efficiently than ever before."

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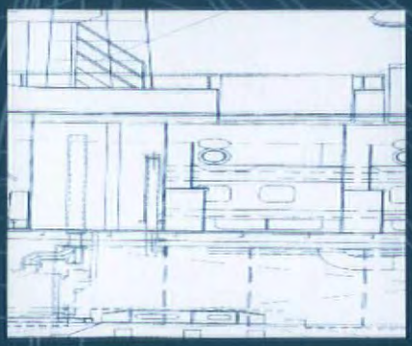

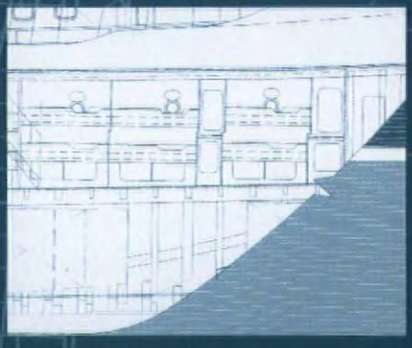

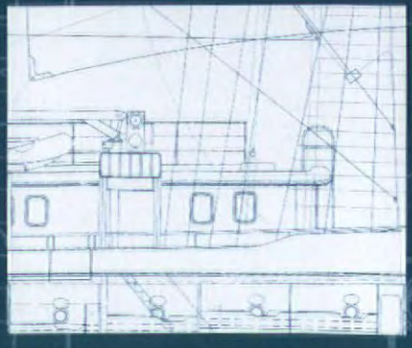

Singapore's rescue by a chosen few

In March World Architecture was in Singapore on a quest to discover a "new" architecture which we felt sure must be bubbling beneath the surface of skyscraper developments. What we found amongst the architectural community was a culture of protectionism, suspicion and cynicism. Architects from the lesser-known, or smaller practices regarded journalistic advances with as much enthusiasm as an invitation to the gallows. Publication amongst the pages of a business magazine was tantamount to treason. God forbid that an exquisite residence or hotel should be featured alongside a hugely successful development by one of the giant Singapore dynastic practices or, worse still, by a foreign firm. Ironically, this elitist clique were unable to predict the excitement such contrast within a report would elicit. Here at last was their opportunity to express the breadth and depth of architectural design in their city state.

They forfeited this opportunity – almost. They were saved by a precious few who shared at least one of two significant characteristics; either they trained abroad and were therefore able to see beyond the confines of a claustrophobic island, or they showed a willingness to listen about, and understand, the aspirations and purpose of a business title, and thus appreciated the benefits of publicity, both for themselves and the reputation of Singaporean architecture. KNTA Architects presented an impressive portfolio of smaller residential work. Tang Guan Bee gave a detailed tour of his inspirational Eastpoint Shopping Centre, and Patrick Chia at Akitek Tengarra talked about the firm's work at the Kandang Kerbau Hospital. The work by these offices provide a glimpse of what Singaporean architects are capable of, beyond the cut and thrust of the mega-firms doing mainly commercial work.

Two observations can be made from the resulting report. The first is the arrogance of architects who have such an inflated opinion of their importance that they turn away offers of publication. The second is that, try as we might, it is still true to say that the majority of work in Singapore is not made up of the one-off buildings by these smaller firms, but rather the multi-purpose mega-developments, often by foreigners, such as Tsao & McKown's Suntec City .
Commentators and architects are forever trying to define "Singaporean" architecture. This is it; buildings which are bound to reflect the islanders as a new and multi-racial culture, and the island itself as a major regional services centre, and international transportation and telecommunications hub. **Nicola Turner**

Please send letters to warch@atlas.co.uk, or fax on +44 171 470 7007

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News Review

HOK build rail terminal in St Petersburg

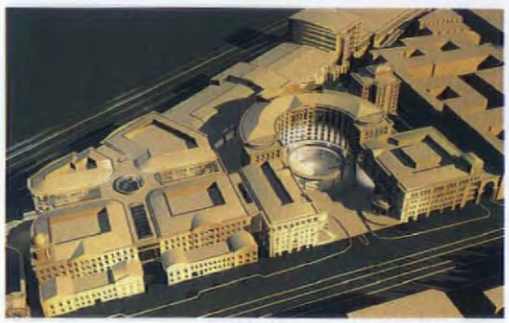
By Adam Mornement

"Controversy surrounds all major developments", says HOK senior vice president Sam Hyatt. The Highspeed Railways (VSR) Moscow-St Petersburg development – a project four and a half years in planning and currently on site – certainly shows no sign of being an exception to this rule.

Initially, the development provoked uproar from St Petersburg councillors and residents, concerned about the impact of a large-scale Western-designed development in the centre of Russia's historic second city. Since then environmentalists have been up-in-arms about the ecological and social implications of constructing the second Moscow-St Petersburg rail link, and it has even been alleged that the privately funded project was only ever put forward as a cover for the client to acquire the lucrative St Petersburg site.

Controversy aside: work on the 650-kilometre rail track will be preceded by the construction of terminus, hotel and office development in the centre of St Petersburg. HOK has been commissioned to design and build the three-phase US$60 million project on a unique 5.16-hectare site at the eastern end of Nevsky Prospect, in the heart of the city's commercial and retail district. Construction on the development is due to be completed in 2001. The VSR line is to be fully operational by 2006.

The development is global in every sense: the railway will link Russia's two commercial centres for the benefit of international businessmen, who will stay in St Petersburg's first Western-style business hotel (350 rooms) and have access to international standard office equipment. Reflecting this sense of internationalism HOK has worked in association with St Petersburg's Architectural Council, as well as local architects LenNIIProekt and developer Nalex International.



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1: Model of HOK's plans for the St Petersburg VSR terminal complex

2: Stylistically the city centre development is in keeping with the city's classical and art nouveau traditions

The triangular site – which is currently being cleared – contains certain historical structures. The facades of two of these buildings are to be retained and incorporated into the HOK scheme, at the request of St Petersburg's city planners. The overall scheme fits into St Petersburg's fabric of refined classicism and art nouveau.

The office development is the first phase of construction, followed by the semi-circular hotel and finally the rail terminal itself. The terminal, ostensibly the *raison d'être* of the development, is the only element to make no stylistic concession to its context. It is sleek, stream-lined and apparently the least of the planners' current concerns.

The VSR Moscow-St Petersburg development in its entirety also appears rather lop-sided. Surely a technologically advanced railway system, bearing no resemblance to anything seen previously in Russia, requires equally advanced terminals at both ends. Yet the Moscow terminal, if there is to be one, has not even reached the drawing board.

Hyatt says that "cities are about accident", yet there seems little accidental about the placement or timing of this particular inner-city development.

What to do with New York's islands?

The islands off the coast of Manhattan are currently the hottest properties in New York. A year ago President Clinton offered to sell the 172-acre Governor's Island to New York City for US$1 million, on the condition that the island was developed for public use. However, New York is yet to make its intentions clear and in the time that it has taken for it to waver, the federal Office of Management and Budget has valued the island at US$500 million.

The huge costs involved in maintaining the island's historic structures and making the island readily accessible from the mainland – at the moment there is only ferry access – mean that Governor's Island is likely to end up in the hands of developers, a fate that is unlikely to be replicated in the case of Ellis Island.

Due to its intimate connections with immigration, and the symbolic value of the island to both New York and the nation – a third of all the immigrants that passed through Ellis Island settled in New York – New York is unlikely to adopt a *laissez-faire* attitude to its future. However, in early April an argument that had been rumbling since the 1820s was settled by the Supreme Court: New Jersey and New York both claim Ellis Island as its own, but the Court ruled that the argument should be settled by dividing the island in two. The issue had been further complicated by the addition, through landfill, of over 20 acres to the original 3.3 acre island. New Jersey claim that New York only has a right to ownership of the original area, as landfill additions have all taken place since New York relinquished outright ownership of the island in 1808 when the 3.3 acres were handed to federal government.

Whatever the future may hold for New York's islands, the current situation certainly represents a once-in-200-years opportunity which has got real estate experts, urban designers and property developers pricking up their ears in interest.

In brief

COLOMBIA

Eco-friendly VOA

VOA Associates Inc is master planning an environmentally-sensitive development of approximately 3,000 hectares on the River Meta, in the eastern plains of Colombia. The Orlando, Florida-based firm has been commissioned by Compensar – a private social security fund which provides affiliated workers in Colombia with health care and educational services at discounted prices – to lead the planning team. Hernando Gomez, VOA project manager, says that the master plan – which includes a cultural centre, research centre, transportation facility, church, school and medical complex – must "preserve the delicate balance of the nature while serving our client's wishes to provide the various amenities of an eco-resort". Master planning will continue throughout 1997. Construction is expected to take place over a ten year period.

GERMANY

Construction heavyweights end take-over talks

German contractor Hochtief AG has brought to an end three years of take-over talks with Philipp Holzmann AG. Subject to regulatory agreement Hochtief AG will combine its 24.9 percent of Holzmann AG shares with 25.1 percent held by the Deutsche Bank and abandon its attempts to buy another ten percent of Holzmann AG shares for at least ten years. A joint statement declared the move as mutually beneficial to the two huge firms in the on-going struggle to remain competitive on an international scale. Philipp Holzmann AG was ranked seventh, and Hochtief AG eighth in *Engineering News Record's* annual list of international contractors

GUATEMALA

All power to J A Jones

J A Jones, North Carolina-based construction firm has been awarded a US$100 million contract to build a coal-fired power plant in Guatemala by Central Generadors Electrica, San Jose, Limitada. The contract – awarded in joint venture with Black & Veatch, of Kansas City, Missouri – requires engineering, procurement and construction services for the 120 MV, pulverised coal-fired steam plant. Construction is due to commence on 1 June 1997, with completion in July 1999. The plant will be the first coal-fired electrical plant in Central America.

THE NETHERLANDS

Dutch offshore development

Ruwan Alivuhare, an architect of Anglo-Sri Lankan origin who has practised in the Netherlands for some years, has designed a master plan for a residential development, comprising 28,000 dwellings on an area of (yet to be) reclaimed land off the coast of Amsterdam, called Ijburg. The US$3.936 billion (NGl7.53 billion) project, which will offer a solution to Amsterdam's over-crowding problems, is the latest development in a long-standing tradition of land reclamation in Holland, dating back to the thirteenth century. Despite widespread support for the scheme from local residents and financial backers, Alivuhare, who describes Ijburg as, "the biggest water garden in the world" has encountered some resistance from environmentalist groups – the Dutch National Trust is concerned about the threat to wildlife in the area. Assuming that backing from both the Government and the private sector is assured, Ijburg will be complete by 2015.

THE NETHERLANDS

HOK design waterfront terminal

HOK has been selected by the Port Authority of Amsterdam, to design the new International Passenger Terminal on Amsterdam's Waterfront Development Area. The 20,000-square-metre development will incorporate a cruise ship terminal, canal boat area, car and coach parking facilities, a touring car terminal and will have a distinctive curvilinear roof.

It is hoped that the waterfront terminal, which is part of a masterplan developed by Amsterdam City Planning to rejuvenate the area, will help alleviate traffic congestion in the historic Oude Centrum area of central Amsterdam.

THE PHILIPPINES

Gensler in World Trade Centre development

Gensler has completed work on the Exhibition Hall of the new World Trade Centre building in Manila – the hall is the first of four phases. Manila Exposition Complex Incorporated contracted the US giant to master plan the entire 12.5 acre site which will ultimately include a second exhibition hall, a hotel and a tower for commercial and retail purposes.

The Trade Centre is one of four major projects recently completed by Gensler in Southeast Asia, the others are: a manufacturing and office building for Hewlett Packard Products Limited in Qingdao, China; MacDonald's China Development Corporation in Hong Kong and a new headquarter building for the Seaboard Eastern Insurance Company in Manila.

RUSSIA

Russia attracts foreign investment

Foreign investment in Russia's construction market is on the increase. June Q Koch, president of Construction Marketing & Trading Inc – a firm which helps US firms find Russian partners – confirms that over the past 12 months "investments in Russia are way up". Russia's Construction Manager Yefim Basin expects foreign investment in to reach US$12 billion by 2000. Currently, 57 construction firms from 35 countries operate in Russia, and following the US/Russia summit held in Helsinki from 20-21 March, these figures are likely to improve. President Yeltsin has promised to reform "confusing Russian tax codes" and look into ways to curb organised crime opening the way for further collaboration and international interaction.

UAE

New National Oil Company HQ

British practice Llewelyn-Davies has won the limited international competition to design a new headquarters building for the Abu Dhabi National Oil Company in the United Arab Emirates. The 50,000-square-metre development is composed of four self-contained blocks, linked at podium level. Three of the blocks have ten storeys, accommodating open-planned office space. The Supreme Petroleum Council will be housed in the 18-storey block to the south-west.

In winning the competition Llewelyn-Davies beat off competition from Kisho Kurokawa and SOM, amongst other international heavyweights.

UK

Hammerson and MEPC all talked out

Three months of merger talks between two of Britain's five largest developers, Hammerson and MEPC, ground to a halt in mid-April. The proposed move would have created the second largest property company, after Land Securities, in Britain: MEPC has a market value of approximately US$3.2 billion (£2 billion) and Hammerson is valued at US$2 billion (£1.25 billion). Analysts believe that talks broke down as a result of a culture clash between MEPC's conservative approach and Hammerson's ambitious plans. Nevertheless, neither side has completely ruled out the prospect of a merger in the future, perhaps when the timing is more mutually beneficial.

USA

Pelli tower sets Brooklyn to rights

In April the US General Services Administration (GSA) and the US Postal Service (USPS) issued the formal Record of Decision approving plans for a US$371 million project to construct a new federal court house in the Eastern District of New York. The GSA and USPA accepted proposals put forward by Cesar Pelli & Associates, in association with Haines Lundberg Waehler International LLP, to design the new complex.

The project is comprised of three principal elements: the renovation and adaptive reuse of Brooklyn's six-storey General Post Office; a six-storey connecting entry hall and the demolition of the existing Emanuel Celler Federal Office Building and construction of a new 18-storey courthouse in the same location. The intention is that the three elements will function as an integrated complex.

The need for a new courthouse in Brooklyn has come about in response to a consistent rise in federal prosecutions over a sustained period – in the past 60 years federal court caseloads have quadrupled – and the space problems that this increase created – the 1980s alone saw a 125 percent rise in the number of federal prosecutors.

USA

MOMA competition update

The list of ten architects selected to put forward proposals for the design of New York's Museum of Modern Art (MOMA) extension – reported in *WA* 54 – has been reduced to three. The Swiss team of Herzog and de Meuron (currently working on London's new Tate), Yoshio Taniguchi from Japan and New York-based Bernard Tschumi are the remaining three architects from the original shortlist. The winner will be announced at the end of the year.

ERRATA

In issue 54 (March 1997), J F Schmitt was incorrectly credited as architect of the Renault TechnoCentre, Guyancourt, France in place of J P Harnonic Architecte. Our apologies to J P Hamonic for the misunderstanding.

"Las Vegas takes a bite of the Big Apple", a news article published in *WA*53 (February 1997) stated that the Domingo Cambeiro Corporation were the designers of the World of Coca-Cola project. In fact, the Andrishak Design Group were the prime creative consultants and "authors of the overall concept". The Domingo Cambeiro Corporation had no role in the creative design of the World of Coca-Cola project.

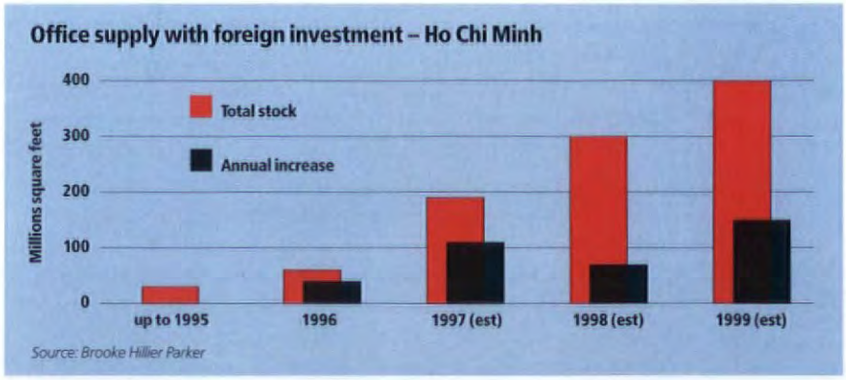
Ho Chi Minh reaches saturation point

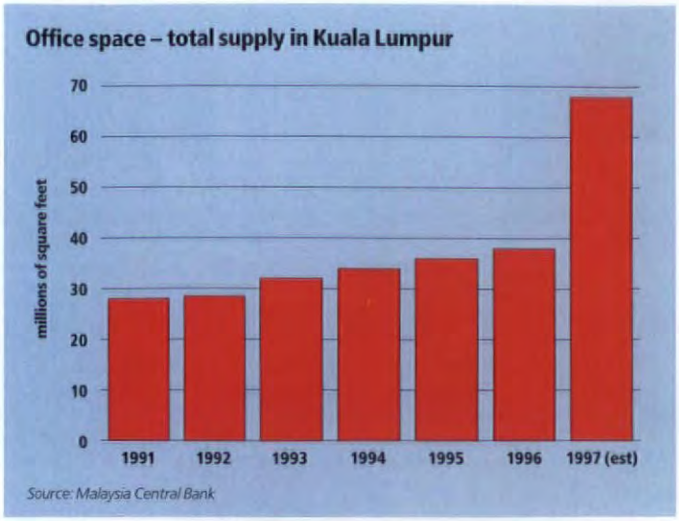
In the early 1990s Vietnam opened its doors to foreign investors. Of the foreign capital that came into the country approximately one-third – mainly from Japan, Hong Kong and Taiwan – was invested in the capital, Ho Chi Minh and its surrounding industrial belt. As a result of these government directives, local developers concentrated their resources on increasing the volume of international-standard office space in and around Ho Chi Minh. However, no one knew quite what to expect.

As the decade draws to a close Ho Chi Minh is suffering from a vast over-supply of office space; some local analysts suggest that the market is supplied for the next five years. At the time of writing there are 176,614 square metres of available office stock, compared to 63,300 square metres at the end of 1996. The situation has also caused a 15-20 percent downturn in rents, to between US$35-US$40.

The Saigon Trade Centre, a 34-storey office tower in central Ho Chi Minh, is an example of just how bad things have got: the developers have guaranteed tenants for only five percent of its 43,000 square metres of space, and only one company, Chubb of the US, have moved in.

At the beginning of the decade the policy of attracting interest from abroad seemed to make sense. Vietnam was beginning to reassert itself in the aftermath of the US conflict, and no new building had taken place in Ho Chi Minh (formerly Saigon) since 1975. Unfortunately, the cautious approach adopted by many of the foreign companies that expressed an interest in taking space in Ho Chi Minh at the beginning of the decade caught developers unawares, the demand was not nearly as great as they had anticipated.





Kuala Lumpur: misplaced development

At the end of 1996 there were 38 million square feet of office space in and around Kuala Lumpur. By the end of 1998, this figure will have risen to approximately 74 million square feet. Given that the annual take-up rate in Kuala Lumpur is about three million square feet it came as no surprise that at the beginning of April Mr Affifuddin Omar, the deputy minister of finance, told developers that if they kept on building at current rates "you may not be able to sell".

The chronic oversupply is likely to be accentuated by the on-going construction of Putrajaya, Malaysia's new administrative capital. Putrajaya is located 25 kilometres south of Kuala Lumpur and when complete, in 2005, will provide offices and housing for 76,000 civil servants and 59,000 private sector employees. Businesses and government bodies are expected to relocate to the new settlement in advance of the completion date thereby acting as an added drag on the ailing Kuala Lumpur commercial office market.

However, it is possible that Mr Affifuddin Omar's early warning and the still vivid experience of the mid-1980s, when oversupply and mismanagement caused the Malaysian central bank to bail out commercial banks, will mean that a complete catastrophe can be avoided. Unlike her Southeast Asian neighbours, Malaysia's GDP has risen steadily over the last nine years. If it became necessary, this strength would allow the central bank to lower interest rates which would in turn reinvigorate the depressed market.

Viborg Combined Heat and Power Plant, Denmark

Per capita Denmark is amongst the world's largest carbon dioxide producers, and since the UN Climate Panel established a definite link between the discharge of "greenhouse" gases and climatic change (1995) the Danish government has made concerted efforts to play its part in the international struggle to rectify the problem.

Energy 21 was set up by the Ministry for Energy and the Environment in 1996, with the aim of reducing carbon dioxide emissions by 2005 to 20 percent of 1988 levels. Amongst the first architectural projects to meet all Energy 21 directives, and one of the largest projects in the government's drive to decentralise power generation, is the Viborg Combined Heat & Power Plant, in Viborg a small town 60 kilometres north-west of Århus.

Designed by Arkitekterne Peter Kjelgaard and Thomas Pedersen, the theory is that the surplus heat generated by the natural-gas-fired plant will be used to heat homes in the vicinity, thereby maximising the potential of the plant and minimising pollutant emissions. The plant has a sculptural quality which the architects feel "reflects both state-of-the-art technology and contemporary style, whilst fulfiling all necessary functional requirements". Two curved forms envelop the internal mechanisms of the plant "like a protective pair of hands".

The building has few stylistic predecessors, though a decorative feature has been made of technical processes within the building, much like the Rogers/Piano Pompidou Centre, Paris.

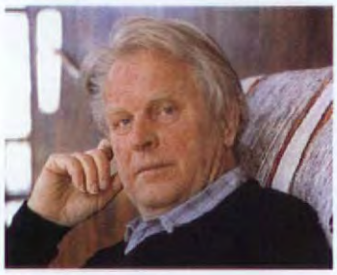

Carlos Dominguez

People and practice

NORWAY

Sverre Fehn wins Pritzker Prize

Sverre Fehn, the 72-year-old Norwegian architect responsible for the Norwegian Pavilion at the 1958 World Fair in Brussels and more recently, the Eco House in Norrkoping, has won the 1997 Pritzker Architecture Prize . Fehn became the twentieth recipient of the US$100,000 prize which in recent years has been won by José Rafael Moneo, Tadao Ando, Christian de Portzamparc, Fumihiko Maki, Alvaro Siza and Robert Venturi.



UK

Grimshaw expansion

London-based Nicholas Grimshaw and Partners has announced that Andrew Whalley has joined the board of the firm as a director. Whalley joins David Harriss, Christopher Nah, Neven Sidor and Grimshaw himself.

Lord Rogers awarded Honorary Professorship

On 15 April Lord Rogers of Riverside was presented with an honorary professorship from Thames Valley University (TVU), UK. The ceremony took place in the University's Paul Hamlyn Learning Resource Centre in Slough, near London, a building designed by Lord Rogers. The title of Honorary Professor is awarded to an individual of national and/or international distinction who has made and will continue to make a lasting contribution to TVU.

Hopkins for President

At the time of writing Michael Hopkins, for so long a leading figure on the British architectural scene, was widely expected to become the next President of the Architectural Association, London coinciding with the institutions 150th anniversary. Hopkins was nominated by the Architectural Association Council earlier this year. Current President, Piers Gough will stand down in July.

Taylor Woodrow: global success

British construction company Taylor Woodrow reports annual profits up 45 percent to US$106.88 million (£66 8 million), thanks largely to international involvements.

John Castle has joined the firm as a chief executive.

USA

HOK appoint corporate decision-maker

Laurence G Burnett has joined HOP International Ltd as an Associate of the Consulting Group. Based in the firm's Berlin office Burnett will be responsible for corporate clients in Europe. His principal focus will be on North American corporations planning to reposition their European property assets. Burnett, who has a background in property investment, corporate finance and architecture, also speaks German, Russian, French and Spanish.

Greeley and Hansen Engineers join STAR

San Francisco-based engineers, Greeley and Hansen, which has 12 offices throughout North and Latin America, has joined forces with the national affiliation of architects, engineers and related design professionals known as the Strategic Team of Allied Resources (STAR). STAR is the world's largest formal organisation of design experts providing comprehensive and co-ordinated design services with approximately 2,300 staff members in 70 offices world-wide. Greeley and Hansen are one of fourteen companies affiliated to STAR.

SOM's interior expansion

Dennis Belfiore AIA has joined Skidmore, Owings & Merrill LLP (SOM) as manager of the firm's new interior design practice in New York. Belfiore was formerly with Hellmuth, Obata + Kassabaum PC (HOK) for whom he participated in the management of the firm's New York interiors group.

HDR expand headquarters

Omaha, Nebraska-based Henningson Durham & Richardson Incorporated (HDR) has announced plans to expand its headquarters to accommodate staff growth. The new 73,440-square-foot, six- storey structure – to be located on 84th Street and Indian Hills Drive – has been designed in-house. The ground-breaking ceremony was held on 21 April. Completion is expected in October 1998.

Thomas Ditoro has joined HDR as a project electrical engineer in Omaha Ditoro. A professional engineer, he has previously worked in the fields of marketing, design specification, management, drafting and project co-ordination.

TBA² Architects

Charlotte, North Carolina-based firm TBA² Architects announce the promotions of David Creech AIA and Jim Williams AIA to Studio Directors. Both Creech and Williams has previously been Senior Architects in the firm.

Federation Square Design Competition, Melbourne, Australia

by Norman Day, Australia correspondent

Australia will celebrate the new millennium with an Olympic Games in Sydney and a new city square in Melbourne.

Federation Square will give the centre of Melbourne its first useable open public space, others have been small and unsuccessful. It will provide a large open space (around three hectares) and incorporate cafes, galleries, multi-media and performance spaces and some commercial facilities. The cost is estimated to be US$101 million ($AUS128 million), but it will likely climb to US$198 million ($AUS250 million) before completion.

For the design, the State government held an international, two stage competition, not restricted to architects but requiring entrants to be at least linked with an architect.

Five architects have been shortlisted to develop ideas for stage two – they are LAB Architecture Studio (London), Jenny Lowe Associates (London), Chris Elliott (Sydney) and from Melbourne itself, Denton Corker Marshall and Ashton Raggatt McDougall.

In mid-April, a one-night exhibition of unsuccessful design was held secretly in Melbourne. This *salon des refusés* exhibition showed three major design solutions for the Square – a big roof, a giant outdoor stage, or a series of sculptured pavilions placed over a park.

The roof designs appeared awkward on this large site, the temperate Australian climate does not require covered public spaces, we prefer basking in the sun, although some walls are required to halt a bitter winter south-westerly wind, but those same walls if extended around the Square, restrict access to it from other parts of the city.

Amphitheatre design options suggested a stage looking back into the city or, alternatively, south over to the Yarra river. None acknowledged to need for protection from the winter winds and there must be some doubt about the utility of a three-hectare outdoor theatre.

The designs proposing sculptured elements placed over the Square, creating a figure-ground precinct, would seem to be the preferred solution. Such an arrangement allows for great gatherings of people in the new city Square, but also creates discreet pockets of open space for smaller groups.

The announcement of a winner of the competition is expected in the next month or so, at which time the successful architect will be employed. The project is to begin construction in 1998.

Melbourne's Federation Square is the city's chance to create its own central pubic open space – its San Marco, Piazza Navona, or Trafalgar Square. The city is hoping for an indigenous space, one which celebrates our new world, with architectural content appropriate to our culture and an imagery which is conspicuous as an Australian place.

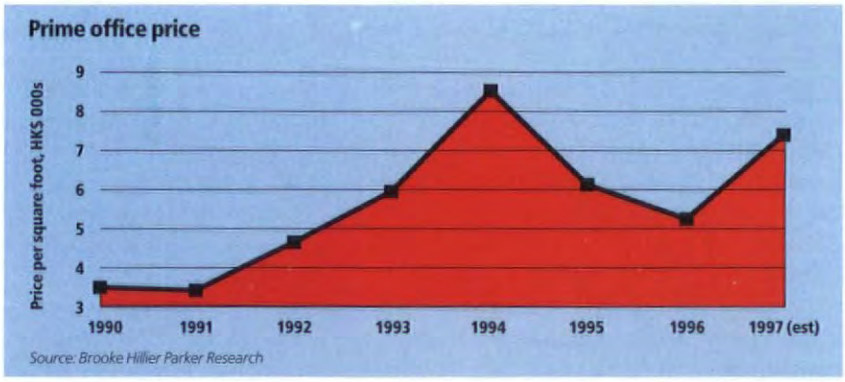
Dam shame

Asea Brown Boveri AB (ABB), a Swedish engineering firm, is leading a consortium to construct a new US$6.4 billion hydro-electric dam at Bakun, in Borneo, across the Rajang River. The 205-metre, concrete-face, rock-fill dam will power six turbines which will drive a generator with a capacity of 420 MV. The project, which will supply 15 percent of Malaysia's electrical needs when it goes on line in May 2003, is a major element of Prime Minister Mahatir Mohamed's "Vision 2020" – a national strategy to make Malaysia "a fully developed country".

The flooding of the dammed-up river will cover an area of 700 square kilometres, and although 560 square kilometres of the area has already been "disturbed" by logging and crop cultivation, the remaining area is home to 8,500 people, most of them members of the indigenous Bakun tribe. The government has promised to compensate and rehouse the Bakun tribes people for the loss of private property – with the added incentive of an "improved quality of life" – but the development is causing considerable concern to some of those affected. The debate reached as far as Britain in April, when Friends of the Earth campaigners picketed the Birmingham headquarters of the Bucknall Group, British quantity surveyors and project management company, whose Malaysian joint-venture company Hasmi-Bucknall is managing the scheme. Twelve endangered and 93 protected species of animals, and 1,230 plant species also inhabit the affected area.

Despite a plea from the chairman for the Bakun Region Peoples Committee, clearance work has begun on site, hammering the final nail in the coffin of a story that at one stage promised to be a victory for the indigenous man, but has turned out to be a case of money talking – and the Bakun tribe walking.

Hong Kong property prices looking good



Source: Brooke Hillier Parker Research

Hong Kong's property sector is on an unexpected high in the run-up to the British colony's handover to Chinese rule, on 30 June. The local developer's show of confidence was highlighted by Sino Land's recent acquisition of a 275,000-square-foot site on the eastern side of the island for US$1.5 billion (HK$11.82 billion), and China Overseas' price of US$180 million (HK$1.4 billion) paid for a smaller plot in April.

The strong prices, paid by Sino Land and China Overseas (two of Hong Kong's larger developers) followed the March publication of the Hong Kong-based property conglomerate New World Development's net profits for the first half to December 1996 of US$454.4 million (HK$2,2 billion). The figure represents an annual rise of 29.2 percent.

Prime office prices are also on the way up. For the first quarter of 1997 the price per square foot rose to US$937 (HK$7,200), a jump of over HK$1,000 from the last quarter of 1996. If the boom continues prices can be expected to reach 1994 levels within months rather than years.

Whilst on the one hand all these figures indicate a spirit of solidarity and strength in a market that many had predicted would suffer as a result of the ever-looming presence of the "unknown quantity", they also show that property prices are still at a prohibitively high level. As reported in *WA*54, the government is concerned that current property prices, with particular regard to residential rents, may be pricing many of the island's inhabitants out of the market. Property speculators are regarded as the root cause of the problem; in February the government asked speculators for assurances that families seeking flats would be favoured over commercial investors seeking assets to resell, but whilst prices remain so high assurances are likely to be interpreted as personal gains.

God of gods as a symbol for the Tower to beat all towers

Klaus Mewes, a Düsseldorf-based designer has unveiled an ambitious proposal to create a landmark for Hannover's Expo 2000, the 610 metre Janus Tower. If built the futuristic tower, which would be the tallest built structure in the world, will house an international administration and information centre for environmental technologies.

Named after the Roman "god of gods", the tower, which Mewes describes as a "cone within a cone", has been designed as both a symbol of, and practical centre for, environmental protection. Using its vast height and strategic form, the tower will use the sun, wind, water and geothermal energy to be entirely self-sufficient.

The question of whether or not the immense structure could be built within the time limit (there are now less than 1,000 day to the millennium and not many more until the opening of the Expo) is complicated by the scepticism of both Expo 2000 Hannover GmbH and the German Messe AG to back the project.

News Analysis

Spain's Conservative government keep architecture on the agenda

by David Cohn in Spain

The selection of architects for public projects in Spain is showing healthy signs of freedom from partisan influence, one year after the conservative Popular Party won national elections, following 14 continuous years of Socialist government. The first public works of the conservative administration in the regional government of Madrid, for example, in office since May 1995 under President Alberto Ruiz-Gallardón, have been awarded to architects who were notably active in the service of previous Socialist administrations, a pattern which has not been followed in other public sectors such as the publicly-owned television and radio networks or in national cultural institutions.

Rafael Moneo, architect of the Atocha Railroad Station, the Seville Airport and the Roman Museum of Merida, has just been announced as the architect for the new maternity and children's hospital in Madrid. The facility, with 350 beds and a preliminary budget of US$28 million (4,000 million pesetas) is the first phase of a general reorganisation of public health facilities in the vicinity to be planned by Moneo.

Francisco Partearroyo has been commissioned to design the principal campus of the new Rey Juan Carlos University, Madrid's sixth public university, which will rise outside suburban Móstoles. Under the Socialists, Partearroyo developed an early plan for the enlargement of the Prado Museum, now superseded, and undertook the difficult reform of Madrid's Royal Opera, which will open at the end of the year. Construction on university buildings will begin this summer on a site around an artificial lake, at an estimated cost of US$220 million (32,000 million pesetas).

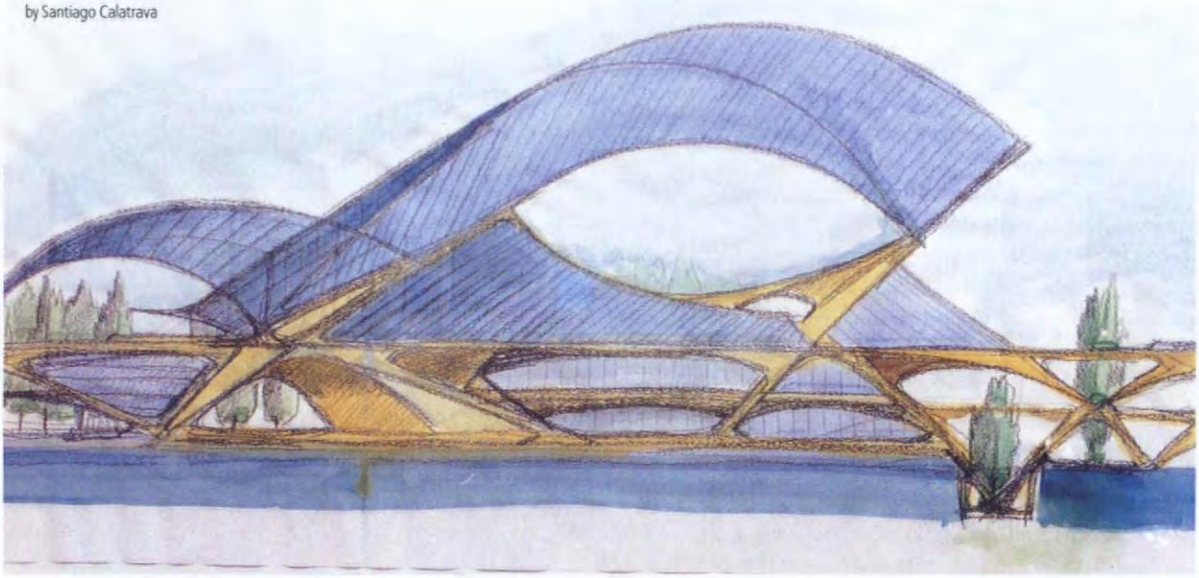
And the new regional government is going forward, at least in part, with the Centre for the Arts and Culture, planned by the Socialists for an abandoned beer factory in the former industrial neighbourhood of Arganzuela. Architects Emilio Tuñón and Luiz Moreno Mansilla, winners of an open competition for the project in 1994, will build a new central library in part of the complex, with a capacity for 2.5 million books. Chances are good that a school of dance on the site will also go forward, although the rest of the ambitious programme, including a theatre, performing arts workshops, artists studios and exhibit spaces is in doubt. Instead Ruiz-Gallardón has given funding priority to the Circulo de Bellas Artes, a famed but financially troubled cultural centre that has become the flagship of Madrid's cultural scene under his sponsorship.

At the national level, a competition to enlarge Baraja Airport is now underway after several years of delay. Among the 21 participating teams of architects, engineers and contractors are architects Richard Rogers, Santiago Calatrava, Ricardo Bofil, Frank Gehry, Rem Koolhaas and Cesar Pelli. Designs will be presented in late May for a preliminary selection of finalists, although the schedule for awarding prizes and beginning construction has not yet been announced.

The plans of the Socialist government for the facility have been cut back, however, with a budget reduction from US$550 million to US$200 million in the first phase. As a result of the changes and delays, former participant Sir Norman Foster has withdrawn. Foster has not disguised his interest in working on a major project in Spain, but he was an early dropout from the failed competition to enlarge the Prado Museum (see *WA*51).

Finally, the provincial government of Valencia, under Popular rule since 1994, has resumed work on Santiago Calatrava's City of Science, a project that it had originally cancelled (see *WA*46). The project has been rechristened the City of the Arts and Sciences, and its 80-storey telecommunications tower has been replaced by an auditorium and congress hall also designed by Calatrava. Calatrava's original planetarium and Museum of Science, already under construction when the Popular Party came into office, are going forward as planned.

Sketch of City of the Arts and Sciences, Valencia, by Santiago Calatrava



Thailand plagued by bad property loans

by John Hoskin in Bangkok

After a decade as one of Southeast Asia's "tiger" economies, averaging more than eight percent annual growth, Thailand recorded a downturn in 1996 when GDP slumped to 6.8 percent. Prospects for an imminent recovery are slim and some economists are predicting economic growth this year will not rise above five percent.

Plunging the formerly robust economy into turmoil are Thailand's financial institutions which have become alarmingly burdened by bad property loans arising from years of overbuilding both residential and office space.

Earlier this year, the country's largest finance company, Finance One, announced it would be merged with the country's twelfth largest bank, Thai Danu Bank. Subsequently ten other finance companies were ordered to boost their capital to offset bad loans. Then on 3 March, the Stock Exchange of Thailand took the unprecedented step of suspending trading for a day in the banking and finance sector while new official guidelines on bank reserve requirements were drawn up.

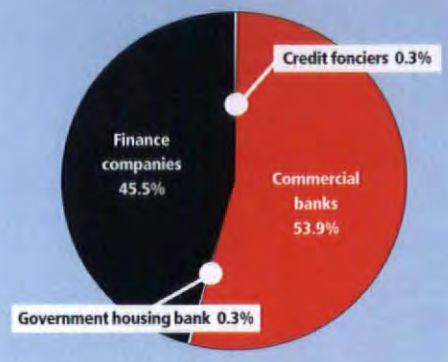
What went wrong? Simply too much has been built for too small a market. Development in Thailand tends to follow fads, with people jumping on the bandwagon in a climate akin to gambling fever, fuelled in this case by an unprecedented economic boom beginning in the late 1980s.

According to a *Bangkok Post* report, supply in the office and retail sector in Bangkok has increased by more than 400 percent over the last six years. In the housing sector it is estimated that Bangkok currently has some 400,000 vacant units and a similar number under construction, about half of which are condominiums. To foot the bill for the building spree, loans from financial institutions to property developers amounted to US$20.92 billion (523.03 billion baht) in 1995, up from US$17.42 billion (435.63 billion baht) in the previous year. In June 1996 the figure stood at US$30.70 billion (767.734 billion baht).

Exemplifying the severity of the problem is Bangkok Land Plc's Muang Thong Thani. This satellite town development, the largest project of its kind in Thailand with some two dozen 30-storey residential and commercial condominiums on the outskirts of Bangkok, has so far sold less than 50 percent of its 26,000 units, and much of what has been sold was bought up as speculation and remains mostly unoccupied.

Bangkok Land Plc could now be saved from almost certain financial disaster by a recent and controversial plan by parliament and at least two government agencies to relocate to Muang Thong Thani. Other developers could be less fortunate. According to one informed source, 80 percent of property companies are currently facing difficulties, while several architectural firms admit to downsizing and retrenching in the wake of lost work.

Total exposure to the property sector



	Baht millions	US$ millions
Commercial banks	414,119.7	16,564.8
Government housing bank	2,259.0	90.4
Finance companies	348,995.7	13,959.8
Credit fonciers/mortgages	2,360.1	94.4

Source: Bank of Thailand

To help redress the situation, the government established in March the Property Loan Management Organisation, a US$4 billion (100 billion baht) property loan bail-out scheme offering seven-year, zero-coupon bonds. Exactly how effective this will be however remains to be seen, requiring, as it does, the co-operation of both finance and property firms. A conflict of interest, for example, could arise in revaluing property projects, as developers would tend to look for the highest assessment.

Although most analysts do not predict a quick recovery, they tend to view the property business as cyclical and point out that until now Thailand has experienced only the good times. Prices are expected to fall – one leading real estate firm estimates Bangkok freehold office space is amongst the cheapest in Asia at between US$2,200-2,800 (55,000-70,000 baht) per square metre. This should help ensure demand for quality projects, but for others the prospects are bleak, at least for the next couple of years.

The British construction boom is a party political non-event

By Adam Mornement

At the time of writing the British election is only a few days away, yet despite over five weeks of intensive campaigning – also known as inter-party bickering – it is clear that the three main political parties (Conservatives, Labour and Liberal Democrats) view the booming British building industry with apparently little interest.

In April, the National Council of Building Material Producers, a body representing over 2,000 companies, predicted that annual construction output, if valued at 1990 prices, would reach US$86 billion (£53.75 billion) by 2000, a figure only US$2.48 billion (£1.55 billion) below the industry record of US$88.48 billion (£55.3 billion), achieved in 1990. But the three main parties have made no significant manifesto pledges that would help to either sustain or develop the current high.

Labour has taken the lead, promising to fund social housing with local authorities' capital receipts – a move that would free-up US$800 million (£500 million) per year for new-build, repair and maintenance. However, The Royal Institution of Chartered Surveyors (RICS) described the rest of the party's construction policy as "woolly". The Conservative Party has pledged its commitment to urban regeneration but has made no provision for funding, rendering its claims rather unconvincing, and the Liberal Democrats intend to spend US$800 million (£500 million) over five years to repair education buildings, although as Michael Chambers of RICS points out: "You're talking about a backlog worth billions of pounds. I don't think US$1.6 million (£1 million) a year is going to make a dramatic difference". The Liberal Democrats have also put forward the radical "greenfield tax" – to encourage developments on brown land – an idea that has also been met with scepticism from the RICS.

OnScreen

1

OnScreen visits the site of international giant, Hellmuth, Obata and Kassabaum (HOK) for a look at how the "big boys" do it, and weighs up the potential of "meta content files" – the answer to information overload or the catalyst to a new wave of Internet mayhem?

Not too big to care

HOK's web site (http://www.hok.com) is one of the most elegant and rewarding sites of the large practices residing on the web. The site contains a wealth of information about the company's history and background, worldwide offices, profiles, publications and a vast portfolio of projects both built and unbuilt. For a practice the size of HOK it gives a remarkable overview of the company's structure, breadth of work and services. Yet the design of the site allows this potentially frightening amount of information to be accessed in a refreshingly coherent and readily digestible manner.

The design is simple, making navigation light and easy, and down loading quick – only when you want to view a project in more detail are you obliged to download larger image files. This site, unlike many on the web at the moment, has content; it does not rely on heavy eye appeal to draw people in. The ubiquitous advertising banner present on most commercial sites is used to good effect showcasing HOK's own work – a nice twist.

Key groups within HOK, such as HOK Asia, HOK Consulting, HOK Science and Technology, HOK Sport and HOK Studio "e", have their own areas within the site which have been developed in a number of ways. For example the Science and Technology area is broken down into five sections: Lab Talk, Hot Topics, About the Group, On the Screen and Past Projects.

Within the Lab Talk pages there is "current talk topic" and visitors to the page are invited to post their thoughts on the topic. Although the current topic is a little out-of-date the idea that people can comment on designs or issues as they surf though a site is a great and inexpensive form of research. Studio "e", a global focus group within HOK "serving the entertainment, leisure and cultural markets where theming is the driver", is an extensive site in its own right with a separate domain name (www.hokstudioe.com) and sub-sections which look at trends, markets, projects and people.

Several areas of the site are extremely commendable. The Sustainable Design section, apart from detailing HOK's mission statement in this field, posts a quarterly newsletter along with a Sustainable Design Brochure which can be read on line or downloaded as PDF file.

The highlight of the site for any keen architectural surfer is the Technology Demo area. This section of the site experiments with new emerging web technologies. The WHIP! (see OnScreen *WA*55) plug-in section posts several CAD drawings which can be viewed online directly through a browser. This is one of several new browser plug-ins which will allow architects to view and mark up drawings over the web.

Apple's new HotSauce plug-in is also given a good workout in the Demo area. Once the HOK navigation file is downloaded – a tiny 11k file – the whole site can be viewed in 3D. HotSauce presents the Web pages as a series of nodes which you "fly" through using the mouse to navigate between the branching structures. The whole experience is like a "shoot 'em dead" video game except the targets in this case are buildings or profiles of the company's partners.

New software releases

Dr.DWG Net View 1.1 for Windows 95/Windows NT has just been released offering a simple and convenient way of accessing and viewing AutoCAD drawing files through your web browser. The small plug-in allows you to zoom, pan, show/hide layers/blocks, change viewpoints, measure distance and print from with the browser. You can redline and also hyperlink your drawings enabling easy navigation from drawing to drawing or to any other document. AutoCAD drawings saved in R12 and R13 DWG, DXF and Binary DXF formats can be manipulated through the same interface. You can also embed the hyper-linked AutoCAD drawings within html documents creating rich interactive web pages.

For more information http://www.drdwg.com

Meta files: a practical index

With 150 million pages on the net to date and one billion predicted by 2000, the web could choke from information overload. No matter how good your search tool it will become increasingly difficult to find the information you need. This problem is now beginning to be addressed by "meta content", files which describe what is inside the main document. This meta file is then indexed as opposed to every word in the document, reducing search times and greatly increasing search accuracy. Meta content is like an index, content about content.

Apple's new HotSauce file format is precisely this; a way of viewing what is in a document without actually opening it. The HotSauce plug-in for Netscape navigator allows sites with HotSauce Navigation files to be viewed dynamically in 3D. Rather than scrolling down pages and clicking in the traditional manner, you fly though what amounts to a galaxy of grouped file names which slowly expand or contract as you fly towards or away from them. When applied to a large site like HOK's the whole site can be surveyed in a matter of seconds just dragging the mouse, and then with a single click any file or page can be open no matter how deeply embedded within the site.

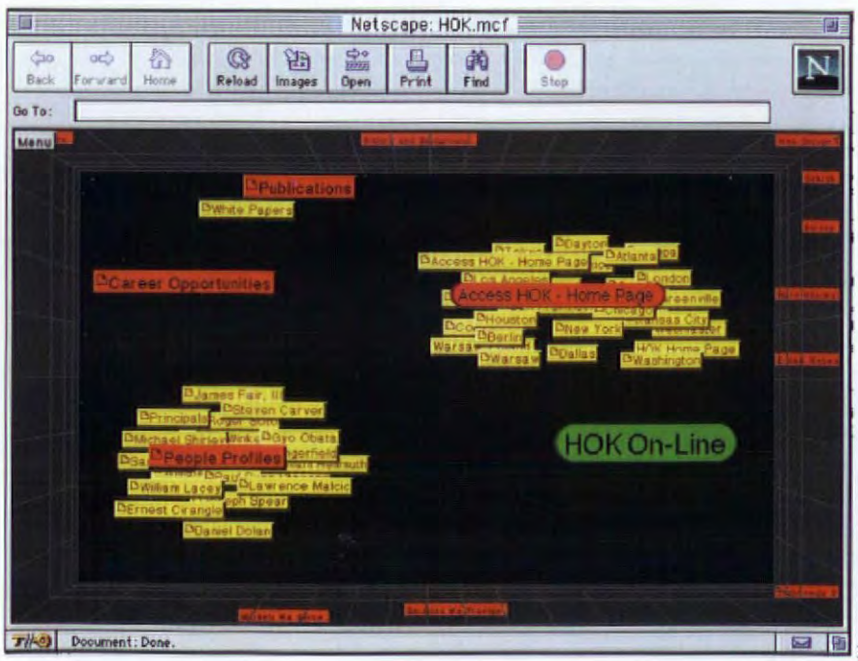
HotSauce (Formally known as ProjectX) FlyThru Viewer for Macintosh (PowerPC and 68K) or for Windows NT/95 at http://hotsauce.apple.com

Mark Dytham is partner of Klein Dytham architects, based in Tokyo. He can be contacted via WA or Tel/fax: +81 3 3796 1709; or e-mail: zapkdarc@gol.com

1: One of many different page banners across the HOK site

2: HOK's "galactic" hotsauce navigation page

3: Dr. DWG New View web browser plug-in



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Polemic

Airports: the cities of tomorrow

Why do air travellers spend so much time in airports? Recent reports suggest that this apparently wasted time is increasing at the rate of nine percent per year and presently averages 94 minutes across Europe. Worse still, it appears that every ten minute increase in this airport "dwell" time generates a 20 percent increase in airport retail profits.

The response to this information has been predictable – airline passengers have long suspected that lengthening waits have nothing to do with aircraft handling or security and are really a device to boost airport shopping – but also somewhat wide of the mark. There is much bigger game afoot at the world's airports than the proliferation of Sock Shops, Tie Racks and offshore Harrods. Once the out of town orphans of the world's great cities, constantly threatened with closure because of noise, airports are now becoming the cuckoos in the urban nest. Increasingly they offer not only an extensive range of consumer goods, but a better all-weather shopping environment, unrivalled security, plentiful parking, lashings of offices, hotels and restaurants, golf clubs, health clubs, tennis courts, dry ski slopes, convenient banking and financial services, excellent road and rail connections, global air links (of course) and, most important of all, more real employment opportunities per square metre than any city anywhere in the world.

Airports, new, shiny and heavily invested in, are rapidly becoming better at being cities than tired, worn-out old cities themselves are. Now, with the latest generation of new and upgraded airports coming on stream in the next five years, they are beginning to offer direct commercial competition to the cities that they serve at every level – and all the indications are that they will win.

Consider the ancient city of London, a densely populated place served by an infrastructure from another age. London has roads that are too narrow, buildings that are too old, public transport systems that are in terminal decline, and a vastly exaggerated idea of the value of all this decrepitude as well. This last is the city's Achilles heel. It stops the regeneration of its infrastructure from being deemed an urgent matter, and it prevents the level of competition already being mounted by the city's largest airport from being seen as the mortal threat that it really is.

As a result of these illusions of heritage value, the British government, which has governed the city direct for the last ten years, has spent money like water on the arts establishment but felt unable to raise US$ 6.4 billion (£4 billion) to pay for a cross-London rail link that would have closed a costly gap in the city's rail services, or commit itself to the expenditure of US$ 1.6 billion (£1 billion) a year for ten years to modernise its ancient underground railway system. The upshot has been a city that is becoming increasingly un-user friendly to those who live and work in it, so that both employment and population are draining off to other places.

Heathrow, London's principal airport, counters this spiral of decline with ease. Today it employs 60,000 people within its own boundaries and supports at least as many again outside it, as well as handling 50 million passengers a year through its terminals. Its owners, the British Airports Authority, spend US$1.6 million (£1 million) a day on improving access to its airports, of which over US$320 million (£200 million) has gone towards a new Heathrow Express rail link from central London, which will come into service next year. Now, in addition to the clusters of hotels and business parks that have already gathered around Heathrow, the Airports Authority has started developing property itself. A 23,000-square-metre "World Business Centre" marks the beginning of a programme destined to turn the airport into a business community, as well as a transport and retail hub.

But perhaps the most dramatic example of an airport bidding to overwhelm a city is Chek Lap Kok, the new Hong Kong airport that is being hurried towards its opening in 1998.

Masterplanned by Foster Asia and located on a man-made island only 25 minutes from Hong Kong Island by rapid transit, it is the proud boast of the Hong Kong Airport Authority that this massive enterprise lies within five hours flying time of half the population of the world. Current estimates of passenger demand for Chek Lap Kok are looking at 56 million arrivals and departures by 2010, and 100 million by 2040. More significant in terms of the urban battle are the predictions for jobs and buildings associated with the project. By the time its second runway is in operation in 2002, operations at Chek Lap Kok will already have created 100,000 jobs. In addition its new rail link with Hong Kong island, which passes through five new railway stations – each surmounted by 650,000 square metres of air rights development comprising office, retail, hotel and residential accommodation capable of employing 20,000 and accommodating 100,000 persons – will offer a total of three and a quarter million square metres of new floorspace set enticingly on waterfront locations. Nor will the airport buildings lag far behind. The main 1.2 kilometre-long terminal, with its 490,000 square metres of covered floorspace, intentionally maximises traveller "dwell" times. It is planned so that all traveller and visitor movements will lead back and forth through "selling and dining zones" whose 120 shops and 40 restaurants – compared to the mere 50 kiosks at the neanderthal Kai Tak airport presently serving Hong Kong – are already offering guarantees that their prices will be lower than those in the city itself.

By the year 2010 it seems a fair bet that a significant percentage of stopover passengers and visitors to Hong Kong will never actually make it to Hong Kong island at all – or even want to.

Martin Pawley

"Once the out of town orphans of the world's great cities... airports are now becoming the cuckoos in the urban nest."

Book Reviews

Boy wonder comes of age

Moshe Safdie. Edited by Wendy Kohn. Academy Editions, London, UK; distributed in the US by the National Book Network. 344pp, over 800 illustrations mainly in colour. £49.50/US$85 (hardback)

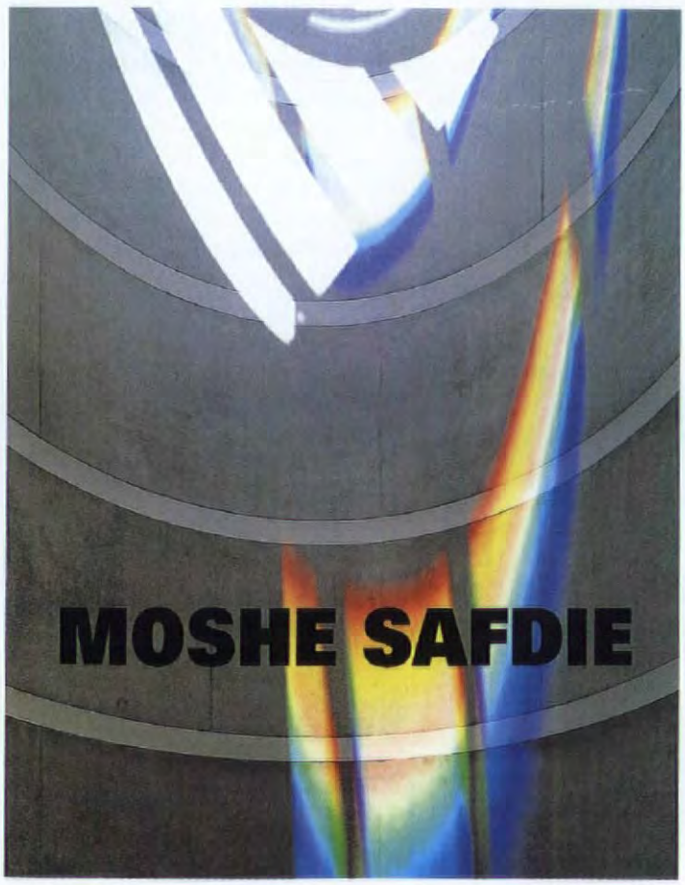
Reviewed by Michael Webb

Few contemporary architects have provoked as much fierce debate as Moshe Safdie – in both his native land of Israel, and in north America, where he has spent most of his life. His 30-year career has been a roller-coaster of success and failure, and a series of hard-fought battles. As the boy wonder who turned his graduate thesis into *Habitat*, he seemed poised to exploit his vision of humane, industrialised housing world wide, but was everywhere frustrated. He proposed three major schemes to enhance the old city of Jerusalem, and knit warring factions together, only one – Mamilla – has at long last been realised (see *WA* 55). His design for an innovative high-rise complex in New York drew a firestorm of criticism and blighted his reputation in the US for a decade until the recent completion of the Skirball Center in Los Angeles, he has created urbane public buildings from one end of Canada to the other, and written several provocative books.

As editor of this sumptuous monograph, Wendy Kohn brings Safdie's contentious, contradictory career into sharp focus, juxtaposing essays by sympathetic critics and drawing the architect out in an interview. She identifies him as a master of big ideas and minor chords, concerned to create timeless buildings that respond to the spirit of the place, of climate, and the specific needs of their users. She evokes the experimental quality of Safdie's architecture, and the warmth this adds to the hard-edged forms and imposing structures. Michael Sorkin describes the unrealised potential of *Habitat* as a reflection of our loss of optimism. Paul Goldberger argues that Jerusalem has reshaped Safdie, deepening his appreciation of the urban grain and local conditions. Peter Rowe explores the ways in which the architect's plans are derived from his love of pure geometry. And Witold Rybczynski, an outspoken foe of architectural posturing attributes Safdie's success in Canada to the humanism that enriches his fervent modernism.

In his own comments, Safdie cities the ancient world and Louis Kahn, legendary temples and gardens as sources of inspiration for his architecture, infusing spaces and forms with a sense of ceremony and wonder. In words and sketches he puzzles out the appropriate solution to each problem, and the bulk of this very bulky volume tells a rich story in diagrams and photos.

Michael Webb is a freelance writer living in Los Angeles



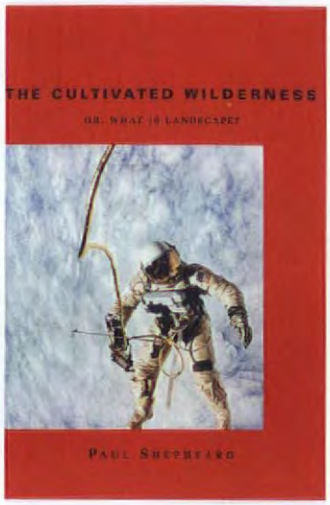
Look, and you might see

The Cultivated Wilderness, or What is Landscape? Paul Shepheard. Graham Foundation for Advanced Studies in the Fine Arts, Chicago Illinois and the MIT Press, Cambridge Massachusetts and London, UK. 230pp, 26 illustrations. $US12.50/£9.95 (paperback), $US25/£21.50 (hardback)

Reviewed by Kelly Shannon

Paul Shepheard's *The Cultivated Wilderness, or What is Landscape?* is about "seeing things that are too big to see". In essence, it redefines the history of the cultivated landscape as an entity, where town and country, urban and rural are no more than nuances in an artificial, and continually manipulated, system. Present-day "wilderness" is indeed a myth since it defines the world before humans appeared in it. "Cultivation" is everything mankind has inflicted on the wilderness, and "Landscape" is simply another name for the strategies that have governed the human effort in reshaping the world.

Personal narratives, observations and research are cleverly interwoven, creating a theoretical novel. Shepheard focuses upon six landscapes, in an order of descending scale, and links them with their respective "landscape strategies". Further structuring of the book comes from a tri-partite division of global geography (The Seven Wonders of the World and



Antarctica), regional choreography (Scotland and Flevoland) and local topography (The London Basin and The Western Front). The chapters on Scotland as a national landscape, Flevoland (The Netherlands) as a utilitarian manufactured landscape and the Western Front as a secular, sacred landscape of memory, are compelling.

The book's focus on "strategy" implicitly criticises the underlying continuation of the nineteenth century landscape strategy of industrial and economic exploitation of the earth, propounded by twentieth century politics. Although Shepheard does not necessarily offer alternative strategies, he does articulate the conflicting views concerning the universal cultivation of the global economy and offers perceptive new readings of well-known landscapes. Civilisation, humanity and nature are fundamentally challenged by contemporary culture which as he states "is so universalised that we are all tourists in our own countries – in our own backyards – moving about our homes, even aspirated by prejudice and sentiment – but even so, tourists ... don't go looking for experience, but go looking to have ... preconceptions confirmed."

The contemporary nature/culture equation is brought into focus and questioned repeatedly. The notion of a revival of "wilderness" and lost nature is attacked as a "theme in a strategy, and the strategy is to cling to the past with all the strength that modern methods can muster. Authenticity is the science lurking in the nostalgia". In an analysis of J B Jackson's human history of the land, Shepheard summarises: "The first in which people lived close to nature; the second, in which they lived in deliberate contradiction to it; the third,

in which we live, sustained by our machines, on the surface of it." He then adds a daunting Landscape Four, "the fully networked but ethnically fenced-off globe that seems to lie in wait for our grandchildren." Perhaps Shepheard's perspective on the temporality and fragility of the delicate balance of natural and artificial can more optimistically be regarded as an opportunity for reorienting the future of the built cohesive landscape.

Kelly Shannon teaches at the University of Colorado, US, and is a regular contributor to WA

Water and urban design

Landscape Transcripts. Catherine Powell and Noriyuki Tajima. B T Batsford Ltd, London, UK. 192pp, 200 colour illustrations. £50 (hardback)

Reviewed by Conway Lloyd Morgan

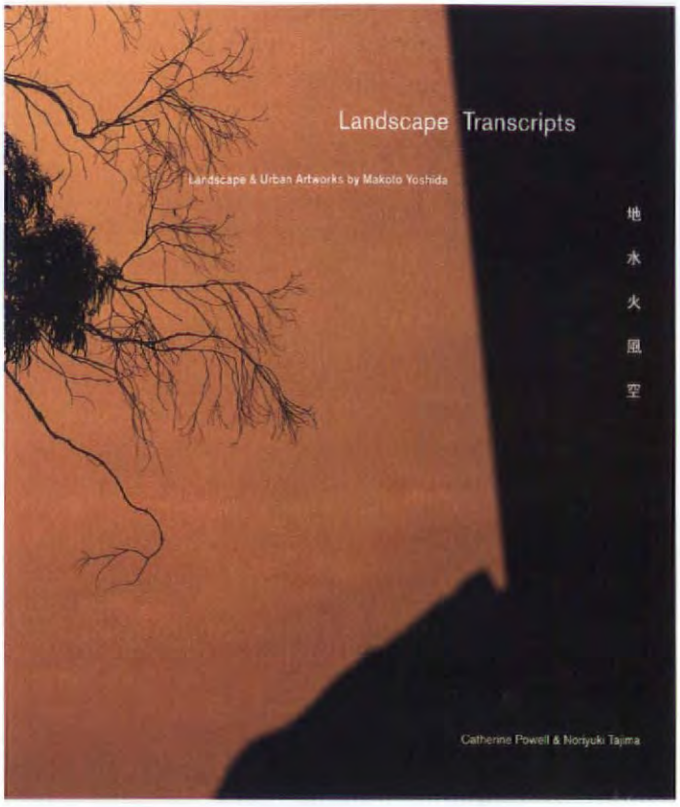
Makoto Yoshida trained as a painter, but became dissatisfied with the two dimensions of canvas, and went to work on public space art projects with Nobuo Sekine's Environmental Art Studio, before setting up his own practice, the Art Planning Studio, in 1987. This book therefore records a decade of work, often undertaken in urban and new town environments. In discussing his work, Makoto shows a strong concern for the loss of spatial identity created by the "facelift culture" of post-war Japan, with its dedication to material ends objectivised in the "three national treasures" – the car, the television set and the refrigerator.

But he is no traditionalist. His work shows an awareness of other landscapes, including the English gardens of Repton and Brown and the Indian astronomical sites, and he does not see his work as having the anonymity and exploitation of chance proper to a purely Zen approach. His approach, that of an architect as much as an artist, fosters consultation and debate around the purposes and uses of a site.

The varied quality of his work shows just how difficult finding a new "urban chronology" is for contemporary Japan. In one series of aquatic parks, for example, one pool uses as a storyline the traditional tale of Issun Boshi, the one inch-high monk, the next Alice in Wonderland, the third a conceptual dragon in chromed steel tubing: the combined effect is not wholly successful. Other projects, such as the cut stones of North Latitude 40, the fountain steps in Fujishiro Square or the totemic pond for the Yonezawa General Park, are much more harmonious.

Makoto's handling of water, whether as fountains, streams or pools, is the most interesting and exciting aspect of his work. But the importance of this book does not rely just on the quality of the projects it discusses but on the debate it launches about the role of iconic urban landscapes. And in creating a forum for this debate Garry Mouat's graphic design deserves a special mention.

Conway Lloyd Morgan is a London-based writer.



BOOKS RECEIVED

Architectural Bodies

Arie Graafland. Uitgeverij 010 Publishers, Rotterdam, the Netherlands. 132pp, 50 illustrations. NGl 39.50 £18.50 (hardback)

Ladders

Albert Pope. Princeton Architectural Press, New York, USA. 208pp, 119 b/w illustrations. US$17.95/£12 (paperback)

Stadia: a design and development guide

Geraint John and Rod Sheard. Butterworth Heinemann, Oxford, UK. 272pp, 50 half tone and 95 line illustrations. £19.99 (paperback)

Radical Reconstruction: Lebbeus Wood

Princeton Architectural Press, New York, USA. 212pp, 109 colour and 103 b/w illustrations. US$45/£30 (cloth)

Intelligent Spaces: Architecture for the Information Age

Otto Riewoldt. Laurence King Publishing, London, UK. 240pp, 226 colour and 128 b/w illustrations. £45 (hardback)

Sick Building Syndrome: Concepts, Issues and Practice

Jack Rostron. E & F N Spon, an imprint of Chapman & Hall Publishing, London, UK. 186pp, illustrated throughout. £27.50/US$110 (paperback)

Architecture and Identity: Towards a Global Eco-Identity

Chris Abel. Butterworth Heinemann, Oxford, UK. 264pp, 80 line drawings, 118 halftones. £25 (paperback)

2G (new series), David Chipperfield Recent Work

Edited by Xavier Güell. Editorial Gustavo Gili, Barcelona, Spain. 144pp, 200 colour illustrations and over 100 drawings. 3,500 pesetas/£18.50 (paperback)

Architecture in Context Series: Ellipsis (London, UK)

San Fransisco House: after the fire. *Peter Lloyd, photography by Keith Collie. 80pp, 120 colour and 20 b/w illustrations. £6.95 (paperback)*

Las Vegas: the success of excess. *Frances Anderton and John Chase, photography by Keith Collie. 80pp, 120 colour and 20 b/w illustrations. £6.95 (paperback)*

Tokyo: labyrinth city. *Noriyuki Tajima and Catherine Powell, photography by Keith Collie. 80pp, 120 colour and 20 b/w illustrations. £6.95 (paperback)*

Vienna: objects and rituals. *Ingerid Helsing Almaas, photography by James Morris. 80pp, 120 colour and 20 b/w illustrations. £6.95 (paperback)*

Garrett Eckbo: Modern Landscapes for Living

Marc Treib and Dorothée Imbert. University of California Press, Berkeley, California, USA. 193pp, 25 colour and 123 b/w illustrations. US$39.95 (cloth)

Differences: Topographies of Contemporary Architecture

Ignasi de Solà-Morales, translated by Graham Thompson, edited by Sarah Whiting. MIT Press, London. 153pp, b/w illustrations. £10.95 (paperback)

Events

Lectures, Congresses and Conferences

Australia

Biennial Oceanic Architecture and Design Student Conference

International student conference to be held at Deakin University, from 6-11 July 1997. Contact Carlie Spiteri, School of Architecture and Building, Deakin University, Woolstores Campus, Geelong, Victoria 3217, Australia.
Tel: +61 3 5227 8364
Fax: +61 3 5227 8365
e-mail: morphe@ deakin.edu.au.
Web: www.ab.deakin.edu.au/ morphe /morphe.html

Bulgaria

INTERARCH 97 VII World Triennial of Architecture

Organised by the International Academy of Architecture (IAA) and the Union of Bulgarian Architects, the Triennial will consist of a symposium – on architectural education in the twenty-first century – and an exhibition. From 23-29 June 1997 at 2 Tzar Osvoboditel Blvd, Sofia 1000, Bulgaria. Contact Milka Kostourkova.
Tel: +35 92 9872931/9871313
Fax: +35 92 9877165

Canada

Underground Space: Indoor cities of tomorrow

The seventh international conference on underground space and facilities, to be held in Montréal, Canada. 29 September-3 October 1997. For further information contact the Organising Committee, City of Montréal, 303 Notre-Dame Street East, 5th floor, Montréal, Québec, Canada H2Y 3Y8.
Tel: +514 872 8334
Fax: +514 872 0024
e-mail: 7econfso@odyssee.net

Toronto: Living Model for the New Urbanism

"Access and Community" is the theme of the first Congress for the New Urbanism (CNU) congress to be held outside the US. The event runs from 29 May to 1 June 1997 at the University of Toronto. For further information contact Diana Crosbie in Canada
Tel: +416 360 6625
In the US contact Dottie Jeffries.
Tel: +312 938 1969

Poland

Challenges to Civil and Mechanical Engineering in 2000 and Beyond

A Council for Tall Buildings and Urban Habitat (CTBUH) endorsed conference to be held at the Technical University of Wroclaw, from 2-7 June 1997. Contact Secretariat of Conference CCME 97, Technical University of Wroclaw, Institute of Building Engineering, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland.
Tel: +48 713203721
Fax: +48 71221465
e-mail: kobiel ak@pioneer. ib. pwr.w roc.pl

UK

Spaced Out III – series of ICA talks

Oliver Kruse and Claudio Silvestrin Argriarchitecture, *Hombroich and the Hermetic* 3 June 1997, 19:00 hrs. Ben van Berkel, *Continuous Relations* 18 June 1997, 19:00 hrs. For further information on Spaced Out III contact the Institute for Contemporary Arts (ICA), The Mall, London SW1Y 5AH, UK.
Tel: +44 171 930 3647
Fax: +44 171 873 0051

Architecture and Design Competitions

Canada

A place for architecture Montréal 97

International design competition organised by the Royal Architectural Institute of Canada (RAIC) focusing on the public spaces throughout Montréal – the city's "transitional spaces" – reaffirming architecture's social role. Registration ends on 3 June. The jury will sit on 19 June. An exhibition of entrants runs from 14-21 June at Hangar 7 on Saint-Laurent Street in the Old Port of Montréal. The prize winners will be announced on 21 June. For further information contact Jean Beaudoin
e-mail: Pierre.Beaudoin@hec.ca

Czech Republic

The Prague Castle Pheasantry Redevelopment Project

The Prague Castle Administration have announced the first stage of a major open international competition for the redevelopment of the former Pheasantry garden and the adjacent buildings of the Court of the Riding Hall situated at the northern approach to Prague Castle. Submissions for the first stage are due by 15 August 1997. For further information contact Jan Zemánek, AYH HOMOLA Projektmanagement sro, nám Barikád 1134/3, 130 00 Prague 3, Czech Republic.
Tel: +42 2 697 00 24
Fax: +42 2 697 20 15

Finland

International competition for a Music and Arts Centre in Jyväskylä, Finland

The City of Jyväskylä have organised an architectural design competition for a new Music and Arts Centre, to coincide with the 100th anniversary of Alvar Aalto's birth. The competition is open to architects from all European Union (EU) countries, as well as certain others. Registration until June 1997. Deadline for entries 15 September 1997. Total prize money $US150,000 (FIM 750,000). For further information contact the competition secretary at The Finnish Association of Architects, Yrjönkatu 11A, FIN - 00 120 Helsinki, Finland.
Tel: +358 9 584 448
Fax: +358 9 601 123

Italy

1997 Ermanno Piano Scholarship

The Ermanno Piano Scholarship has been created to give recently graduated architects of any nationality the opportunity to work, for six months, with the Renzo Piano Building Workshop in Genoa, Italy. The grant amounts to US$10,000. The 1997 scholarship is open to architects who graduated in 1996. Applicants should send their curriculum vitae – in French, English or Italian – to the Renzo Piano Building Workshop, Via Rubens 29, 16158 Genoa, Italy before 31 May 1997. The final selection will be made on 15 July 1997.

USA

Good Design Awards 1997

The Chicago Athenaeum: Museum of Architecture and Design have announced the 1997 Good Design Awards – an exhibition of competition entries is scheduled for show from October this year. The awards welcome industrial and graphic designs from around the world. All entries must have been designed/manufactured since January 1995. The deadline for submission is 1 July 1997. For an entry form contact Leonard Kliwinski.
Tel: +312 251 0175
Fax: +312 251 0176
Web: www.chi-athenaeum.org/.

Exhibitions

Canada

The New Spirit: Modern Architecture in Vancouver between 1938-63

Until 25 May 1997. For further information contact the Canadian Centre for Architecture (CCA), 1920 rue Baile, Montréal, Québec, Canada H3H 2SG.
Tel: +514 939 7000
Fax: +514 939 7020

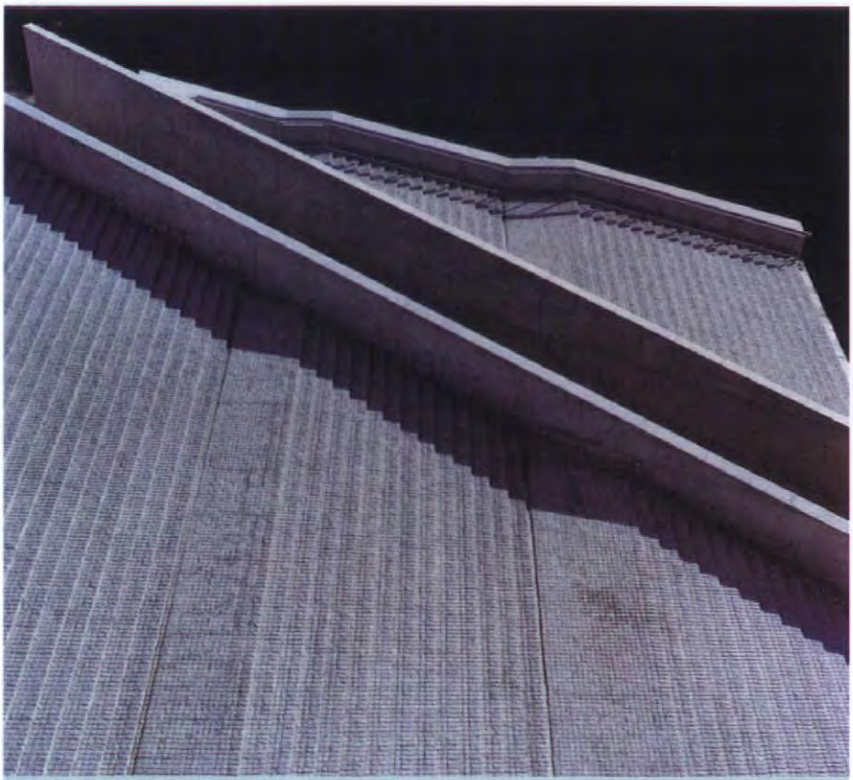
France

Made in France: 1947-1997

The last exhibition at the Pompidou before its closure for internal reorganisation looks back on 50 years of French design. Until 29 September. For further information contact the Centre Georges Pompidou, Paris, France.
Tel: +33 1 44 78 12 33
Fax: +33 1 42 78 50 59

Un projet urbain pour Bordeaux

An exhibition curated by the city mayor looking at future urban possibilities for the city of Bordeaux. Organised in association with the Arc en rêve centre d'architecture, the exhibition will be held at the architecture gallery at Entrepôt Lainé, 7 rue Ferrère, 33000 Bordeaux, France. Runs until 1 June 1997.
Tel: +33 5 56 52 78 36
Fax: +33 5 56 10 17 01



Richard Pare – Tadao Ando: Les couleurs de la lumière

The second exhibition in the Canadian Centre for Architecture's (CCA) Photography and Architecture series, explores the relationship between the work of Japanese architect Tadao Ando and the photography of Richard Pare. The exhibition runs until 1 June 1997 in the Octagonal Gallery at the CCA, 1920 rue Baile, Montréal, Québec, Canada H3H 2S6. For information contact Madeleine LeBlanc. Tel: +514 939 7026

Germany

Castiglioni and Italian design

The "Castiglioni" exhibition showcases objects and sketches illustrating the creative cycle of the designer whose name has become synonymous with modern furniture and furnishing design. The exhibition runs until August 1997 at the Vitra Design Museum, Weil am Rhein, Germany.
Tel: +49 7621 7020

Sweden

Rafael Moneo

An exhibition of the architect's designs for the new Swedish Museum of Architecture and the new Museum of Modern Art, in Stockholm, Sweden. Until 10 February 1998. Contact Catharina Siegbahn at Arkitektur Museet, Skeppsholmen, S 11149 Stockholm, Sweden.
Tel: +46 8 463 0500
Fax: +46 8 611 47 61

UK

Portable Architecture

An exhibition focussing on a form of architecture that can respond to a world that is constantly changing. Runs until 5 July 1997 at the Royal Institute of British Architecture (RIBA), 66 Portland Place, London W1N 4AD, UK.
Tel: +44 171 580 5533
Fax: +44 171 637 5775

The Power of Erotic Design

An exhibition, designed by Nigel Coates, of the erotic in twentieth-century culture, from Freud to Madonna. Runs until 12 October 1997. Design Museum, Shad Thames, London SE1 2YD, UK.
Tel: +44 171 403 6933
Fax: +44 171 378 6540

Trade Shows

France

Euro City 97

An exhibition of products for the urban environment to be held at Parc des Expositions de Paris, Porte de Versailles, 75015, Paris, France. 3-5 June 1997. Contact Caterina Proietti, Euro City 97, Hereford House, Bridle Path, Croydon, Surrey CR9 4NL, UK.
Tel: +44 181 6804200
Fax: +44 181 6815049

Batimat 97 and Interclima 97

The twenty-first annual building and construction exhibition runs from 3-8 November 1997 at the Porte de Versailles and Paris-Nord Vilepinte, France. Contact Gerrard Whitty at Promosalons (UK) Ltd.
Tel: +44 171 221 3660
Fax: +44 171 792 3532
In France contact Valerie Moullec.
Tel: +33 1 47 56 50 00
Fax: +33 1 47 56 08 18

Kazakstan

KAZBUILD/KIPS 97

KAZBUILD 97, Kazakstan's fourth international building, construction and interiors exhibition will be run in conjunction with KIPS 96 – protection, security and fire safety exhibition – at the Atakent International Exhibition Centre, Almaty, Kazakstan from 3-6 September 1997. For further information contact Irene Batsieva.
Tel: +7 3272 509 390
Fax: +7 3272 509 391

The Netherlands

Meubelbeurs/INTEROFFICE

International furniture fair and office furnishings exhibitions. Run from 31 August-3 September 1997 at the Royal Dutch Jaarbeurs, Utrecht, the Netherlands. Contact Victoria Littlewood at the Overseas Tradeshows Agencies (UK).
Tel: +44 171 486 1951
Fax: +44 171 587 3480
In the Netherlands contact Mrs A Van Beuuren
Tel: +31 30 2955 2686
Fax: +31 30 2955 870

The Philippines

Build Expo/ISST 97

A showcase of the latest products and services available in the expanding Filipino building and construction market. The event will run from 3-6 September 1997 in the Philippine International Convention Centre, Manila, the Philippines. Contact David Aitken of Reed Exhibition Companies (UK).
Tel: +44 181 910 7744
Fax: +44 181 910 7749
In the Philippines contact Evelina Estrada.
Tel: +63 2 891 6247

South Africa

AFRIBUILD 97

South Africa's largest business-to-business exhibition for construction, building and related industries. Runs from 5-8 August 1997 at the Gallagher Estate in Midrand, near Johannesburg, South Africa. Contact David Aitken or Sam Carter of Reed Exhibition Companies (UK).
Tel: +44 181 910 7744
Fax: +44 181 910 7749
In South Africa contact Nigel Walker.
Tel: +27 11 886 3734

UK

Hilight & Lightex 97

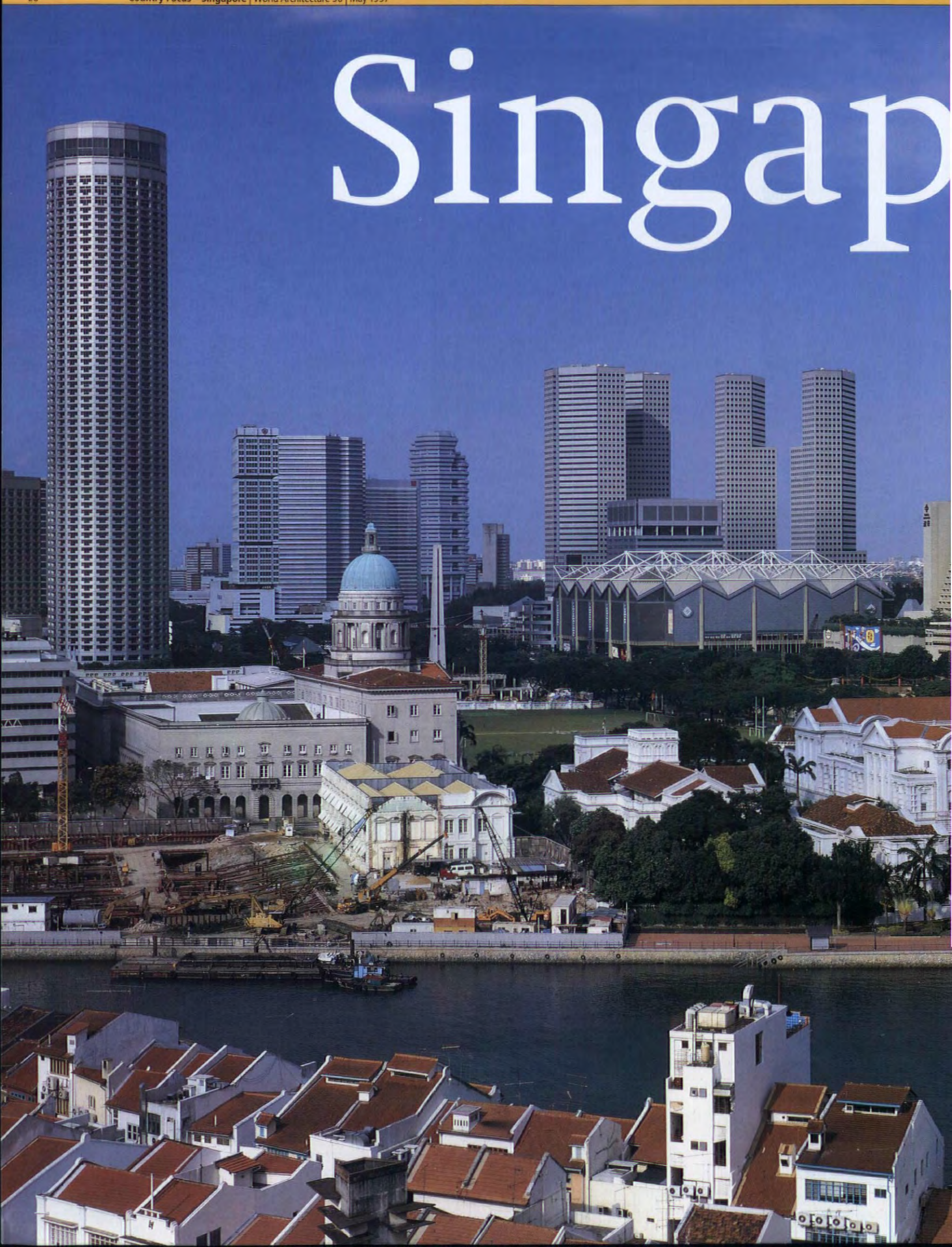
Lighting trade show. To be held at the National Exhibition Centre (NEC), Birmingham, UK, from 20-22 May 1997. Contact Chantel Stiborski at ILE & IALD, Lennox House, 9 Lawford Road, Rugby, Warks CV21 ZDZ, UK.
Tel: +44 1788 576492
Fax: +44 1788 540145
e-mail: ILE@dial.pipex.com

Ukraine

KIEVBUILD 97

The first Kiev international building and construction exhibition. Runs from 17-20 June 1997 in the Sports Palace, Kiev, Ukraine. Contact Alejandra Sarmiento of International Trade and Exhibitions Group – Construction Group (UK).
Tel: +44 171 286 9720
Fax: +44 171 286 0177
e-mail: building@ITE-Group.com
In the Ukraine contact Taras Kostyuk of Primus Ukraine.
Tel: +380 44 564 9861
Fax: +380 44 564 9663

Singap



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Richard Bryant/Arcaid
(manipulated image, James Blooms, London)

Country Focus

Singapore is the quintessential "global city", now established as the major economic city in Southeast Asia. In line with Hong Kong and most other developing cities in Asia, architecture has become the visual symbol of this prosperity. International architects are regularly imported for prestigious one-off projects, and areas of the island have become colonised by the work of either American or European designers. Now local architects are asserting their rights to involvement in significant projects, with limited success. Robert Powell, writer and professor at the School of Architecture at the University of Singapore, profiles recent work and outlines issues of regionalism, conservation, tourism and foreign practice. Hanscomb Associates provide a construction factfile.

View of Singapore with the five office towers and the convention centre of Tsao & McKown's Suntec City, centre, and Portman and Associates' Marina Square, top right


Tim Griffith

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Albert Lim

2


Hans Schnupp Photography

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In the last decade, the notion of the "Global City" has entered the language of political, economic and socio-cultural discourse. In 1986 John Friedmann described the attributes of a "global" city in a seminal essay entitled *The World City Hypothesis*. He defined a hierarchy of "so-called" global cities in which Singapore was seen to play a vital role. It does not have the population size of "primary" global cities such as London, Tokyo, New York and Los Angeles, all with populations in the 10-20 million range, but in terms of its importance as a major financial centre, a headquarters for trans-national corporations, the extent of its business service sector and position as a transportation node – it has acquired the status of a regional metropolis.

It is important to grasp this connection with the interlocking system of production and markets which comprise the global system, because it has a considerable effect on the architecture and urban forms of the island of Singapore. It has drawn Singapore into a world arena and created what Friedmann refers to as "social schizophrenia between, on the one hand regional societies and local institutions and on the other hand the rules and operations of the economic system at the international level". Furthermore, in such cities the traditional structure of social and political control over development, work and distribution have been subverted by the placeless logic of an internationalised economy enacted by means of information flows among powerful actors beyond the sphere of state regulations. In other words, Singapore cannot act independently of the world economic system, or at least it is severely constrained. Architecture in this international arena is simply a commodity which flows across national boundaries.

It is not surprising therefore that when one looks at the skyline of downtown Singapore, the creative endeavours of most of the world's so-called "signature architects" are prominent. Almost all aspiring global cities boast towers designed by the likes of Cesar Pelli, Helmut Jahn and Richard Meier. This is a measure of the cosmopolitan culture of a world city and the shift from a more territorially based community.

1: The Millennia project, designed by Kevin Roche, Phillip Johnson and John Burgee. Client: Pontiac Marina Pte Ltd. Roche's Ritz Carlton hotel far left

2: Gwathmey Siegel & Associates model for Nanyang Polytechnic

3: US Embassy by The Stubbins Associates

Stable government and economic growth

On 2 January 1997, Singaporeans went to the polls in a General Election which returned the Peoples Action Party (PAP) to power for an eleventh term of office. The PAP's victory was never in doubt. In power since 1959 the government has delivered continuous economic growth with the exception of one small "glitch" in 1985. Growth in 1996 was seven percent and Deputy Prime Minister Lee Hsien Loong, speaking at the Chinese Chamber of Commerce and Industry's Chinese New Year celebrations, forecast five percent to eight percent growth for 1997.

Since the island achieved independence Singapore has established itself as a major growth point in Southeast Asia. In the process, it displays an almost visible "angst". Singaporeans are constantly urged by government ministers and the media to maintain the country's global competitiveness. There are warnings of the dire consequences of a slow-down in economic growth and the increasing competitiveness and attractions of, for example, low wages and abundant labour of her neighbours. In November 1966 after the Asia Pacific Economic Cooperation (APCO) summit in Manila, Prime Minister Goh Chok Tong announced the formation of an inter-agency panel to carry-out a comprehensive review of Singapore's economic competitiveness.

Singaporeans have been persuaded that there can be little nostalgia for the past and constant change must be embraced with an emphasis on high value-added economic sectors such as disc-drive production and Information Technology (IT). If buildings and traditional trades have to be phased-out and communities relocated then so be it. The Planning Process, in sharp contrast to neighbouring Malaysia where planning is "development-led" with huge private initiatives such as KL Linear City and the Petronas Twin-Towers (see *WA* 51), Singapore has a tightly controlled centralised planning system. This sees the steady release of land for development which prevents overheating of the economy and ensures steady, if no-longer spectacular growth.

In 1991, the Urban Redevelopment Authority published the

Revised Concept Plan for the Island which provides a vision for Singapore's physical development into the twenty-first century. Singapore has been divided into 55 planning areas and for each of these a detailed *Development Guide Plan* (DGP) is prepared. In this way, the broad vision of the *Concept Plan* is translated into detailed proposals. By February 1997, 43 of the DGPs had been completed. The remaining 12 will be completed in 1997.

The planning methodology adopted tends to lead to homogenisation of the Singapore landscape. The impression is that there is very little difference between urban and rural; between one New Town and another. The DGP's already completed, suggest that this seamless merging of areas will continue unabated.

Economic powerhouse

The development of Singapore since the island achieved independence in 1965 is remarkable. Without a hinterland or any natural resources, except its well-educated workforce, Singapore has established itself as, arguably, the major economic city in Southeast Asia. Architecture has become the visual symbol of its economic achievements. The earliest symbols were the NTUC Conference Hall (1968), Chinatown People Park Complex (1970) and the Jurong Town Hall (1970). These have now been overtaken by the corporate structures of the Central Business District and Business Parks. Jurong Town Hall a potent symbol of national pride in the 1970s is scheduled to be demolished in the near future to make way for a new building with a higher plot ratio.

International architects whose buildings grace the skyline of Singapore include Paul Rudolph, Moshe Safdie, IM Pei, Kenzo Tange, Helmut Jahn, Kisho Kurokawa, James Stirling and Michael Wilford, Aldo Giurgola, Dominique Perrault, and Hugh Stubbins. Singapore's Marina Square might be dubbed "Little America" given the proliferation of buildings designed by American architects and its distinctly American urban spaces. There are three hotels by Atlanta architect John Portman, another by Kevin Roche of Connecticut and yet another designed by John Burgee from New York. There is a shopping mall designed by Philip Johnson and a convention centre and office and retail complex at Suntec City by another New York practice, Tsao and Mckown (see review in this issue). On site is the Camden Medical Centre designed by Richard Meier, and the Singapore Arts Centre by Michael Wilford and Partners (see *Face to Face*). Knocking at the door, with high profile visits to the city state, are Rem Koolhaas and Shin Takamatsu. Robert Siegal is currently on site with a new Polytechnic and Edward Larabee Barnes Lee have completed a masterplan and staff housing for the National University of Singapore. Most of the Mass Rapid System was designed by foreign consultants.

In the 1980s, the influx of foreign architects in the role of "design consultant" was met by cries of alarm from local practitioners. The Singapore government was pragmatic in its response. In 1991 Senior Minister for National Development Dr Lee Boon Yang said: "Singapore will be better off by judiciously tapping the experience, expertise and creativity of selected internationally-recognised architects". It might be argued that this is the equivalent of what Australians call a "cultural ›

"Most of the world's ... 'signature architects' are prominent ... this is a measure of the cosmopolitan culture of a world city"

Adrian Velicescu

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4: Model for Camden Medical Centre, currently under construction by Richard Meier & Partners

COUNTRY FACTFILE

Singapore has virtually no resources. With an excellent location on trade routes Singapore has developed an export based economy. Keppel harbour is one of the largest and busiest ports in the world. A financial centre for the region, it hopes to replace Hong Kong as the primary financial market of the region. It is a major petroleum refining centre.

Population: 2.97 million, Population density is 4,385 people per square kilometre.

Number of architects: 293 firms of architects listed with the SIA.

Language: The official languages are Malay, Chinese (Mandrian), Tamil and English. Malay is the national language and English the language of commerce.

Ethnic composition: Chinese (76%), Malays (15%), Indians (6.5%), others (2.5 %)

Religion: The main religions are Buddhism (29%), Islam (16%), Taoist (13%), Christianity (13%), and Hinduism (4%).

Capital: Singapore

The Land: Singapore island and over 50 islets in its territorial waters comprise the nation of Singapore. The total land area of Singapore is 641 square kilometers. Singapore island is 573.9 square kilometres measuring 42 kilometres in length and 23 in breadth. Its highest point is 177 meters above sea level. Major islets include Pulau Tekong Besar, Pulau Ubin, Sentosa, and Pulau Bukum Besar. Singapore, the smallest nation in Southeast Asia, is essentially a City-State.

Time Difference: Singapore is 8 hours ahead of Greenwich Mean Time (GMT).

Currency: Singapore Dollar (S$) which has 100 cents.

Holidays: Singapore observes the following holidays on the same date each year:

1 January	New Year's Day
1 May	Labour Day
9 August	National Day
25 December	Christmas Day

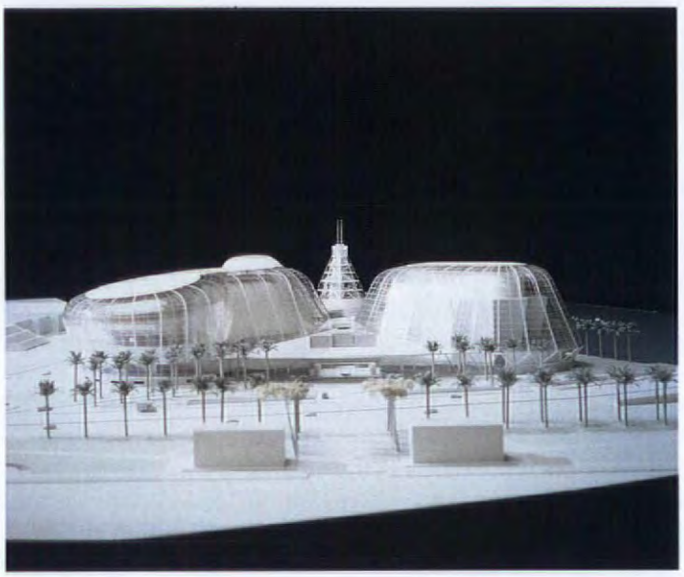
Holidays observed in accordance with the lunar cycle, include:
Good Friday
Chinese New Year
Vesak Day
Hari Raya Haji
Hari Raya Puasa
Deepavali

Airport information: Changi International airport, 16 kilometres from downtown Singapore, is a major hub for Southeast Asia.

Dialling code: The international dialing-in code for Singapore is 65. To place an international call from Singapore the access code is 00.

Richard Bryant/Arcaid

1



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1: Wilford and Stirling's acclaimed Temasek Polytechnic, completed last year

2: Model shot of the controversial design for the Singapore Arts Centre by Michael Wilford and Partners

›cringe", an attitude that anything that comes from Europe or the USA is better than can be produced by "home-grown", locally trained professionals. Architecture becomes the equivalent of the BMW, Mercedes or Volvo, Armani or Versace suit, or Rolex watch.

There is a downside to this. Many of the buildings by foreign design consultants do not adequately consider the climate and the culture of Singapore. Many are temperate models transferred to tropical Asia without substantial reassessment. Though to be fair many Singaporean practices are equally oblivious to the climate and the culture.

Foreign architects living in Singapore

There are several foreign architects who are long-time residents in Singapore. Australian Kerry Hill heads the practice of Kerry Hill Architects which has built a reputation for sensuous resort architecture throughout Southeast Asia. Another expatriate is the Argentinian-trained architect Ernesto Bedmar whose forte is exquisite houses. Both make convincing modern interpretations of the vernacular. There is also a younger generation of architecture graduates who are doing innovative work. Amongst them are Richard Ho Kong Fatt of Richardho Architects, AA graduate Tan Kay Ngee (KNTA), Yale graduate Chan Soo Kuan who heads Soo Chan Design Associates (SCDA), AA graduate Aamer Tahir and Singapore-trained Wong Mun Summ who was formerly with Kerry Hill Architects. On a more commercial level, Tsao & McKown have set up an office in Singapore on the back of their Suntec City success story. Most other foreign practitioners build from their offices at home, on a one-off basis.

Regionalism

At the end of the 1980s commentators predicted that Singapore architecture would adopt an increasingly international-style image. But given the rising regional consciousness

MAJOR PROJECTS

The new downtown

In 1994 the Urban Redevelopment Authority (URA) issued plans for the New Downtown entitled "Ideas for the City of Tomorrow". It is an open-ended discussion document which will form the basis of further detailed studies. Several million square metres of residential, commercial and recreational floor space are planned together with major developments in infrastructure including Light Rail Transit. The first sale of land for commercial development will be launched in 1997 and a new National Trade Union HQ tower block will commence on site this year.

Changi Airport Terminal 3

Singapore is aware of the growing attraction of the international airports in Bangkok and Kuala Lumpur and intends to stay in the forefront, in terms of efficiency and safety. A third terminal is already planned. The Civil Aviation Authority of Singapore's intends to keep capacity ahead of demand. The third terminal will open in 2002 and is designed to handle 20 million passengers per annum bringing Changi Airport's total annual handling capacity to more than 60 million passengers. The project is being designed in-house by the Public Works Department.

Public housing upgrading

Better educated, more widely travelled and stimulated by relatively free access to the international media Singapore's younger generation are more demanding. This presents a challenge to the Government who have responded with a programme of upgrading of public housing. Many of the upgrading projects are being done by private practitioners commissioned by the Housing and Development Board. There is also a programme of steady and planned release of land for further residential development.

in the mid-1980s, attitudes began to change; the growing confidence and innovative ability of a generation of Singapore architects since independence indicated that the countries of the Asian region (Singapore included) stand poised to assert a regional identity in architecture, which is endogenous and finds its inspiration in the cultural past and ecology of the region.

This observation was based upon the fact that parallel with the "globalisation" of architecture there was an apparent shift towards regionalism in architecture. This translates into an architecture designed by natives for a place which simultaneously absorbs the benefits of modernisation and modern technology. Although the influence of foreign architects as "design consultants" on the largest projects in Singapore is arguably even greater than in 1986, a strong local consciousness in architecture is evident in the work of a number of Singaporean architects. The most consistent practices in this regard are Akitek Tenggara (see KK Hospital review), William Lim Associates and Tangguanbee Architects (see Eastpoint Shopping Centre review). William Lim, describes his present work as, "Contemporary Vernacular", whereas Akitek Tenggara's best work celebrates the benefits of modern technology in a design language which emphasises line, edge, mesh and shade rather than plane, volume, solid and void. The works of these practices although by no means forming a coherent school of ideas presents an outspoken resistance to the domination of western practice.

Singaporean giants

There are several large Singaporean corporate practises which are associated with a substantial proportion of the major projects on the island. They include RSP Architects, Planners and Engineers, DP Architects Pte Ltd, SAA Architects, Architects 61 and RDC Architects Pte Ltd. They frequently work in association with acclaimed foreign architects, and have arguably become a sub-set of the international-style re-exporting its values to other countries in Asia. ›

CONCERNS OF THE ARCHITECTURE PROFESSION

Ecological awareness and sustainable development

Architects must become more aware of how to design buildings which protect the environment, use minimum resources and, do not pollute the atmosphere. In this respect the Singapore profession has some way to go for the island consumes a huge amount of energy, 50 percent of which is devoted to air-conditioning. The building regulations in Singapore do not always encourage ecologically responsive architecture. The calculation of Gross Floor Area (otherwise known as plot ratio), has anomalies which the URA seem unwilling to face.

Erasure of memory

Sites of cultural memory need to be conserved. Singapore has lost many of its authentic visual symbols and the planning process is not always helpful in this respect.

Globalisation and regionalism in architecture

The search for an architecture appropriate to Singapore, measured by its relation to culture and climate, must continue. This implies an architecture that resists westernisation as well nostalgia.

Public spaces

There is a lack of distinctive and memorable urban spaces. The quality of urban design must be improved.

Regionalisation of the Singapore economy

Many Singapore practices are now working in China, India, Vietnam, Indonesia, Sri Lanka, Brunei, Mauritius and Australia. This is in line with the countries drive to export its expertise to the region. This brings with it a need to question if the solutions that have worked for the island City-State of Singapore are appropriate for other cultures and other economies.

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Michael Portman

3: The proposed POS Bank HQ Building by RSP, one of Singapore's largest firms

4: John Portman & Associates Marina Square development. The project, completed in 1987, was a catalyst for other American-inspired developments in the area

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Bob Powell

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1: Koon Seng Road showing a typical row of shophouses, the subject of many restoration projects

2: William Lim Associates' playful Central Square, showing a liberal use of colour and form

3: A recent example of KNTA's exquisite one-off residences

› The broad conclusion could be drawn that while foreign architects in association with the larger corporate practices have, under the auspices of the government and large corporate clients, established a firm foothold in the Central Business District and the Tourist Belt the work of local architects dominates the rest of the island. Once out of the city, the predominant image is of high-rise public housing, for 86 percent of Singaporeans live in high-rise apartment blocks designed by the Housing and Development Board (HDB).

Conservation and tourism – panic measures

In the process of acquiring the status of a "Global City", Singapore has not been able to avoid some of the consequences. Amongst these are rapid change, constant rezoning of land at higher plot ratios, frequent obsolescence of uses, and the escalation of land prices as users compete for locational advantages. For example, three 35-storey luxury apartment blocks at Ardmore Park, completed as recently as 1978, are to be replaced by three new blocks at a higher plot ratio. Demolition commenced in late 1996.

Another consequence is unremitting pressure on the urban landscape which has led to the erasure of memory through the loss of historical heritage. Every rural village has been demolished and their inhabitants rehoused in high-rise apartments. The last village – Kampong Wak Selat – was bulldozed in May 1993. It signified the end of the country's rural heritage and a way of life which pre-dated the arrival of Sir Stamford Raffles in 1819. Agriculture was deemed not to make the most effective use of limited land. The emphasis was initially on manufacturing industries and more recently on Information Technology.

The economic restructuring of the country permitted little time for sentiment about the built heritage. Many fine buildings were lost and communities dispersed in the years that followed as ideas on conservation were slow to gain acceptance. By the early 1980s, some misgivings were being expressed. References were subsequently made to the loss of memory that accompanies physical change. It found support in government circles but even as the reservations were being expressed the urban renewal process continued unabated. Significantly, following the decline of tourist arrivals in 1985, the Singapore Tourist Promotion Board (STPB), with powerful connections within the government, began to lobby for heritage conservation. The Urban Redevelopment Authority (URA) began to consider conservation of a number of historic areas rather than redevelopment, and conservation became an integral part of government policy. In 1988 guidelines for the conservation districts of Chinatown, Little India and Kampong Glam were published and rent de-control was introduced. The Planning Act was amended in 1989.

By the early 1990s a visitor to Chinatown, Little India and Kampong Glam would be confronted by the sight of feverish activity as dozens of shophouses were being conserved and adapted for new uses. It became apparent that large profits could be made. Prices of old shophouses have escalated and a new problem has surfaced. Now conservation is happening too quickly. Insufficient time is being devoted to properly analysing, researching, documenting and surveying old buildings. Often the solution is to tear out the interior, leaving only the facade and then to rebuild with a concrete frame structure within the existing party walls. Many architects and engineers and their clients versed in modern construction processes are insensitive to the nuances of an old structure and unable to "read" the building or to sense its inherent qualities. There is a tendency to over-conserve on the one hand – "dressing-up" buildings in colours and details that are coarse and inaccurate – and on the other hand to create an overall blandness erasing the patina of age. The intangible qualities which created the ambience of, for example, Bussorah Street, Ann Siang Hill and Kreta Ayer have been largely ignored and ten years of vigorous "conservation" have resulted in many replicas of the past, containers emptied of life and with cultural memory lost. Conservation done in this manner has erased the former economic landscape dominated by small family businesses. The re-writing of history and the invention of tradition often follows. The Singapore Tourist Promotion Board (STPB) is currently promoting a scheme to attract tourists which involves the "Development of Thematic Zones" where: "Consultants have the licence to be creative and innovative and to recommend specific strategies to make the Chinatown experience one which is truly memorable and world-class". An ironic statement considering most of the traditional activities have being expelled; the very activities that create the diversity which gave these areas their "spirit of place". The exception to this is Little India which appears to have retained this spirit.

CONSTRUCTION FACTFILE

Construction outlook: There have been several years of growth in construction volume. Public sector construction expenditures average between 40 and 60 percent of total value of construction. The market is very competitive, given the anticipation of a slow down in the construction market. However, this may depend on government activity to stimulate the industry.

Rates of Inflation: The building industry inflation rate in 1996 was approximately 6%. The projected rate of inflation for 1997 is 6%.

Economic data

Consumer Price Index: 1990 = 100		*Exchange Rates: Singapore dollars per US$*	
1991	103.4	1991	1.63
1992	105.8	1992	1.65
1993	108.4	1993	1.61
1994	112.2	1994	1.46
1995	113.5	1995	1.41
1996	116.0	1996	1.40

Procurement of construction: For private projects, most firms use the Singapore Institute of Architects forms of contract. Bills of quantities are used in construction procurement. The two types of contracts commonly used are Measurement Contracts and Lump Sum Contracts. In a Measurement Contract, quantities are re-measured during construction and the BoQ is part of the contract document.

There are variations of design/build contracts being used in Singapore. This form of contract is relatively new and not widely used. Questions about the legality of a true design/build contract, where the owner signs a single contract for design and construction have been raised. Public sector contracts are experimenting with variations. The Housing Development Board's Design & Build selects a joint architect/contractor team, but enters into separate contracts with each. With the Public Works Department's Develop & Build contract, a schematic design is used to select the Develop & Build contractor. Construction is typically tendered using a Main Contractor. A project will use Nominated Subcontracts for items such as mechanical, electrical, lifts, and specialty items.

Design professions: Architects and engineers must be registered with their respective governing boards (Board of Architects, Professional Engineers Board) to practice in Singapore.

Contractors: Singapore's many contractors includes L&M Group Investments Ltd; Evan Lim & Co. Pte Ltd and Lee Kim Tah (Pte) Ltd. The Construction Industry Development Board maintains a registry of contractors which classifies contractors by category and grade. Contractors must be registered to tender public sector work.

Governing codes and standards: The Building Control Division of the Public Works Department establishes and monitors for compliance the building codes and regulations. The Singapore Institute of Standards and Research prepares the Singapore Standards used by the industry.

Construction methods and materials

Material availability: Most materials are readily available. Many items such as aggregates, cement, sand, steel reinforcement bars, bricks are produced locally. However, most materials are imported and imports are strong even where items are produced locally.

Labour availability: An adequate supply of labour, both skilled and unskilled, is available. There are foreign construction workers employed, but the government has a Foreign Worker Levy of S$200 per month for skilled foreign construction workers and S$440 per month for unskilled foreign construction workers.

Equipment availability: Most construction equipment is available.

Construction cost guides

Pricing manuals: The Construction Industry Development Board publishes the Construction Economic Report quarterly. This publication contains construction indices and limited materials prices. To our knowledge no cost books are published by private sector companies.

Approximate construction costs: The following square metre unit rates are provided for rough comparison purposes. All cost are in Singapore dollars.

		S$/square metres
Industrial/Warehouse		900 - 1,200
Office Building, 4-10 stories,	Fully serviced	1,350 - 1,500
Office Building, 11-20 stories,	Fully serviced	1,400 - 1,550
Mid Rise Hotel, 3 star	excluding FF&E	1,400 - 1,600
Low Rise Apartment		1,100 - 1,300

(Source: Rawlinsons)

Useful addresses

Construction Industry Development Board
9 Maxwell Road, #03-00
Annexe A MND Complex
Singapore 069112
Phone: 65 225-6711
Fax: 65 225-7301

Singapore Institute of Architects
20 Orchard Road
#02-00 SMA House
Singapore 238830
Phone: 65 338-8977
Fax: 65 336-8708

Singapore Institution of Engineers
Suite 1306, 13th Floor
International Plaza
Anson Road
Singapore

World Architecture and Hanscomb Associates wish to thank SRSS & Associates, Singapore office and Rawlinsons for assisting in the presentation of the information in this Country Report.

Singapore – Major architectural practices | design firms

This table was compiled with information supplied by the practices listed.

Architectural practice | design firm	Total architects	Total staff	Total offices	Area of Specialisation: Health care	Industrial	Commercial	Office buildings	Housing | Residential	Planning	Interiors	Sport | Leisure | Recreation	Hotel | Restaurant	Education	Laboratories | Research	Transport	Other
3HP Architects	7	67	1		■	■	■	■					■			■	■
A.D. Architects	1	4	1		■	■		■				■					
ADDP Architects	35	145	3	■	■	■	■	■			■	■	■	■			■
Alfred Wong Partnership Pte Ltd	21	73	6	■	■	■	■	■			■	■	■				■
Ang Kheng Leng & Associates	3	18	1		■		■	■			■	■	■				
Ang Thian Soo & Partners	7	29	3		■	■	■	■	■	■	■	■					
Architects 61	50	200	1		■	■	■	■		■	■	■	■			■	
Architects Group Associates Pte Ltd	18	85	2		■	■	■	■			■	■	■				
Architects Studio	3	23	1		■	■	■	■				■	■				■
Architects Team 3	9	91	3	■	■	■	■	■		■	■	■	■	■	■		
Biospace Architect	3	7	1					■				■				■	■
CDG International Pte Ltd	25	68	4			■	■	■			■	■					■
Chua Ka Seng & Partners Chartered Architects	15	41	3			■	■					■	■	■			
Deka Architects	2	10	1		■			■	■	■	■			■			
Design Metabolists	26	40	2		■	■	■	■				■					■
Design-Environment Group	1	24	3		■	■	■					■	■				■
DP Architects Pte Ltd	100	300	5		■	■	■	■			■	■	■	■	■	■	■
DPC Development Consultants	3	10	1		■		■	■									■
Edwin Choo & Partners	5	37	1		■	■	■	■	■	■	■	■	■	■		■	
E-Light Architects	1	4	1		■			■				■					
Forum Architects	7	15	1	■			■	■						■			■
James Yip & Partners	30	42	1		■		■	■				■	■				■
Kenlou Architects	2	5	2		■		■	■				■					
Kerry Hill Architects	10	31	2	■		■	■	■	■	■	■	■	■	■			
Kumpulan Akitek	8	28	1	■	■	■		■	■				■	■		■	
Lee Sian Teck Chartered Architects	8	70	1		■	■	■	■				■	■	■			■
Mok & Associates	4	16	3	■	■	■	■	■			■			■			
NETec Architects	2	12	2		■	■		■					■				
Ong & Ong Architects Pte Ltd	25	81	2			■	■	■						■			
OngChinBee Architects	3	15	1		■	■	■	■				■	■	■			
Paul Tsakok Associates	1	-	1				■	■									■
RDC Architects Pte Ltd	18	80	1		■	■		■				■		■			■
RSP Architects Planners & Engineers (Pte) Ltd	85	511	9	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SAA Partnership Pte Ltd	95	126	7	■	■	■	■	■				■	■	■		■	■
TangGuanBee Architects	3	8	1			■	■	■	■	■			■	■			
The Architects Circle	3	9	1		■	■		■					■				
Timothy Seow Group Architects	60	72	2			■	■	■	■	■			■				
TSP Architects & Planners Pte Ltd	35	80	2		■	■	■	■				■	■	■	■		■
United Architects	2	14	1		■		■	■									■
Victor Chee Teck Chiang, Chartered Architect & Consultant	1	3	1					■									■
William Lim Associates Pte	6	25	1		■	■	■	■			■	■	■	■			
Wong & Wong & Partners	4	10	1		■	■	■	■	■	■			■	■			

Timothy Seow Group Architects (TSG)

1

2

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Timothy Seow
D Arch (Oxford), ARIBA, MSIA, APAM

Lim Kim Soon
B Arch (Hons), ARIBA, MSIA

Colin Seow
B Arch (USA), MAIBC, MRAIC, Assoc. AIA

Kelvin Chiang
BES, M Arch (Canada), MRAIC, AAIBC, Assoc. AIA

Jeffrey Yap
BA, BArch (U of Hawaii), APAM

F Macalino (Philippines)
B Arch, MRAIC, AAIBC, UAP

Adris Isnin
B Arch (Hons), NUS, BA (AS) Asia

1: Amara Hotel, Shanghai

2: Futura Condominiums, Singapore

3: Setiabudi Condominiums, Jakarta

History

Timothy Seow Group Architects is a regional architectural practice based in Singapore. The practice today traces its roots to the firm Seow Lee and Heah established by the late Dr E J Seow in 1946. This firm evolved in 1970 into the firm SLH Partners. The retirement of Dr E J Seow, to take up the chair of the School of Architecture at the University of Singapore, in 1974 prompted Mr Timothy Seow to reorganise the firm culminating in the firm of Timothy Seow and Partners.

In 1987, after a very successful career beginning in the early 1960s, Mr Timothy Seow retired from Timothy Seow & Partners to Vancouver, British Colombia in Canada. From 1989 to 1993, together with a group of Canadian Architects he established SLH International Architecture. This practice established itself by winning several prestigious international competitions, which led Mr Timothy Seow to renew his practice with former Singapore partners practising under the partnership of SLH International Architects. SLH eventually evolved into the current firm Timothy Seow Group Architects Pte Ltd which retains the core group of architects and designers from Canada and Singapore under the leadership of Timothy Seow.

Already well known for high and low-rise condominiums and commercial office developments, the firm is now creating a reputation for design excellence and innovation in hotels, resort developments and urban planning.

Today the firm has grown and expanded operating offices regionally. It continues to expand into Malaysia, China, Indonesia, Philippines and Myanmar (Yangon) providing architectural, interior design, and urban planning services.

Profile

There are currently 68 staff members distributed among Timothy Seow Group Architeccts' several regional offices. This includes both local and expatriate staff, many drawn from diverse backgrounds, creating a melting pot environment where varied ideas are germinated, evaluated and the best selected.

Philosophy

Timothy Seow Group Architects is a highly design and client oriented professional architectural and design practice providing very personalised services. This is ensured by the assignment of a partner/director directly responsible for every project, and the personal involvement of Mr Timothy Seow on every project. It is precisely this close personal attention that allows the firm to assist in defining and ultimately achieving the needs of clients.

The firm is also committed to the use of information technology, which is integrated into all aspects of the practice. In particular, the advanced design and visualisation tools assist greatly in studying and communicating to the client the various design aspects of a scheme. This allows the client to not only understand, but also participate more effectively in the design process, which ultimately allows the proposal to fit the client's requirements more closely than would otherwise be possible.

Ultimately, through the personalised attention of the directors, use of the latest technologies and the teamwork of a diverse group of talented individuals, Timothy Seow Group Architects is ready to take on the challenges of designing for the most discriminating clients.

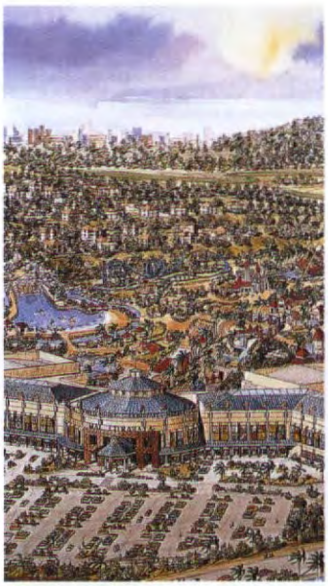
Maspion City, Surabaya, Indonesia

Sabang Citywalk, Jakarta, Indonesia

Creekwalk Waterfront City, Dubai, UAE

Menara Matex, Johor Bahru, Malaysia

Ciputra Regency, Jakarta, Indonesia


Ciputra Mall & Theme Park, Surabaya


Galaxy Mall, Surabaya, Indonesia


QQ Tower, Jakarta, Indonesia


Megamall, Pluit Jakarta, Indonesia


Mingzhong Leyuan Place, Wuhan, China

CADIZ
DESIGN GROUP INTERNATIONAL

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Key personnel
Medardo T Cadiz, AIA
Founder/Chairman/CEO
Michael L Scott, AIA
Director of Architecture Singapore
Douglas A Livingston, AIA
Managing Director CDG Manila Inc
Eduardo J Mendoza, UAP
Associate/Design Studio Manager
Timothy J Glass, M Arch
Associate/Senior Designer
Mike van der Helder, M Arch
Senior Manager
Pauline Anggraini, B Arch
Planner/Designer
Cynthia Pyburn, MBA
President – Market Research

Practice profile
Inspite of its recent corporation, CADIZ DESIGN GROUP's (CDG) history dates back to the early 1980s, with numerous design commissions in Asia. Today, over 75 design projects have been completed in eight Asian countries – including the Middle East.

With offices in Singapore, Manila, Seattle-USA and an extensive network of design specialists worldwide, CDG can provide the highest level of professional design services. CDG create successful designs for high profile projects and top calibre developers. CDG's approach to design is different from the traditional practice. They highlight the importance of "pre-development know how", which is the processing of critical market information to define clearly the project and its components. CDG's design product then becomes market driven.

CRI International Toronto, CDG's research arm is a specialist market research group that has completed many successful projects in Asia. Their skill in capturing the "needs and wants" of the market place is remarkable. EGI International Seattle is CDG's environmental graphic design Arm who creates exciting bold graphics to enhance the space that catches the eyes of the users to give them information in a pleasing way. Together, CDG, CRI, and EGI deliver designs that work. CDG takes pride in its highly skilled professionals from all over the world representing 12 countries. CDG is entering new markets in Asia and every day facing tough challenges in the areas of Architecture, Urban Planning, Retail Planning, Streetscape Design, Environmental Graphics and Market Research. As always, CDG welcomes these new challenges with firm professional commitment as well as personal attention to deliver the best designs to achieve maximum business success for the developers.

List of recent clients
PT Ciputra Development
Straits Steamship Investment
Sovrein Investment Pte Ltd
Robinson Land Corporation
PT Sinar Mas Group
PT Bank Ciputra
Liang Court Holdings
PT Metropolitan Group
PT Maspion Group
Wuthelam Holdings
PTB-Glomac Development
PT Sinar Galaxy

Services
Architecture
Master planning and urban design
Retail planning and design
Interior architecture
Streetscape planning and design
Environmental graphic design
Market research

1: Proposed Hong Leong City – mixed development

2: Green Ridge – residential development

3: Orchard Scotts – residential development

4: CHIJMES – national heritage conservation project

5: Great World City – mixed development

6: United Square – Office/commercial development

7: Arthur Mansions – residential development

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Ong & Ong Architects Pte Ltd

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Directors

Mrs Ong Siew May (Principal)
B Arch (Adelaide) MSIA APAM ARIBA FRAIA

Mr Eric Huay Kwok Meng
B Arch (HONS) (Singapore) MSIA

Mr Ong Tze Boon
B Arch (HONS) (Berkeley) M Arch (Rice University)

Awards

Nanyang Girls High School Library, Singapore
Singapore Institute of Architects Award Design Merit (1983)

United Square (Goldhill Square) Shopping Complex
Singapore Government Energy Saving Award (1983)

United Square (Goldhill Square) Shopping Complex
International Marmi E Macchine Carrara Marble Architectural Awards East Asia (1986)

Design philosophy

Singapore with its dynamic economy and urban growth has long been a land of opportunity and a fertile ground for architects. A freedom from tradition and conformity has characterised its architecture. Within this environment, Ong & Ong Architects Pte Ltd has assembled an impressive collection of work beginning in 1971. Over the years, the practice has expanded beyond residential work to a variety of commercial, institutional, and hospitality works both locally and regionally.

Ong & Ong Architects acknowledges a deep respect for strong simple, and pragmatic modernist precedents and view their works as an evolution of modernism. Although a kinship can be drawn between Ong & Ong Architects' approach to design and that of other contemporary Singapore practitioners, Ong & Ong Architects possess the kind of confident understanding that allows an architect to forge dynamic spatial arrangements that reflect their own idiom.

The strong composition evident in Ong & Ong Architects' works serve more than merely aesthetic ends. The visual energy of their design result, in part, from creative responses to pragmatic issues, cost constraints, and user demand and satisfaction. The juxtaposition and arrangement of elements and forms are to meet challenges of the site and consideration of programmatic and regulatory requirements.

In as much as Ong & Ong Architects interpret every commission based on careful evaluation of the programme, there remains a commitment to an evolution of design, and affirms the critical importance of an effective corporate team effort. Ong & Ong Architects credits its enriching experiences to creative interchanges between designers, teamwork of a talented and dedicated staff, and an extensive interaction with clients.

While designs create a physical presence through mass and volume, the buildings are equally characterised by use of materials that articulate a studied response to site and surroundings. Ong & Ong Architects has adopted a multidisciplinary approach to achieving the ideal architectural practice that offers services in both design and project administration.

1: Ardmore Park Condominium at Ardmore Park, Singapore

2: King's Centre at Kim Seng Road, Singapore

3: Cycle & Carriage Headquarters at Alexandra/Leng Kee Road, Singapore

4: Grand Plaza Hotel at Hill Street/ Coleman Street, Singapore

5: No 1 Finlayson Green, Singapore

6: Republic Plaza at Raffles Place, Singapore

7: Information Technology Park, Bangalore, India

8: Masterplan: City of Chenghai, Republic of China

9: POSBank Headquarters at Robinson Road, Singapore

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RSP Architects Planners & Engineers (Pte) Ltd

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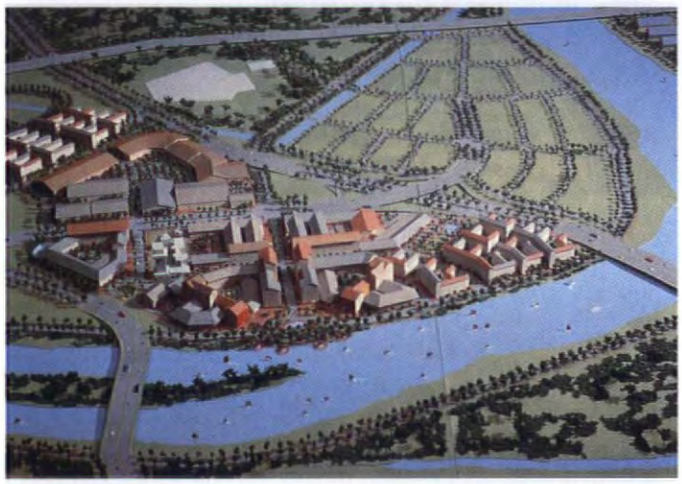

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Fax: +65 733 9143

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India

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Dubai
UAE

Kuala Lumpur
RSP Akitek
Tingkat 15A, Wisma Bumi Raya
Jalan Raja Laut
50350 Kuala Lumpur
Malaysia

Jakarta
RSP-Pacific Associates
Jalan K H Fachrudin 11-13 Unit 19
Jakarta 10250
Indonesia

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RSP International
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London NW1 6HU
United Kingdom

Bahrain
RSP International;
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Bahrain
Arabian Gulf

Key personnel

Chairman & Managing Director
Albert H K Hong
BBM (L) DA (Birmingham) FSIA RIBA

Directors
Liu Thai-Ker
B Arch (NSW) MCP (Yale) MSIA FSIP RIBA FRAIA IREM CPM
Loh Choon Tong
B Arch (Singapore) MSIA
Lai Huen Poh
B Eng (Hons) MICE C Eng MIES P Eng AIStructE
Lee Kut Cheung
B Arch (Hong Kong) AA (London) Grad dip (Hons) MSIA RIBA
Goh Hup Chor
B Arch (Melb) M Arch (Penn) MCP (Penn) MSIA RIBA ARAIA MSIP

Practice profile

RSP Architects Planners & Engineers (Pte) Ltd was incorporated in Singapore in February 1992. Its history dates back to 1956 when the practice was established in Singapore under the name of Raglan Squire & Partners. In December 1980 it was renamed RSP Architects Planners & Engineers. The practice which grew from a staff of 14 in 1956 to more than 300 today, has become one of the largest and most established architectural, planning and engineering practices in Singapore and Southeast Asia.

RSP's subsidiaries, branch offices and associate firms in India, Dubai, Kuala Lumpur, Jakarta, London and Bahrain besides undertaking their own work in their respective areas also pool resources to carry out some projects jointly with the Singapore office. The combined experience of the staff has made it possible for the practice to produce work of a consistently high standard. To complement its services, the practice also works closely with its own M&E Division, Squire Mech Pte Ltd.

Design approach

The practice places strong emphasis on design quality and project management. It has earned recognition for high levels of creative design and management skill, a fact supported by the number of projects which have been awarded design excellence awards. The practice aims to maintain high levels of professional standards and management control to ensure consistent quality and project completion within budget and time constraints. The practice is also one of the first in the region to achieve the ISO 9000 Quality Management System certification for Architectural Design and Consultancy Services.

Areas of specialisation

Architectural planning, design, supervision, and administration of building contracts; urban and regional planning; civil and structural engineering; interior design; construction management service.

Project type

Large scale residential development
Hotels
Commercial buildings
Office buildings
Institutional buildings
Recreational buildings
Industrial buildings
Hospitals
City & regional planning
Industrial estates
Hi-tech parks

1: The Oxley

2: Institute of Technical Education plaza

3: Singapore Polytechnic fifth phase expansion

4: Comcentre III atrium

5: Comcentre III

6: Institute of Technical Education headquarters

7: Comcentre III entrance concourse

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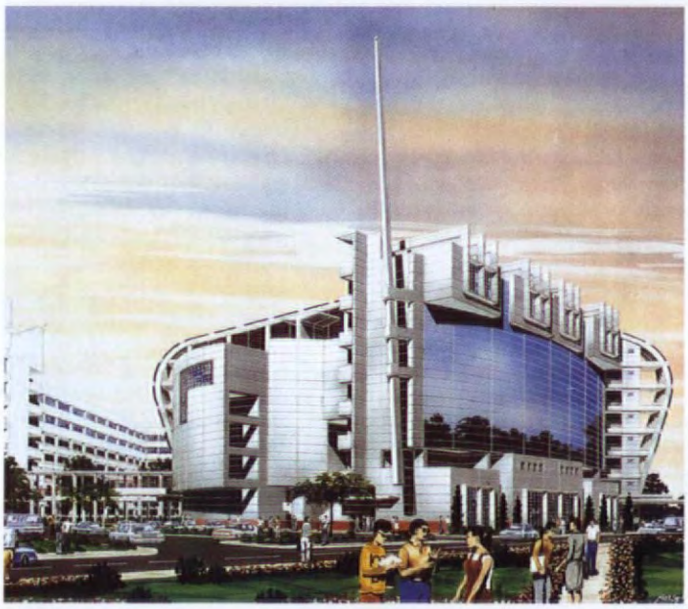

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TSP Architects + Planners Pte Ltd

TSP

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Head office
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Key personnel

Directors

Teh Weng Kuang
D Arch (Singapore) FSIA APAM RIBA MA (urban planning) MSIP

Goh Chong Chia
D Arch (Birmingham) B Sc Hons Arch (Aston) FSIA APAM RIBA

Yam Siew Chow
D Arch (Mebourne) MSIA APAM RIBA ARAIA

Associate director

Low Leong Leong
B Arch (Singapore) BA (AS) (Singapore) MSIA RIBA

Associate

Siti J Banafie
B Arch (Singapore) BA (AS) (Singapore)

History

TSP Architects & Planners Pte Ltd is a long established regional practice with successful building, urban design and planning projects in Singapore, Malaysia, Indonesia, Brunei, Thailand and Hong Kong. The practice was formed in 1946 under the name E J Seow. In 1970 after 24 years of steady growth, the name change to SLH Partners. Upon the retirement of E J Seow in 1974, the firm was renamed Timothy Seow & Partners. In 1988, the practice name was abbreviated to TSP Architects & Planners to reflect a more corporate image and in 1995, it became a licensed corporation to facilitate a multi-disciplinary practice with an enhanced competitive edge.

Design philosophy

TSP treats each project as a unique combination of opportunities. The client's values, aspirations and policies are the springboards for architectural ideas. Discussions with clients involve frank exchanges of views, often leading to the raising of the "sights" of both clients and the architect. Finding the best answer to the client's needs, providing the best quality of life for all users and ensuring the greatest usefulness of the building are the key issues of architecture. A great deal of effort is put into the understanding of client's daily operations and long-term plans.

For each client, TSP aims to arrive at the optimum building form and appropriate architectural language achieved by the careful selection and adaptation of constructional vocabulary. The aim in each case is to bring together in a creative way, visual quality and economy of means.

Teamwork is the essence of TSP's approach which leads to projects being more than the sum of the inputs of individual members.

Staff from TSP are constantly involved in architectural education through part-time reaching and as examiners which enables them to be in touch with emergent theoretical ideas in the field of architecture. In addition, involvement with the Singapore Institute of Architects and arbitration worked enables TSP to be professionally in contact with all aspects of the practice.

Awards

1st prize

- Comcentre III Design Competition

Winning design

- Institute of Technical Education Headquarters & Technical Institute
- HDB Design and Build, Woodlands N5C1
- Singapore Polytechnic 5th Phase Expansion

SIA "Honourable Mention"

• Commercial category	Tong Building (1983)
• Residential category	Mediterranean Townhouses (1983)
• Residential category	Woollerton Park (1987)
• Mixed-use category	Claymore Point (1991)
• Utility category	Pasir Ris Telephone Exchange (1991)

CIDB award for construction excellence

- Sentosa Radio Tower (1994)
- Leonie Condotel (1997)

Natwest office building

Nanyang Technological University halls of residence

Balestier Point mixed use development

La Meyer condominium

RDC ARCHITECTS PTE LTD

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Fax: +60 (0)7 3343573

Key Personnel:

Directors: Chan Fook Pong; Kenneth Chen Koon Lap; Leong Charn Huen; Huang Siong Hui; Kenneth Loh Kai Teck
Associate Director: Rita Soh Siow Lan; Mohan Shanmugam; Loh Ju-Hon; Lee Joon Shin
Partner (overseas office): Siow Chien-Fu

Selected Client List

Allgreen Properties Ltd
Amcol Technology Pte Ltd
Bukit Sembawang Estates Ltd
Cathay Organisation
Central Provident Fund Board, Singapore
Changi International Logistics
Chee Tat Group
City Development Pte Ltd
Civil Aviation Authority of Singapore
CWT Distribution Pte Ltd
Crown Pacific Pte Ltd
DBS Land
Far East Organisation Ltd
Ho Bee Investments Pte Ltd
Housing & Development Board, Singapore
Institute of Technical Education, Singapore
Jurong Town Corporation
Lee Rubber Co Pte Ltd
Liang Court Holdings Ltd
Ministry of Community Development, Singapore
Ministry of Defence, Singapore
Ministry of Education, Singapore
Ministry of Foreign Affairs, Singapore
Ministry of Health, Singapore
Ministry of National Development
Pidemco Land
Safe Travel & Enterprise Pte Ltd
Shriro Paper (S) Pte Ltd
Singapore Airlines
Singapore Post Pte Ltd
Singapore Sports Council
Singapore Telecommunications Pte Ltd
Singapore Land
Steamship Investment & Development Pte Ltd
Technology Parks Pte Ltd
Tuan Sing Holdings Ltd
United Overseas Land Ltd
W&T Logistics Pte Ltd

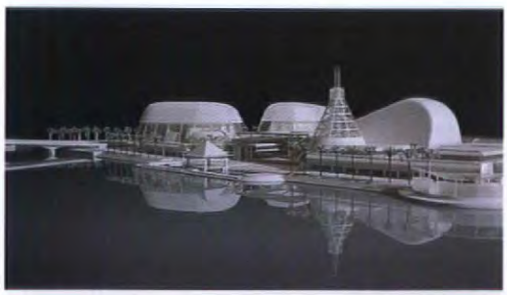
Practice Profile

The firm of RDC Architects Pte Ltd (formerly known as Regional Development Consortium Architects, founded in 1974) has been involved in many building projects in Singapore, Malasyia, Indonesia, Brunei, Sri Lanka, the Middle East, China and Vietnam.

The firm's philosophy is based on the creation of a total environment satisfying the various aspects of social, economic and aesthetic considerations. It adopts a "group practice" approach in solving design problems, hence it does not subscribe to a single medium of architectural expression. The eventual built form must be an appropriate response to the context of the problem. It provides services ranging from planning, architectural design, project management, to development consultancy.

The firm is a pioneer in the adoption of a quality management programme for all its projects. Projects are subjected to quality assurance procedures set up with the aim of completing them on time, within budget, and achieving best quality in construction and best value for money for its client. In fact, RDC Architects Pte Ltd is the first architectural practice to obtain ISO 9000 Certification in Singapore.

DP Architects Pte Ltd



1: The Millenia: Ritz Carlton Millenia Singapore, Millenia Tower, Millenia Walk, Centennial Tower (in association with Kevin Roche, John Dinkeloo and Associates)

2: Bugis Junction: Hotel InterContinental Singapore, Offices and Shopping Complex

3: The Esplanade – Theatres on The Bay (jointly with Michael Wilford & Partners)

4: The Bayshore – Condominium development

Head office
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Key personnel/directors
Chan Sui Him
Gan Eng Oon
Koh Seow Chuan
Lee S W Francis
Loh S Y Arthur
Ti Lian Seng
Gore Vikas Madhav
Teoh Hai Pin
Wu Tzu Chiang

Size of firm (Singapore and overseas)
406

Other national/international offices
Singapore
DP Consultants Pte Ltd
DP Design Pte Ltd
Hong Kong
DP Consultants Ltd
Indonesia
PT DP Architects Indonesia
Malaysia
DP Architects Sdn Bhd
Philippines
DP Architects Philippines
DPA Consultants Inc

Expertise/specialisation/company profile
History
The firm was first established as Design Partnership in Singapore in 1967. The subsequent expansion of the firm led to its being incorporated as DP Architects Pte in 1975 and as DP Architects Pte Ltd in 1993. We now have offices in Malaysia, Indonesia, Philippines and Hong Kong.

Design philosophy
The firm was founded on a deep concern for the built environment and the need for a conscious effort towards creating an architecture of excellence where the enrichment of the human experience and spirit is paramount.

Scope of services
The firm's range of professional services comprises all aspects of architecture, master planning, urban planning, interiors and graphic design.

The categories of building types include colleges, conservation projects, hotels, recreation and resort facilities, residential developments, industrial complexes, major shopping centres, office buildings, transport facilities, convention and exhibition centres, technology parks as well as the master planning of development projects.

Specific past and future projects
Current projects
Camden Medical Centre
Casafina Condo
Century Square Shopping Centre
Commerce Point Office Centre
Far East Square Commercial
Glendale Park Condo
Hazel Park Condo
Heritage View Condo
High Oak Condo
Kaki Bukit Industrial Park
Light Industrial Development
Millenia: Centennial Tower
Nassim Road Condo
Nanyang Polytechnic
Paragon Office Extension
Parc Vista Condo
Pinevale Condo
PSA Vista (3rd Terminal Office)
River Place Condo
Senoko Factory cum Office
Suntec City Office /Retail
Temasek Polytechnic, Phase 3
The Esplanade (SAC)
The Sterling Condo
Villa Marina Condo

Completed projects
AIA Alexandra Office Building
Bugis Junction: Mixed-Use /
Inter-Continental Hotel
Century Square Shopping Centre
Construction Industry Training Institute
Laguna National Golf & Country Club
Lucky Chinatown Commercial
Marina Square Mixed-Use/
Marina Mandarin/Pan Pacific/
Oriental Hotel
Millenia: Ritz Carlton Hotel/
The Conrad Hotel
NTU Hall of Residence 7
SAFRA Resort & Country Club
SAFTI Military Institute
Science Park Ph 2: IME/ITI
Singapore Aviation Academy
Singapore Discovery Centre
Suntec City: SICEC
Temasek Polytechnic
The Bayshore
Wisma Atria Off/Shopping Centre

Alfred Wong Partnership Pte Ltd

1

2

3

1: Merchant Court Hotel in Chinatown, Singapore. The 486 modules opened for business on 1 March 1997

2: Holiday Inn Crowne Plaza, City of Xiamen, People's Republic of China. The 22-storey, 380 room hotel was completed in 1992

3: Office building cum service apartment, United Overseas Building, City of Xiamen, People's Republic of China. The 18-storey structure houses 198 service apartment units (completed in April 1996)

4: Garden Plaza Hotel in Ho Chi Minh City, Vietnam. Comprising 150 rooms, the hotel was completed in the last quarter of 1996

Head office
111 North Bridge Road #12-02/04
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Other national/international offices
Associated with the Peddle Thorp Group, with offices in: Australia, New Zealand, the UK, Papua New Guinea, Malaysia, Hong Kong and Indonesia.

Key personnel/contacts
Directors
Alfred H K Wong
Edward H Y Wong
Ang Choon Kiat
Goh Peng Thong
Associate directors
Wong Meng Lin
Andy Yong
Peter Thomas
Tan Tee Hong

Size of firm
70

Expertise/specialisation
Commercial buildings, resort and hotel projects, marinas

Company profile
The Alfred Wong Partnership was formed in 1957. Since this time the firm has developed to such a point that conversion into a limited company became essential in order to broaden the scope of services and to upgrade the level of the company's contributions to a diverse range of projects, both in Singapore and overseas.

In August 1994 the Alfred Wong Partnership – which is comprised of four partners – was formed into a limited company, having met the special requirements of the Board of Architects to qualify for such a licence. The firm now has a total of seven directors including three associate directors from the younger group of architects which form an important element in the organisation.

The aims and objectives of the Alfred Wong Partnership Pte Ltd remain focused on producing high quality buildings both in design and execution. At the same time the company have diversified and now provide design consultancy services for special projects such as the Keppel Distripark (total project cost of S$400 million).

As well as offering consultancy services, the firm are currently consultants on a high-quality service apartment project in Bangkok and the new Thai Embassy complex in Singapore.

New projects
Projects on the drawing board recently include, a headquarter building for a government agency in Singapore, an office building in the CBD, a yacht club and marina as well as educational buildings.

Projects which are due for completion within the next 12 months include the Soffitel and Central Plaza in Ho Chi Minh City, Vietnam and the Schering-Plough industrial complex in Singapore.
Another project now nearing completion is the Robinson Point office block for DBS Land Singapore.

4

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Face to face

Tightening the screw

Stirling and Wilford Associates are known in Singapore for their hugely successful Temasek Polytechnic project (featured in WA 49) – James Stirling's last significant project before his death. The firm, renamed Michael Wilford and Associates, has since become associated with the high-profile scheme for the Singapore Arts Centre, a project which has provoked more than a little dissent within the local community. Michael Wilford, in conversation with Nicola Turner, offers an alternative view as to why international architects are regarded with suspicion and resentment by the locals, and refers to government moves to make it harder for foreign architects to work in Singapore.

Working with local architects, although not a legal requirement in Singapore, is still the practical solution for clients employing the services of "international" architects. Once a good relationship is struck between all parties subsequent commissions are, in theory, only a matter of time.

For Temasek Polytechnic, a private commission, Stirling and Wilford were invited to submit designs, and were appointed soon afterwards on the proviso that they work in conjunction with a local firm. The firm they chose, from a shortlist of six given to them by the client, was DP Architects. And so was born a partnership that was to lead to the invitation from the Public Works Department (PWD) to compete for the Singapore Arts Centre project.

"During Temasek DP Architects and ourselves were approached by the PWD and asked if we were interested in working on the Arts Centre ... It makes sense to have a joint venture so that theoretically you get the best of both worlds – the international design experience and expertise, but local input as well. That's why I think it was done." But, as a result of "a lot of criticism from the profession" regarding the nature of the closed-competition, Wilford was required to register in Singapore. "I had an interview by a committee to decide whether I was suitable to be inducted into the institute ... a pretty tough interview in fact; the chairman of the committee was an outspoken critic of international architects working in Singapore ... but it was successful and I am now a member of the Singapore Institute of Architects [SIA]."

The lack of a distinctly national architecture is "not an inevitable consequence of hiring international architects ... it's more employing the wrong architects"

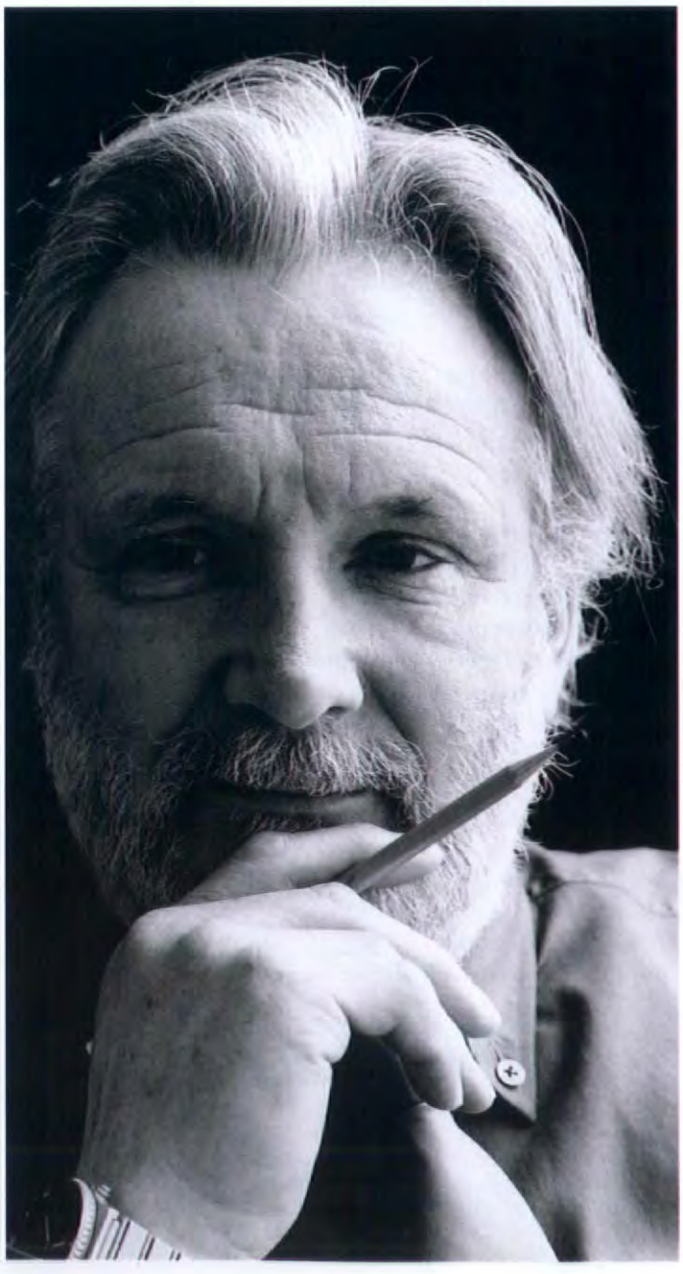
From working on Temasek to starting on the Arts Centre several changes in the government's attitude to importing overseas architects have occurred, fuelled largely by the dissent amongst local architects who feel that they are not given the opportunities to prove their worth on the high-profile public jobs, and secondly, that Singapore is never going to have a chance to develop a distinctly national architecture. Wilford is not unsympathetic to their plight, but describes it as a "knee-jerk reaction. To an extent it is understandable, but in our practice we always argue that coming in from the outside you approach situations and contexts with a completely fresh eye; you bring a body of experience of a particular building type and you can look at a situation and if you're any good you can produce a solution or proposal that perhaps would not have occurred to those who work in that environment ... At the moment we're working in Germany, Spain and Italy. There is a danger of arrogance, architects flying in believing they know the answer and there is some justification for bitterness about this, because alot of recent office buildings really don't bear any relation to Singapore let alone Southeast Asia or even the southern hemisphere. But I don't think this is an inevitable consequence of hiring international architects. I think it's more employing the wrong architects, perhaps for the wrong reasons".

So what of new government measures? "One very significant change was that there was a recognised fee scale that was issued by the SIA. We negotiated what we thought was an appropriate contract for the Temasek project in accordance with the SIA scale, and between the Temasek contract negotiation and the Arts

"I am conscious of local frustration, but they have to resolve the problem with their government rather than ... foreign architects"

Centre contract negotiation the situation had really stiffened and the government, in response to local pressures, was actually tightening the screw in terms of the fees for the large public projects and particularly limiting the amount that foreign architects could actually earn in Singapore. And I understand that that has become even more stringent since our contract negotiations on the Arts Centre project. One of the easiest ways of doing this is to refuse to pay expenses. In our fee negotiation we were able to take into account accommodation and travel costs but I know from the Arts Centre that subsequently such costs are now under severe pressure."

One of the most frequent criticisms levelled at foreign architects by their local contemporaries is a lack of sensitivity for a contemporary "Asian" architecture. "The biggest difficulty is defining what Asian architecture is. Issues like climate can be dealt with fairly easily, because they're pragmatic ... and can be dealt with by using local consultants. But having said that I spent several weeks travelling throughout Indonesia, Thailand etcetera for the Arts Centre, looking at the history of Asian architecture, in order to reinterpret and reinvent, rather than respond with pastiche solutions such as pitched roofs etcetera ... The design is unlike anything we've done before, and it responds both to the climate and to the forms of traditional Asian architecture. There is a tradition in Southeast Asia of building large structures that envelop various activities, with the roof as a very significant element ... There are outdoor theatre spaces which are protected directly from the elements but which are essentially open. Asian architecture traditionally has close links with water, as does our proposal."



So why then do the locals suggest that it is "un-Asian"? "I think it's different. It doesn't literally transpose traditional Asian architectural forms. You can't make a direct connection. It is necessary to look and think hard and carefully at it. We have a very rigorous client body which has thoroughly scrutinised the design and who regularly remind us that although we are designing and constructing the building at the end of the twentieth century, the project will be the first Arts Centre of the Pacific Region for the next millennium."

Michael Wilford and Associates show no sign of setting up an office in Singapore. Although they also have an office in Stuttgart, Germany, the bulk of design work is done around the table in Wilford's office in London. It suits them to set up partnerships for constructing projects overseas. "I believe that our involvement in Temasek and the Arts Centre, is part of a learning process in which the professional community benefit from the knowledge and experience of international architects, theatre consultants and acousticians working in partnership with local architects and specialists. This experience is thereby passed on and imbued into the Singaporean cultural scene ...

The issue as to whether or not the Singapore architects have adequate expertise to make public buildings is something that I'm not really qualified to talk about, but it seems to me that that is the sensitive area. There's no doubt that the level of expertise of the graduates of the Singapore Architecture School has risen considerably over recent years and more and more students are graduating abroad and returning home to strengthen the profession. I don't think there is any conscious attempt by the government to suppress local architects. I think the issue is at what stage and on what projects can the government be confident enough to give such projects to local architects. I think Singapore for the last four or five years has been in a transitional phase ... I am conscious of, and understand, local frustration, but they have to resolve the problem with their government, rather than vent their anger on foreign architects ... International intervention has to be understood architecturally in terms of the globilisation of culture, and, in my opinion, such interaction and interchange is generally a positive thing ... It's head in the sand to assume that it won't and shouldn't happen ... They should not play Canute, and try to roll back the waves."

New buildings in Singapore

Singapore's gentle giant

Throughout Asia mega office and shopping developments have become city icons and have replaced the traditional public spaces of squares and parks. Many schemes lack a regional identity and could be sited anywhere from Sydney to Saigon; but in Singapore Tsao & McKown, with offices in New York and Singapore, have completed the largest single private mega-development in the city and produced a unique scheme which complements its urban context and liberates the traditional tower-block form. Nicola Turner met the client, architects and engineers of Suntec City.

Neil Troiano

1

1: Overhead view of Suntec City showing the distinctive pyramidal roof of the Singapore International Convention and Exhibition Centre (SICEC)

The client

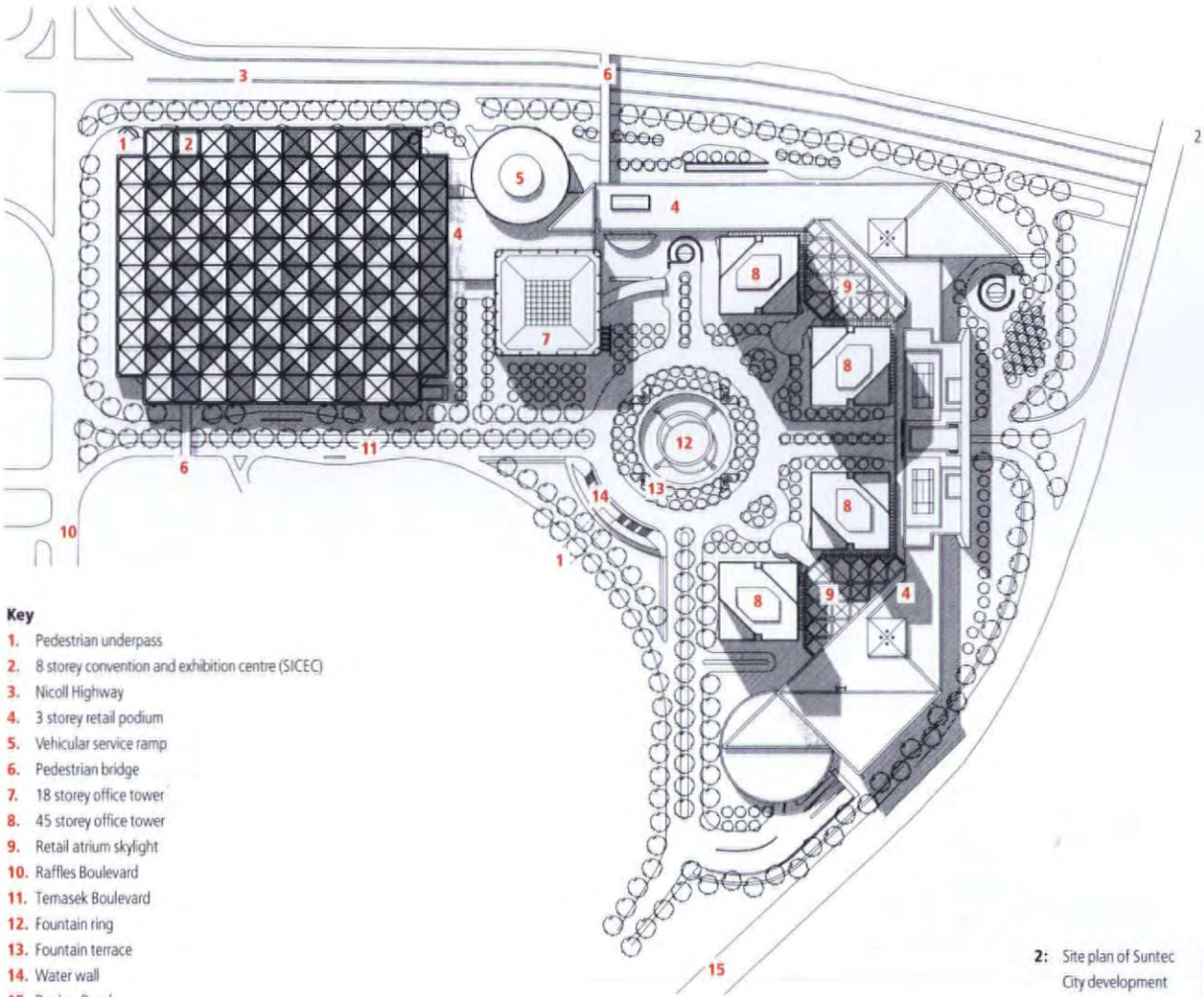
The idea for Suntec originated with a Singaporean government initiative to encourage a group of Hong Kong tycoons to invest in Singapore. They were invited by the then-Prime Minister, Mr Lee Kwan Yew, to consider options for investment, and the group stated their preference for building development. The 11.7 hectares (23 acres) of the Suntec site was awarded to the highest bidder, the Suntec City Development company, of whom the 12 shareholders were the private Hong Kong investors.

Investment in Singapore at the end of the 1980s, and on such a scale, was courageous. In order to reap their rewards the Suntec City Development ensured that they developed a complex of extraordinary quality in order to attract tenants. The quality of finish in the retail areas, as throughout the development, is unrivalled by the many other surrounding complexes.

From the start the Hong Kong shareholders made it clear that they wanted to be proud of the mark they left on Singapore at Suntec. The young New York firm, Tsao & McKown, was awarded the design contract in association with the Singaporean firm DP Architects. In line with many mega-developments, the duration of the construction encouraged the client to invite a firm of architects that could offer them a stable team to see the project through from beginning to end. In Singapore the buoyant economy encourages young architects to set up on their own after only a few years in a major practice – thus potentially disrupting the stability of the team – and the Hong Kong clients therefore felt happier inviting an overseas firm to do the job.

Suntec is the largest private development in Singapore and it is anticipated that it will remain so for quite some time. The success of the scheme can be accounted for due to the location, the unsurpassed quality of the buildings and the service offered to all tenants. Suntec City Tower is already fully occupied. Towers One and Two were sold floor by floor within a couple of months of completion. Tower Three has recently

Site area	11.7 hectares
Enclosed area	490,000 square metres (excluding parking)
8 storey convention centre	99,000 square metres
18 storey office tower	51,000 square metres
4 x 45 storey office towers	247,000 square metres
Retail and entertainment complex	92,000 square metres
6 storey circular vehicular service ramp	to service the SICEC
2 level car parking	3,200 underground
Construction cost	US$1.2 billion (S$1.7 billion)



Key

1. Pedestrian underpass
2. 8 storey convention and exhibition centre (SICEC)
3. Nicoll Highway
4. 3 storey retail podium
5. Vehicular service ramp
6. Pedestrian bridge
7. 18 storey office tower
8. 45 storey office tower
9. Retail atrium skylight
10. Raffles Boulevard
11. Temasek Boulevard
12. Fountain ring
13. Fountain terrace
14. Water wall
15. Rochor Road

2: Site plan of Suntec City development

3: Site plan of Central Singapore showing Suntec in darkest shaded area

4: The four faceted office towers with the shorter Suntec City Tower and SICEC

3

come up for sale, and Tower Four has been kept for rent along with Suntec City Tower.

The retail element – of which around 85 percent is let – is vital to the commercial success of the development. Once the three office towers are sold off the shareholders will have recouped their initial investment and paid off all the financing. The development cost was a total of US$1.4 billion (S$2 billion) and this will be repaid just by selling the three towers. The value of the project is now estimated at US$3.5 billion (S$5 billion) or more. It was a government stipulation that the complex should include a Singapore International Convention and Exhibition Centre, in order to benefit airlines, hotels and surrounding businesses. Although the convention centre is hardly profitable for the shareholders, it has served to raise the profile of Suntec City, and was an unavoidable stipulation.

The architects

Central Singapore is dominated by multi-use mega-developments incorporating shopping malls and office towers. They have become to Southeast Asian cities what cathedrals and public squares are to Europeans and the developed world. This is where people meet and socialise, work and play. Why then, has so little attention been paid to the design of these anonymous skyscrapers? When the young and energetic New York firm, Tsao & McKown won the commission to build a "city within a city" in the centre of Singapore they seized the opportunity to add style and vigour to the urban landscape integrating Singapore's new convention centre with downtown, placing it on the edge of the town centre instead of hiding it on the periphery as is the case in so many major cities worldwide. ›

Richard Bryant/Arcaid

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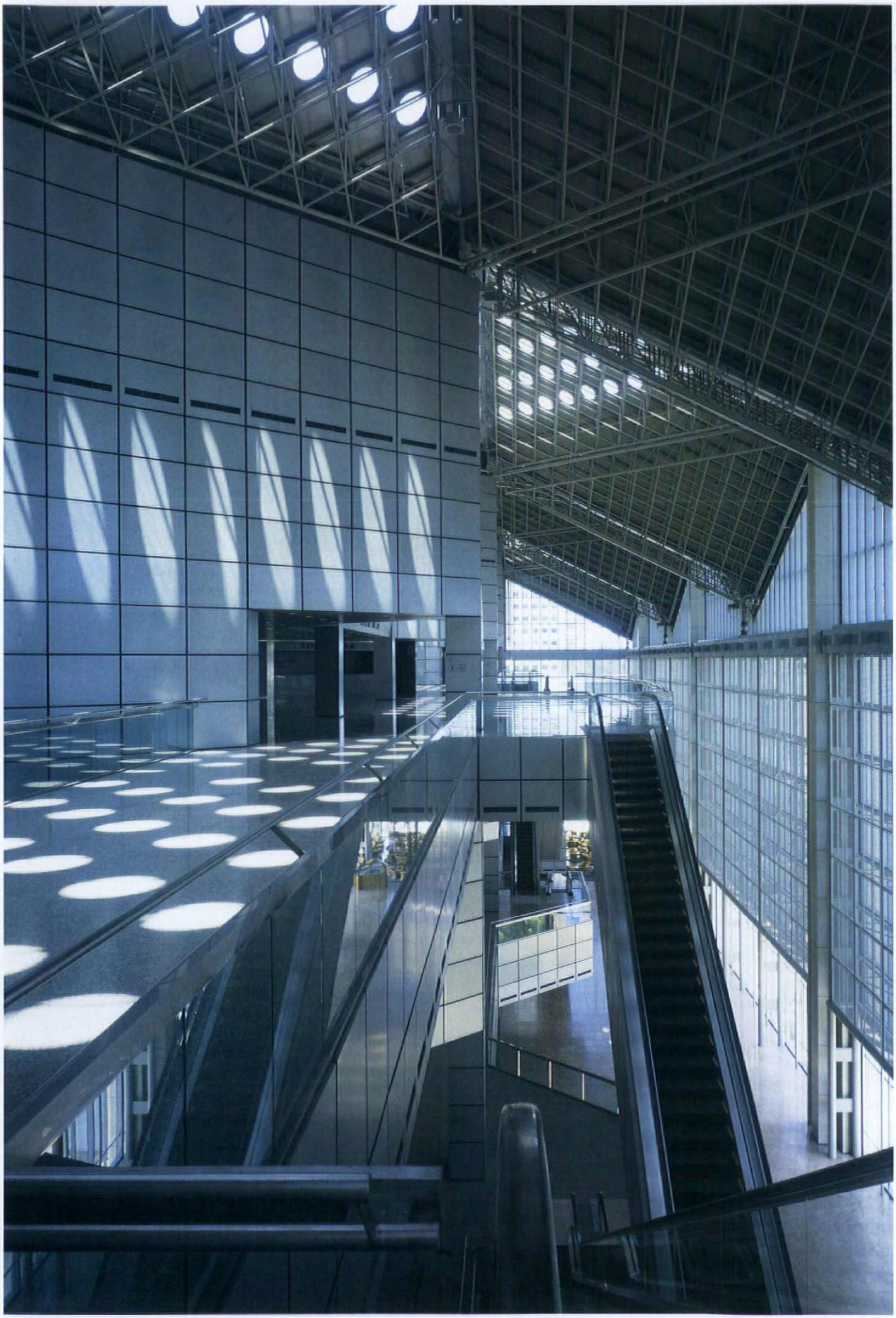


Richard Bryant/Arcaid

1: Sunlight port holes in the roof cast dappled shadows on the upper levels of the multi-storey atrium space on the glazed south-east side of the building


Richard Bryant/Arcaid

2


Richard Bryant/Arcaid

3


Tim Griffith

4

2: Outdoor patios and promenades are created by carving away the base of the office towers

3: A strict grid is applied throughout the scheme. On the office towers granite blocks are held within an aluminium grid frame

4: View of the glass staircase at the base of the SICEC

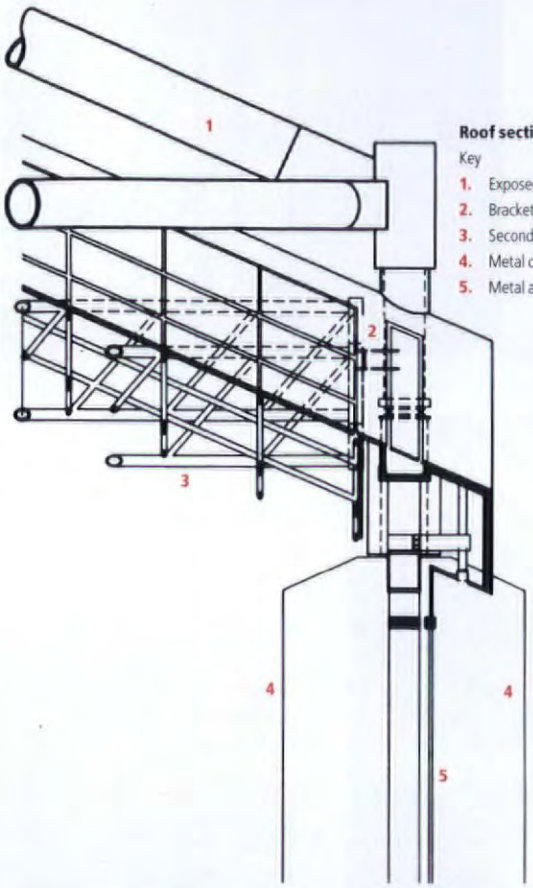
› Suntec City is one of the biggest construction projects in Singapore to date, using 1.13 million tonnes of concrete, 40,000 tonnes of steel reinforcement material; 32,000 tonnes of structural steel; 186,000 square metres of granite and 235,000 square metres of aluminium cladding. But Tsao & McKown are keen to point out that the scheme is now known as much for "its ability to connect Singapore's past and future, create civic space, and bring integrity to modern form", as it is for the "sheer weight of its statistics".

Suntec City is built on a plaza which pedestrians walk up to through a lower concourse, and which acts as a roof to this lower concourse, and to the levels of parking below. Shopping arcades around the base of the convention centre ensure that the building is a permeable structure – a prime concern of the architects throughout the scheme. "The towers carve out open space that continue the indoor/outdoor manipulation of space ... paving from the office lobbies flows out into the plaza and the plaza flows to interior spaces ... at the base of the mid-rise tower the plaza is cut away to reveal a flow of water beneath it ... Suntec City offers the arcaded pleasures of water, canopies of trees, and assorted delights that include a grand fountain as the focus. The fountain base is on the lower concourse, but the structure rises high above the upper plaza as a golden ring held aloft as a symbol of eternal unity and harmony."

Issues of symbolism are often talked about with reference to Suntec City. "To know that the project has links to the Rockefeller Center, the arcades of Turin and the galleries of the West, or to see in it the mandalas of India that organise the cosmos, as well as village life, is enriching, but not necessary", according to the architects. "Chinese astrological signs may be found in the stone pavement around the fountain, and a traditional Singapore "5-foot way" underlies the internal pathways ... Knowledge of *Feng Shui* could provide a reading of the overall plan suggesting that Singapore's future is cradled in the hand of Suntec City, where the mid-rise tower is the thumb, the larger towers are fingers, and the convention centre is the wrist of an arm that extends from the older downtown towards the new. But for the uninitiated ... enjoying Suntec City requires only delight in discovery itself."

The structural engineers

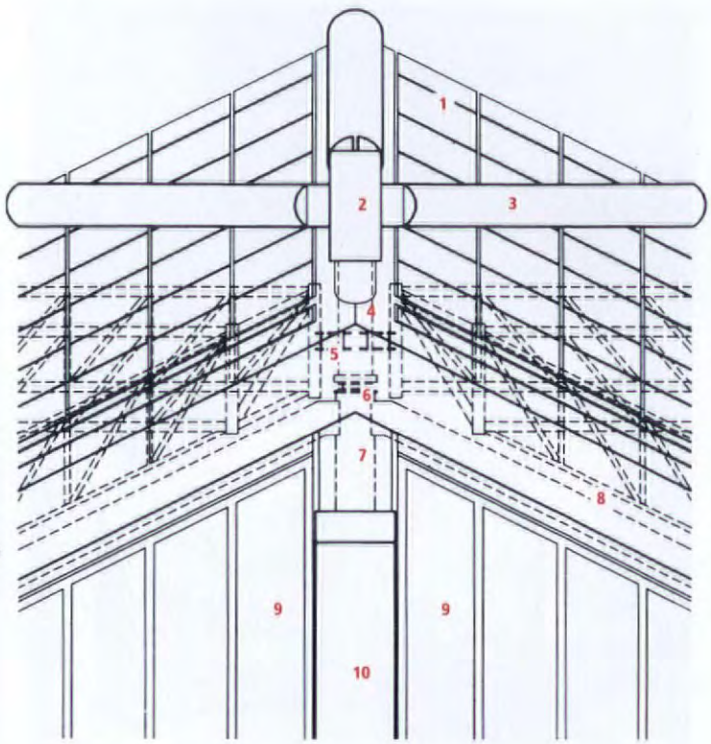
The construction of Suntec City was organised around three distinct phases, although the basement of the entire scheme was executed before the first phase. "The construction programme was met by adopting a semi top-down method of construction, with steel plunge-in columns for the convention centre area. Bottom-up methods of construction were used for the basement excavation on remaining parts of the site. Temporary berms and inclined struts and berms were used to phase the construction and to strut to the previously completed central 'island'. The perimeter retaining structures were diaphragm walls of 0.8 metres thick, installed up to 45 metres deep within the thick soft soil areas." Engineering of the scheme also involved building and re-building roads around the site, constructing a ramp for servicing the convention centre, and supervising the drainage of the site. The key engineering features of the complex include the elimination of all perimeter columns below the fifth storey in Towers One to ›



Roof section

Key

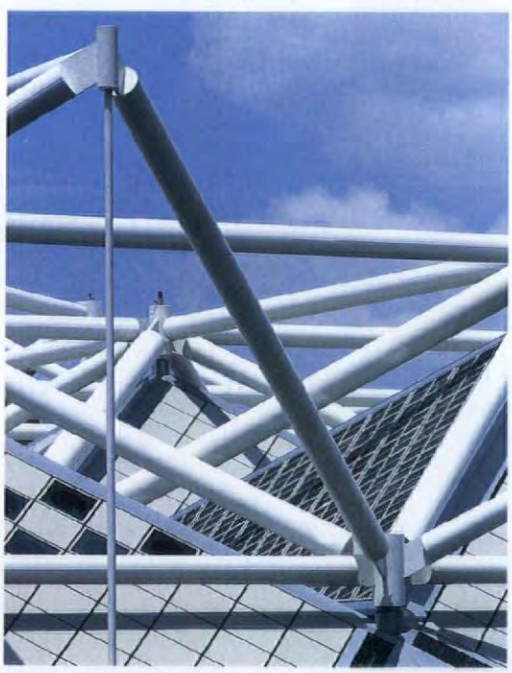
1. Exposed tubular steel structure
2. Bracket connects secondary structure to node stem
3. Secondary steel structure (beneath roof)
4. Metal clad column
5. Metal and glass curtain wall



Roof elevation

Key

1. Metal cladding
2. Cylindrical steel node
3. Exposed tubular steel structure
4. Node stem
5. Bracket connects secondary structure to node stem
6. Bearing/Joint – allows for lateral movement of roof
7. Column stem
8. Wind truss
9. Metal and glass curtain wall
10. Metal clad column



Richard Bryant/Arcaid

1: Detail of roof construction

2: Profile of the convention centre's external space-frame roof

Tim Griffith

› Four. This was a design requirement to create the large plaza area around the fountain at first storey level. Five cast-in-situ transfer girders were therefore required for each tower, the largest of them spanning 41 metres and supporting up to 40 storeys. Storey five to six is double the typical storey height to accommodate these girders.

The 18 storey office tower supports all the cooling towers for the entire scheme on its roof. The architectural feature which needed to be accommodated was the termination of all the 24 perimeter columns at fourth storey except eight of these which were enlarged to create a large column-free space below. Four perimeter transfer girders supported on these eight enlarged columns were designed to support the 15 storey reinforced and prestressed superstructure above.

Because of the density of the site the architects veered away from a "box with docks" solution for the convention centre and opted instead for a ramp system so that articulated lorries can deliver up to the top floor via a spiralling drum ramp in order to have access to the fourth to sixth floors. The ramp can accommodate vehicles up to and including 40 foot containers in two-way traffic at a speed of ten kilometres an hour. The ramp is left open to the elements to avoid the calculation for gross floor area. This led to the design solution of a mesh grill for the elevation facing the Nicholl Highway.

The convention centre also required specific engineering requirements for acoustics in the exhibition hall. A second slab was specified over the main/first slab with an air gap of 48 millimetres in between. The 175 millimetre thick second slab is termed a floating floor because it was cast in situ, directly over the first slab, and jacked up gradually.

The most unique structural feature of the complex is the roof to the convention centre, which is composed of an external exoskeleton and a series of secondary roof structures suspended from the exoskeleton to which the roof cladding systems are attached. The exoskeleton is a single layer 7.2 metre-deep space

frame with a square on square diagonal topology, with a nodal spacing of 20.36 metres. The basic frame, with a total of 28 supports is extended to form two intermediate spine trusses in order to optimise the aspect ratio of the frame throughout the central 172.8 metre by 86.4 metre clear span. The tubular sections which make up the frame range from 400 to 900 millimetres in diameter.

The secondary roof is comprised of three different forms of structure depending on the type of cladding used. Type one is an opaque roof structure supporting a full acoustic roof and ceiling cladding system with a depth of 1,250 millimetres, sufficient to accommodate the air-conditioning ducting for the Convention Hall. Type two is a louvre roof structure supporting louvred roof panels above the service driveway and M&E rooms, and fully exposed to the atmosphere. Type three is a skylight roof structure supporting glazed roof panels above the atrium area. The structural depth of the latter two systems is 1,000 millimetres.

Appraisal

Singapore is stifled by the sheer number of claustrophobic, sunless shopping centres and office towers. It is possible to move from one end of downtown to the other burrowing beneath street level from tower to tower without surfacing for more than a few yards. The streetscape is dictated more by the sanitised interiors of shopping arcades than by urban landmarks and open public spaces. But it's not all bad. On the contrary, in recent years moves have been implemented to improve the urban landscape and local and international architects alike are making a concerted effort to come up with inspired solutions for the island.

One such success story is Suntec City. Tsao & McKown have liberated the traditional tower-block form. The use of the monumental external fountain as the focal point of the central plaza and the cutting away of the base of the tower blocks introduces external circulation. Within the retail areas skylights are employed to enable views up to the full height of the towers and aid orientatation. Towers One and Two, and Towers Three and Four are linked with transparent atriums for the same reasons.

The same sense of freedom and light is employed on the convention centre. Sunlight port holes in the roof cast dappled shadows ›

Neil Troiano

5

5: High quality materials and a palette of rich and varied colours have been used throughout

6: The base of one of the office towers illustrating the transparency and light at Suntec

7: Escalators in the convention centre

Richard Bryant/Arcaid

6

Tim Griffith

7

Richard Bryant/Arcaid

1: The central plaza has a giant fountain as its focus, rising from the lower level of the concourse to the upper plaza "as a golden ring held aloft as a symbol of eternal unity and harmony"

on the upper levels of the multi-storey atrium space on the south east side of the building, which is also glazed, with a static sunscreen three quarters of the way down. In the lower retail levels of the convention centre the architects have used the same qualities of transparency and ease of circulation as in the office towers.

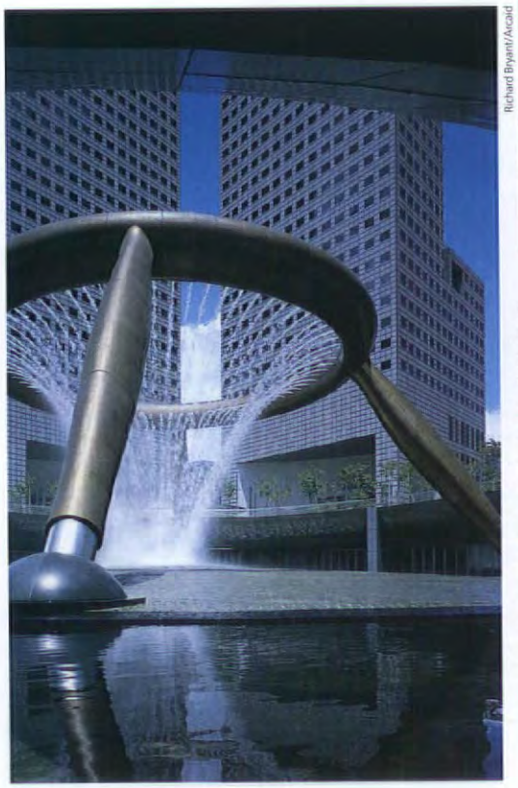
The quality of detailing throughout the complex is of the highest order, particularly in the convention centre, where a specially commissioned Axminster carpet graces the prefunction area/ante room for the ballroom and the floor above. Buckminster Fuller's Dymaxion Map, in the four-coloured stone used throughout the scheme, covers the floor of the main reception area – an inspired idea by Tracy Turner, the designer of the Suntec logo and signage within the development. The terrazzo pieces were set in Italy and a bronze star puts Singapore on the map.

The architects have stamped their mark on the convention centre using recurring motifs such as the ovoid cut-out shapes on the doors, the beech veneer panels on walls, and the rich saffron, red and jade colour scheme. Equally apparent is the use of a strict grid on the exterior and interior of the scheme, from the granite cladding within an aluminium grid frame on the office towers which continues on the inside walls of the shopping centres, to the perforated aluminium panels in the exhibition halls. In the convention centre a 9.6 metre module with a 960 millimetre subgrid is used. Even the cobblestones in the external circulation spaces conform to the grid. The grid proved unforgiving but was useful as a means of unifying the complex and providing a framework from which to work.

In Asia convention centres compete with the large hotels for weddings and other high-profile functions, unlike in the US and throughout Europe where such centres are considered utilitarian spaces. The name "Suntec" derives from the Chinese characters *xin da*, meaning "new achievement". In reinterpreting the Asian mega-development Tsao & McKown can lay claim to a large portion of that achievement. WA

Cost breakdown for Singapore International Conference and Exhibition Centre

Item	Description	Unit cost (US$)	% of total cost US$302,500,000 (S$423,500,000)
Substructure			
Foundations	Diaphragm wall	600/m²	1.42
	Bored piling (1000mm diameter)	257/m	1.45
Superstructure			
Frame	Steel frame	2.32/kg	24.87
	Reinforced concrete	421/m³	1.40
	Vermiculite coating	19.0³/m²	0.85
Upper floors	Reinforced concrete	518/m³	1.99
Roof	Metal panels	557/m²	5.00
External walls	Metal cladding	257/m²	0.80
External doors	Metal cladded doors	1,007/m²	0.08
Internal doors	Stainless steel cladded doors	481/m²	0.09
	Timber veneer cladded doors	336/m²	0.06
	Metal cladded doors	357/m²	0.27
	Granite cladded doors	672/m²	0.02
Internal finishes			
Wall finishes	Granite slabs	170/m²	0.27
	Metal panels	357/m²	2.36
	Timber veneer (inc. timber frame supports)	122/m²	0.34
	Fabric (inc. timber frame supports)	196/m²	0.13
Floor finishes	Granite slabs	115/m²	0.75
Ceiling finishes	Metal ceiling	203/m²	3.30
	Seamless fibrous plaster	36/m²	0.06
Others	Stainless steel cladding to escalators	571/m²	0.18
Fitting & Furnishing	Telescopic seating	779/seat	1.94
External works	Granite cobble paving	102/m²	0.41



Richard Bryant/Arcaid

Client
Suntec City Development
Design architects
Tsao & McKown
Executive architects
DP Architects Pte Ltd
Structural concept of convention centre
Weiskopf and Pickworth
Civil & Structural engineer
Maunsell Consultants Pte Ltd
M&E engineer
Parsons Brinckerhoff Consultants Pte Ltd
Quantity surveyor
Davis Langdon & Seah
Cladding consultant
RA Heintges Architects Consultants
Fountain consultant
CMS Collaborative
Landscape consultant
Aspinwall Clouston
Lighting consultant
Fisher Marantz Refro Stone, Architectural Lighting Design
Theatre Consultant
Jules Fisher Associates
External cladding subcontractor
Permasteelisa Pacific Pte Ltd
Signage
Tracy Turner Design

Architects
Akitek Tenggara
Reviewed by
Robert Powell

Health of the nation

Kandang Kerbau Women's & Children's Hospital

In 1988, Akitek Tenggara won a national competition for the redevelopment of the old Kandang Kerbau Hospital in Singapore. The original plan was to upgrade the existing facilities, to retain the wards and to add on Accident & Emergency and Operating Theatre blocks on the same site. Subsequently, a decision was made to build a women's and children's hospital. Akitek Tenggara was commissioned to undertake the job up to the architectural working drawings stage, with the Australian hospital design consultant McConnell Smith & Johnson as their hospital planner. The Public Works Department was the Principal Consultant as well as the consultants for all the main disciplines.

There was an extensive site selection process once it was decided that the hospital could not be located in the grounds of the existing hospital. Numerous preliminary spatial studies had to be undertaken. Eventually the client settled for a 4.8 hectare site, closely identified with the original location, at the junction of Kampong Java Road and Bukit Timah Road. Settling the brief onto the site presented a challenge. A height limitation of eight storeys for the ward blocks, imposed a restriction on floor heights of 4.2 metres which made the detailed design and co-ordination of interior planning onerous.

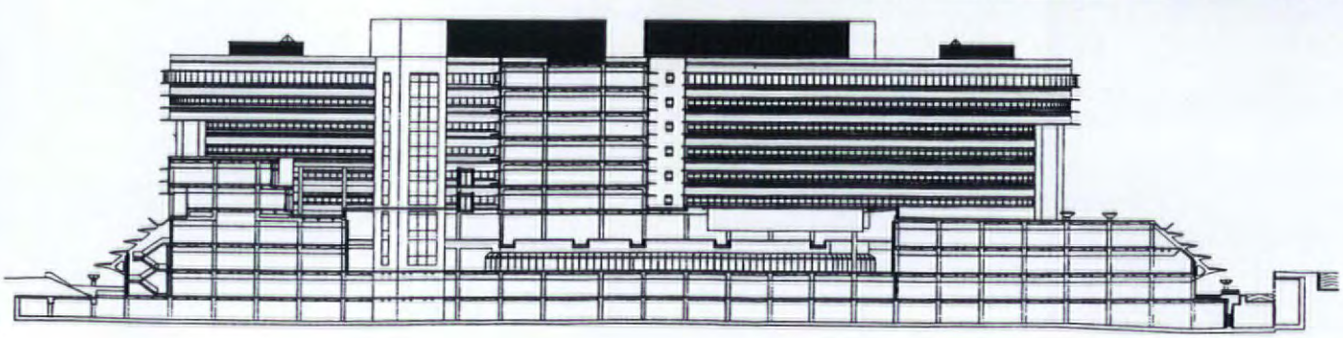
Akitek Tenggara's morphological studies enabled them to zoom in and out between micro and macro design issues to find the optimum geometry. The architects morphological expertise was further demonstrated in the decision by all the consultants to implement the race-track plan form. Its inherently large perimeter length allows for better lighting and ventilation compared to say, a triangular ward-plan configuration favoured by some hospital planners. The decision to cluster the support services with the diagnostic and operating theatres in the centre of the overall plan-form was an important strategic

1: Circular ends of the ward blocks were both an urban design consideration and an expressive architectural device

2: Section through the hospital

Albert Links

1



2


Albert Limks

3

3: The large perimeter length of the race-track form allows for better lighting and ventilation than traditional hospital forms

4: Taut-edged pre-cast concrete shading blades supported by an elegant concrete bracketing system articulate the tiered design

5: Site plan showing the two bommerangs of the women's and children's hospitals

decision. The elevator cores emanating from this central mass efficiently connect the two functions of the hospital. The simplicity and legibility of the plan form stems from this decision.

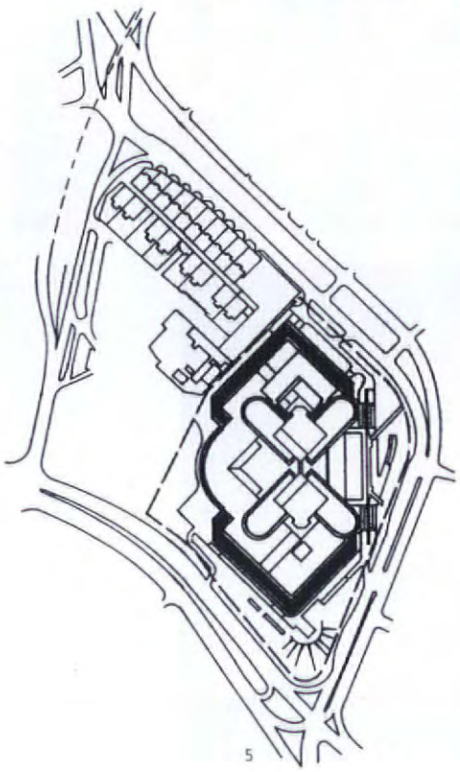
An important choice was made to taper the tiered podium edges. This was suggested by urban design considerations. It is intended to sweep the eye upwards from the surrounding green space, to achieve a gentle merging of the building with the landscape. The incorporation of taut-edged pre-cast concrete shading blades, supported by an elegant concrete bracketing system, articulates the tiered design in a visual dialogue with the metal shading devices and window system of the ward blocks above.

The circular ends of the ward blocks were both an urban design consideration and an expressive architectural device to create an aesthetic of line and edge with continuity around the block. The recessing of the lower floors at the end of the blocks allowed their articulation by soaring columns which act as a vertically linking element between the podium and the towers.

The facade is designed as a sun-breaker system using light-weight metal louvres and maintenance gangways. In addition to serving a functional purpose, the horizontal louvres and baffles are visually exhilarating. The hospital was completed and occupied on 6 March 1997. Despite the number of consultants working on the scheme the clarity of the design by Akitek Tenggara has been realised. WA


Bob Powell

4



5

Client
Ministry of Health
Project design architects
Akitek Tenggara
Design team
Tay Kheng Soon, Chung Meng Ker, Tan Kok Hiang
Principal consultants
Public Works Department (PWD)
Hospital design consultants
McConnell Smith and Johnson, Australia
Structural engineer
PWD
Cost consultant
PWD
Contractor of main building
Ssangyong Engineering and Construction Co Ltd

Architects
TangGuanBee architects
Reviewed by
Nicola Turner

Setting the scene

Eastpoint Shopping Centre, Simei, Singapore

1

1: South/entrance elevation of Eastpoint Shopping Centre showing coloured aluminium panels

2: Inside the atrium a teflon pneumatic roof emphasises the carnival atmosphere

2

Visiting TangGuanBee Architects' Eastpoint Shopping Centre in Simei, a satellite town of Singapore, is a refreshing and entertaining shopping experience unlike any other in the city. As Tang Guan Bee explained, Singapore's primary investment is in its people, there are few other natural resources on the island. The developers therefore harnessed the opportunity of providing a centre for the local residents' community that would positively contribute to the urban fabric in terms of both the amenities provided and the visual impact on the site. After the initial design phase the architects were sent on a trip down the west coast of the US to observe new developments in American shopping centre design. What they have achieved in many ways outclasses the American model.

The multi-faceted medium-rise block is dressed with playful stage-set-style hangings, consisting of colourful perforated aluminium panels punctuated by glazed, transparent entrances. The fragmented approach to the design is intentional, and fosters a "circus" atmosphere which is enhanced in the drum-shaped multi-level atrium space, which penetrates the south elevation and is covered by a teflon pneumatic roof, similar to the tensile roof of a big top.

Inside the shopping centre most of the mechanical plant work, including that of the elevators, is exposed contributing to an appealing educational experience stressed throughout the complex. The rest of the air-conditioning and lighting services are disguised by "ribs" running on all levels around the atrium, enhancing the architects' intention of promoting the teflon roof as the "belly" of the building.

The architects' primary design intention was to integrate the shopping centre with the surrounding Housing Development Board's residential blocks and the nearby Mass Rapid Transit (MRT) station. As such it has been designed as an intersection and each transparent facade has been subjected to a different treatment. Unusually for Singapore, visitors to Eastpoint are able to look out of the shopping centre at most points within the building. A "courtyard" with food outlets and entertainment spaces on the east elevation faces the parking, alongside the MRT station, imparting an immediately festive atmosphere on arrival, and shielding nearby housing from excessive noise. The architects have designed all the related architectural details of the site, including the Pompidou Centre-style funnels – planted in the ground to take away air emission from the car park – the wastepaper bins, signage and elevator interiors.

The west elevation is screened off because of noise pollution to the houses and the heat from the sun. Behind this elevation are department stores and a cinema, on the top floor. An outdoor "fun pool", which can be used by shoppers' children free of charge, tops the building.

3

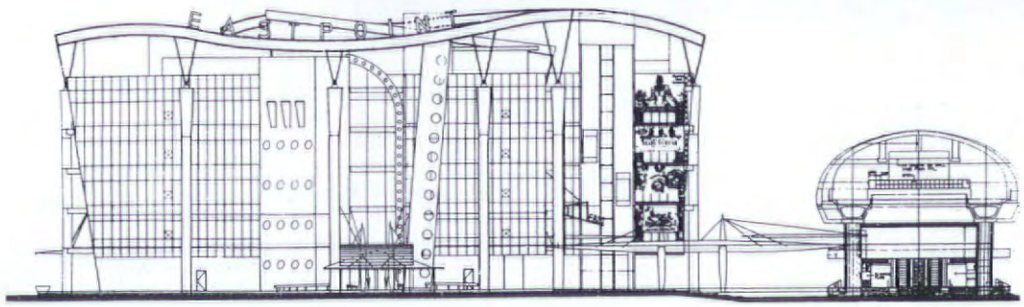
3: South elevation showing curved profile of the roof

4: East elevation facing the MRT station

5: The shopping centre forms an intersection between the housing and the MRT station, shown right

Client
Simei Properties Pte Ltd
Architects
TangGuanBee architects with Team Design Architects
Structural engineer
Meinhardt Pte Ltd
Service engineer
Rust Jrp
Cost consultant
Rider Hunt Levett & Bailey
Lighting consultant
Luminor Design Consultants
Contractor
Obayashi Corporation

4



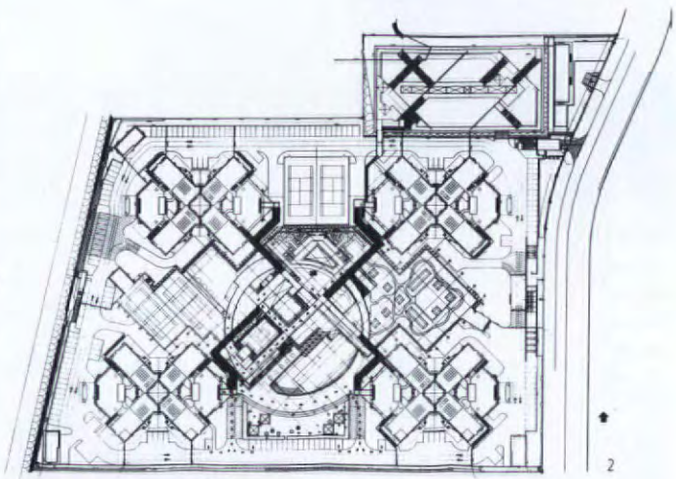
5

Architects
Andrew Tan Architects
Reviewed by
Nicola Turner

Domestic bliss

Dover Parkview, Singapore

1



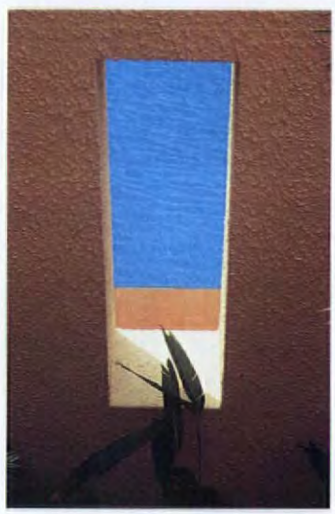
2

The Housing Development Board's (HDB) soaring grey blocks of public housing in Singapore, in which eighty-six percent of the country's population are housed, are one of the most potent reminders of what happens in a country where land is scarce and the priority of both the government and private developers is to construct at speed with little concession to quality design. The upgrading of all public housing is currently being implemented, using private architects and designers commissioned by the HDB, and private initiatives are also heralding a fresher approach to solutions for dense living.

Earlier this year Andrew Tan Architects completed a housing scheme at Dover Parkview, Clementi, outside the centre of Singapore, for Dover Palisades developers, part of the the Far East Organisation. It is a successful example of the move for private developers to seek out far-sighted, talented new architects to provide inspired solutions for dense living. Towers with surface decoration and misplaced classical motifs are still *de rigeur* for some clients, in some areas of the city, but schemes which display a more rigorous regard for design integrity are on the increase.

The Dover Parkview development consists of four mega-point blocks around a cruciform plan tilted at 45 degrees, on the four corners of the site. A pool is the focal point of the central space. The diagonal grid affords optimum views from the apartments, and within the complex at ground level, as well as aiding orientation. Dover Parkview houses 686 apartments. The height restriction was imposed at 16 storeys, and the architects were therefore required to arrive at a solution which could accommodate such density.

The diagonal pedestrian crossings within the site are defined by Luis Barrigan/Ricardo Legoretta-style structural screens, which add both texture and colour to the urban landscape, and as well as providing shade, focus attention horizontally, at ground level, rather than pulling the eye up to the less interesting towers. The original design allowed for voids punctuating the third storey and providing "gardens in the air", adding to the articulation of the elevations and stressing the move away from the ubiquitous slab blocks. Due to planning restrictions regarding gross floor area, this practical use could not be implemented, and there is therefore no access to these purely aesthetic voids. The scheme has been thoughtfully detailed, including planting and additional screens on the roof of the parking block, making a feature of an amenity and providing a pleasant view for all the apartments looking down on it. WA



3

1: One of the four blocks of aprtments rising above the landscaped central space

2: Site plan showing cruciform plan tilted at 45 degrees

3: Looking through a screen onto the swimming pool

4: Richly coloured concrete screens provide texture

4

Client
Dover Palisades Pte Ltd
Structural engineer
KTP Consultants
Service engineer
Rust JRP Pte Ltd
Cost consultant
Rider Hunt Levett Bailey
Landscape consultant
Belt Collins International Pte Ltd
Contractor
Neo Corporation Pte Ltd

Architects
KNTA Architects
Reviewed by
Nicola Turner

Energy conscious

No. 1 Corfe Place, Singapore

1

Many of the most remarkable buildings by young architects in Singapore are the individual residences on the outskirts of the city centre. A few wealthy clients with aspirations beyond the confines of high-rise condominium living give free reign to young designers such as Kay Ngee Tan and his partner Teck Kiam Tan. No.1 Corfe Place, designed by Teck Kiam Tan, is a recent example of the firm's unconventional style.

The white, slightly skewed cube – which sits within an L-shaped block – "floats" on a pond which forms a moat around the outside of the house. This terminates in a koi pond on the interior, between the living and dining area. The main dwelling spaces are housed within the cube, with the living room on the ground floor, the master bedroom on the first floor and a terrace garden on the roof. The circulation route directs access over two internal bridges which link the cube to the L-shaped block which houses the guest suite and utilities.

The cube is punched through with expanses of floor to ceiling fenestration, creating a light-filled but air-conditioned interior. Many low-rise homes in Singapore blur the boundaries between the interior and exterior, leaving living areas open to the elements, encouraging cross-ventilation and obviating the need for air-conditioning. Although KNTA have used traditional Asian design motifs, such as the use of water within the house, they have concentrated on an alternative design for an energy-conscious dwelling. Many clients insist on a fully air-conditioned interior. At Corfe Place, KNTA have turned the need for the accommodation of air-conditioning equipment to their advantage by housing it in a distinctive aerofoil roof form. This conceals the equipment from view, and also shields it from the harsh sun, thereby reducing the cost of maintenance. Flat reinforced concrete roofs often suffer significant solar gain and this secondary roof provides a layer of ventilation and shading. The roof is also designed to accept solar panels which would have the potential to provide the electricity for all the hot water. WA

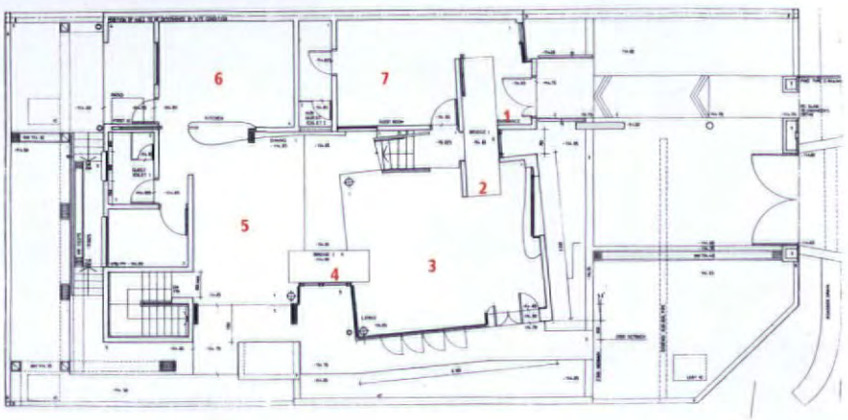
1: Entrance elevation showing aerofoil secondary roof form

2: A blue concrete skin wraps around the bedroom and bathroom on the second floor providing a softer profile to relate to the next door house

3: First floor plan showing skewed cube linked to L-shaped arm by two bridges

2

Client
Andrew Thang
Architects' project team
Teck Kiam Tan
Kay Ngee Tan
Jacks Yeo
Daniel Statham
Ivy Aw
Structural engineer
Ronnie and Koh Partnership
M&E engineer
AE&T Consultants

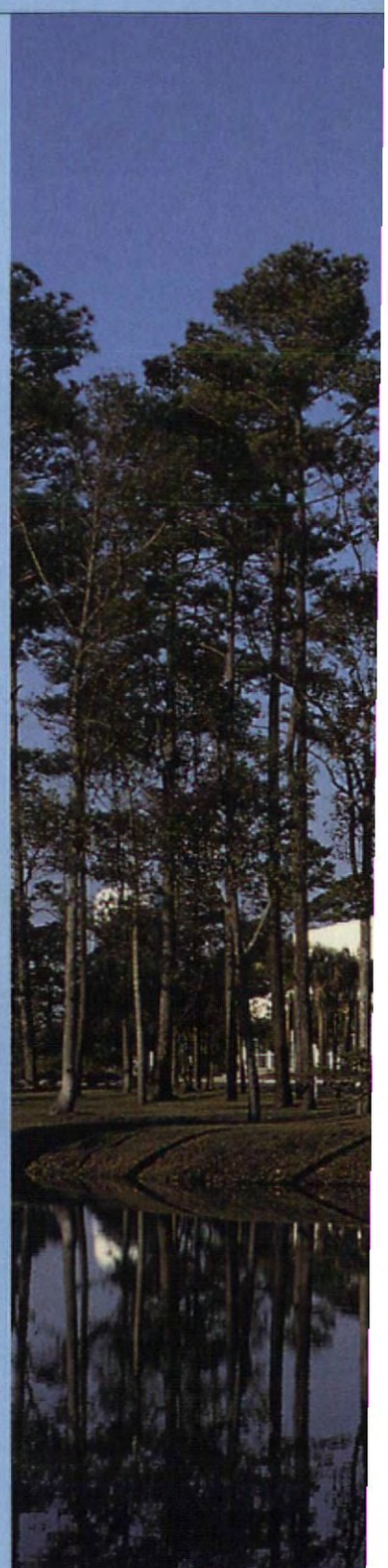


3

Key
1. Entrance
2. Bridge
3. Living room
4. Bridge
5. Dining room
6. Kitchen
7. Guest room

CANNON
Built to last

Timothy Ostler had to cover most of the United States just to get a sense of what Cannon's "single firm multi-office" organising principle actually means. In the process, he discovered a company in which ego takes a back seat.



Myrtle Beach Convention Centre, Myrtle Beach, South Carolina

Foster, Inc

One of the soubriquets commonly used by Cannon to describe its operation is the "headquarters corporation". Appropriately, its management offices sit quietly in the centre of a grassy meadow, by a freeway, just a few miles from the city of Niagara Falls where the company began in 1945. Hardly the most promising place to start an international design corporation, you might think; Don Cannon, however, joint founder and Chairman, had a knack for turning a weak position to advantage.

Cannon (the company) began as a partnership between Cannon, a mechanical engineer, and his architect brother Will. It was successful enough but Don, nine years younger, began to get worried about the future. He had noticed that very few professional partnerships seemed to survive the retirement of the senior partner: usually the amount junior partners had signed up to pay the founder when he left bore no relationship to the money actually available when the time came. The result was a bankrupt partnership – and no money left to keep remaining partners in their old age.

Cannon analysed his own firm's position. "I drew up an actuarial chart of what would happen as partners reached retirement," he says. "I proved to myself that it could not work."

Naturally, his concerns were not just about pensions: he also wanted his firm to prosper into a new generation. So he made a point of studying the firms that had continued to thrive over the long term. He found most of them to be corporations. So, in 1974, Cannon followed suit.

Once the company had become an independent entity, other advantages began to emerge. It became easier to make detached strategic decisions: Cannon became, in effect, an object to be engineered.

First, Cannon moved out of Niagara Falls into its current offices on the road to Buffalo, partly in order to be equidistant from where senior staff lived. In a deliberate move to avoid what Don Cannon saw as the parochialism of local architects, the corporation also made a point of recruiting staff from other regions of the country.

If its business was to grow, it was clear that Cannon would have to spread its net further afield, forming outposts in key cities. However, branch offices in themselves were insufficient if Cannon was to win really significant work. If Cannon were to remain based in Grand Island, it would always be perceived as a firm based outside the traditional architectural centres. Thus began the process that was to lead to its current geographically-dispersed organisation.

"At one point," says Cannon's CEO Gary Miller, "we were a holding company, with several subsidiaries that were basically semi-autonomous units, functioning as independent profit centres." But Cannon soon found that this configuration got in the way of operating efficiently and effectively as a national organisation. "So we decided that we needed to do away with all those separate profit centres and become a single organisation. We call it the 'single firm multi-office'."

"Our idea," explains Miller, "is to conceptualise ourselves as if we are all in one place. In this way we have no territorial

"We decided that we needed to do away with separate profit centres and become a single organisation. We call it the 'single firm multi-office'"

1: From left to right: Hans Kullerkupp, David Body, Christopher B Miovski, Richard E Carlson, Theodore G Fowler, M Kent Turner, Lewis W Robinson, Maurice W Robison, Douglas R Francis, Garrick L Niemeic, Patrick M Finn, William G Smeltz, Merlin E Lickhalter, Gary R Miller, Donald T Finlayson, John D Cannon, C Scott Wing, Philip A Szujewski, John Michael Currie, Roy F Marshall, J Paul McGowan, Allan M Pinchoff, Juanito W Yan, Mark R Mendell, Eduard Royzman, Millard H Berry. Not present: George Z, Nikolajevich, Kathleen Cartus

2: Centre for Environmental Services and Technology Management, Albany, New York

Brian R Burt

2

franchises, making full resources available to clients, irrespective of location."

With hindsight, this concept, hatched in the pre-Internet era, prefigured the idea of the network-based "virtual corporation". Cannon's concept, however, remains firmly grounded (if that is the right word) in physical travel by staff between the corporation's various offices – at least until videoconferencing becomes a more realistic proposition.

Today Cannon also has offices in Boston, Houston, Jacksonville, Los Angeles, New York City, St Louis and Washington DC. Although staff shuttle between offices on a regular basis, each of them has its own distinct flavour. Boston, for example, has an academic tinge; Washington is centred on international work, government commissions and healthcare; New York focuses on healthcare and commercial work but also has special skills in space planning and interior design; the Los Angeles office boasts world-class expertise in sports facility planning; and so on.

In this way Cannon's origins on the periphery have been turned to advantage. For example, it is highly unlikely that Cannon would even have thought of operating in this way if it had started in New York City. It is also unlikely that Cannon's corporate culture would have been as low-key. Mark Mendell, Cannon's President, describes an incident in which the firm received what he considers to be the ultimate compliment.

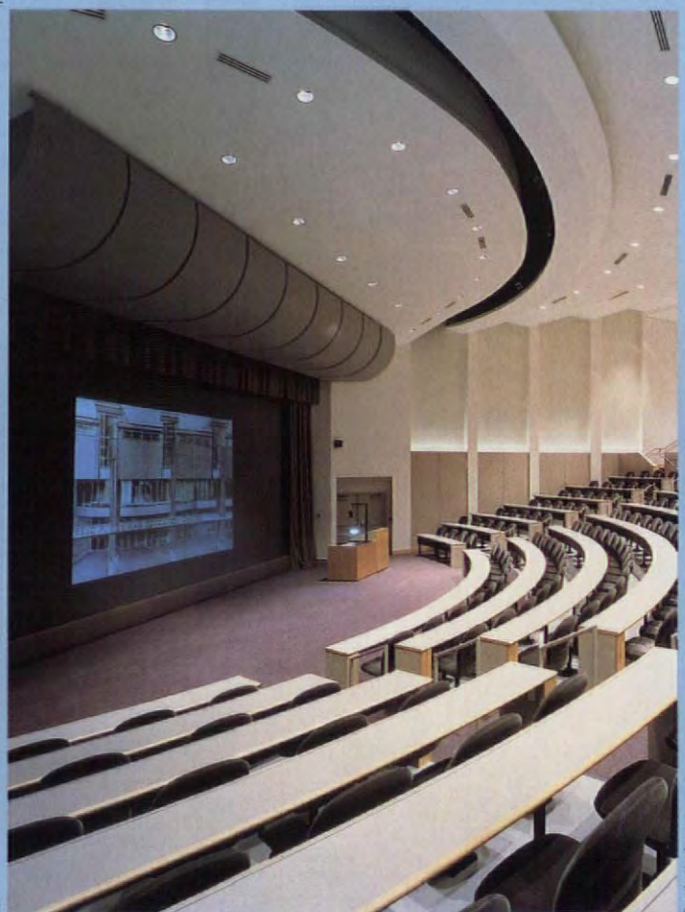
"One client looked up at us," he says, "kind of leaned back and said, 'You know, I've never worked with a group of architects like you before. It's like you guys have no ego – every time I come to meet with you I feel like you're really interested in trying to help me!'"

This is the sort of attitude that gets repeat business. Not surprisingly, Cannon's is currently running at 70 per cent of new commissions. Until fairly recently Cannon was known above all for its expertise in healthcare (WA's 1997 survey shows it to be sixth largest in the world in this sector). Hospital work often involves a series of smallish projects for the same client over a period of years. As a result, architects who are most successful in this field tend to be those who are best at maintaining long-term relationships with their clients.

According to Mendell, this approach has become a guiding principle for all of Cannon's work: "Ultimately it's the relationships that are more important than the projects," he says. It's a situation that is well illustrated by the series of projects Cannon have carried out for Boston University, most recently in the School of Management and the Centre for Photonics Research.

Those who think that a client-centred approach means that Cannon is indifferent to architecture should think again. A prominent example of Cannon's commitment to innovation is the Niagara Falls headquarters of Occidental Chemical Corporation (which, incidentally, Cannon has recently developed plans to convert into a hotel). This fully-glazed Miesian box is described by Mendell as essentially a heat rejector. It uses

Patricia Layman Bazelon



Timothy Hursley

1: Marine Midland Bank, member of the International HSBC Bank Group

2: Washington University, Eric P. Newman Education Centre, St Louis, Missouri

3: University of Georgia, Ramsey Centre for Student Physical Activities, Athens, Georgia

operable louvres in a wide cavity between internal and external glazing to control daytime heat gain and night-time heat loss, while continuing to allow light to percolate inwards. The result is the most energy-efficient building in its climate zone anywhere in the world, needing a mechanical system only large enough to serve a reasonable-size house.

Occidental's stylistic vocabulary is confident, but markedly different from other work by Cannon. Continuity between projects, where it exists, is mostly the result of client preferences or local ordinances. The diversity of Cannon's output is a consequence not only of the corporation's decentralised structure but also its strikingly ego-free rhetoric. There are plenty of firms that call themselves multidisciplinary: not so many go so far as to treat strategic management as one of those disciplines. This, and not architecture, is the profession that Gary Miller, like most of Cannon's clients, practises. The fact that he is also CEO could be seen as evidence that awareness of the client's viewpoint has penetrated to the very heart of Cannon's management structure.

"Some of our clients find it pretty interesting that our CEO might not be an architect," says Miller. "One of them said, 'Say, this is a real company!'" In reality, Cannon's thorough intermingling of skills between those of architecture, engineering and management merely recognises the fact that the core activity of all professionals is that of design – of identifying the steps necessary to change one set of circumstances into another, more desirable set.

"We define our profession as architecture and engineering," says Miller, "but we define our business as our clients. It may sound like a subtle difference, but it's a very powerful one. If you go to some of the other firms, and you ask them what business they're in, they're going to look at you as though you're crazy. They're going to say, 'We're architects – what do you think we are?' We like to think that [architecture and engineering] are the tools of our trade, and not necessarily why we're in business."

"The reason why it's an important difference," says Miller, "is that we're pursuing clients instead of just pursuing opportunities to design. If we really believe in our hearts that we value relationships, we're going to do better architecture; we're going to do better design."

Relationships take time to develop, and Cannon is proud of the continuity of their leadership. Gary Miller, only the second CEO (the first was Don Cannon) has been with the firm for 14 years; Mark Mendell has been there for 22. They have been working together as CEO and President for five years.

"Mark's an architect and I'm a businessman," says Miller, " but we overlap each other a lot. There isn't anything that I wouldn't trust Mark to be involved in, and it's true vice versa... although he won't let me design."

This partnership between design and management at the top is mirrored in each project team, where a managing principal handles administrative issues and a design leader has, in Mendell's words, "a mandate to produce a design image that reflects the spirit, character, and personality of the client. This results in a great diversity of work, which has always been one of Cannon's strengths."

For staff the "single firm multi-office" principle has its downside. The most obvious is the need for regular and

Lauren Tent

1

"We define our profession as architecture and engineering...but we define our business as our clients."

extensive travel. This inevitably takes its toll on energy levels – and, presumably, the quality of family life.

The upside is that staff are able to spend more of their time doing what they're best at – which is usually what they enjoy most. Cannon's consistent level of workload means that staff's specialist skills are always in demand somewhere within the corporation. "The opportunity to work with professionals in other parts of the organisation provides a challenge that is hard to achieve otherwise," says John Paul McGowan, Senior Vice President and Design Principal, who frequently shuttles between Cannon's Washington and Boston offices.

A good example is David Body, a world-class competitor in tennis and squash, Cheshire-born and trained at Sheffield University, who built up probably the USA's leading consultancy on sports facility design in Los Angeles before merging with Cannon. Another is Chris Miovski, based in the New York office, who first established the principle that the hospital architect's work is part of the healing process. With the great advantage of having worked in his youth as a hospital orderly, he was a pioneer in defining the state of the art in patient-centred labour wards (subsequently enshrined in legislation).

Coordinating the availability of these specialist skills spread over an area of many thousands of square miles requires a major feat of resource management. "That," says George Nikolajevich, a Senior Vice President and Design Principal in St Louis, "is the greatest challenge that we face: which talent do we use when?"

1: Occidental Chemical Corporation, Niagara Falls, New York

Nikolajevich's support for the Cannon concept is perhaps the most convincing argument for its value for architecture as much as for business. Nikolajevich studied under Matt Baylon, a disciple of Adolf Loos. A partnership, which he founded with Kent Turner, merged with Cannon's St. Louis office and the combination is now one of the firm's major corporate offices. He too is a firm supporter of the Cannon concept, because of the freedom that it offers him: "What's interesting about Cannon is that it's a loose entity in the positive sense, and also it's one unit in the positive sense."

The diversity of Cannon's architectural output demonstrates an issue that needs to be addressed by any corporation with Cannon's structure. How do you maintain a democratic unity of purpose across offices in eight cities? Cannon's answer is to organise periodic "strategic retreats" at which senior staff reflect on matters of management philosophy. The most recent retreat was charged with defining a set of fundamental principles on which all of those present could agree.

The exercise was widely judged a success. For those raised in a country in which the Constitution and the Bill of Rights are a daily point of reference, Cannon's set of principles, which emerged through consensus and not by vote, are taken very seriously. Kent Turner speaks eloquently of the challenge that they represent.

"How do we begin to make decisions in support of that collective agreement? Those decisions face us every day: they are huge, and they are minute... There's an enormous opportunity for a firm to demonstrate what can be done."

Don Cannon puts it another way. "In this new environment," he says, "the major challenge is to be predictable while preserving this diversity."

Cannon company data

Scope:
Architecture
Engineering
Planning
Interior design
Programme management

Senior officers:
Millard H. Berry, PE
David Body, AIA, RIBA
John D. Cannon, Chairman
Richard E. Carlson, AIA
John Michael Currie, AIA, FRSH
Donald T. Finlayson, AIA
Theodore G. Fowler, PE
Douglas R. Francis
Hans Kullerkupp, AIA
Merlin E. Lickhalter, AIA
Roy F. Marshall, PE
Paul McGowan, AIA
Mark R. Mendell, AIA, President
Gary R. Miller, CEO
Christopher B. Miovski, AIA, MRAIC
George Z. Nikolajevich, AIA
Maurice W. Robison, AIA
Eduard Royzman, PE
William G. Smeltz, AIA
Phillip A. Szujewski, AIA
M. Kent Turner, RA
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Washington, DC 20007-4415
Tel +1 202-337-6022

Representative clients:
Barnard College
BJC Health Systems
Boise-Cascade Office Products
Boston City Hospital
Boston University
Brandeis University
Cedars Sinai Medical Centre
Centres for Disease Control & Prevention
Husky Injection Molding
Janssen Pharmaceutica, NV
Kaiser Permanente
Kuwait Ministry of Health
Loma Linda University
Marine Midland Bank
Merrill Lynch
Motorola
Mount Sinai Medical Centre
National Institutes of Health
NCR
Occidental Chemical Company
Polaroid
Province of Ontario, Ministry of Health
Prudential Securities
Sabanci University
Smithsonian Institution
State University of New York
Tufts University
US Naval Academy
University Hospital, Augusta
University of California
University of Pittsburgh Medical Centre
Vassar College
Washington University
Xerox

Arison Medical Tower, Tel Aviv Sourasky Medical Centre

Brief

Faced with the need to replace the institution's original building, now ill-suited to the delivery of modern medical care, the Tel Aviv Medical Centre sponsored an international design competition for a new bed tower.

Challenge

Located on a restricted site in the city centre, only 500 metres from City Hall, the new tower would have a significant urban design impact, in addition to fulfilling the Medical Centre's mission to position itself to meet the demands of the hospital of the future.

Solution

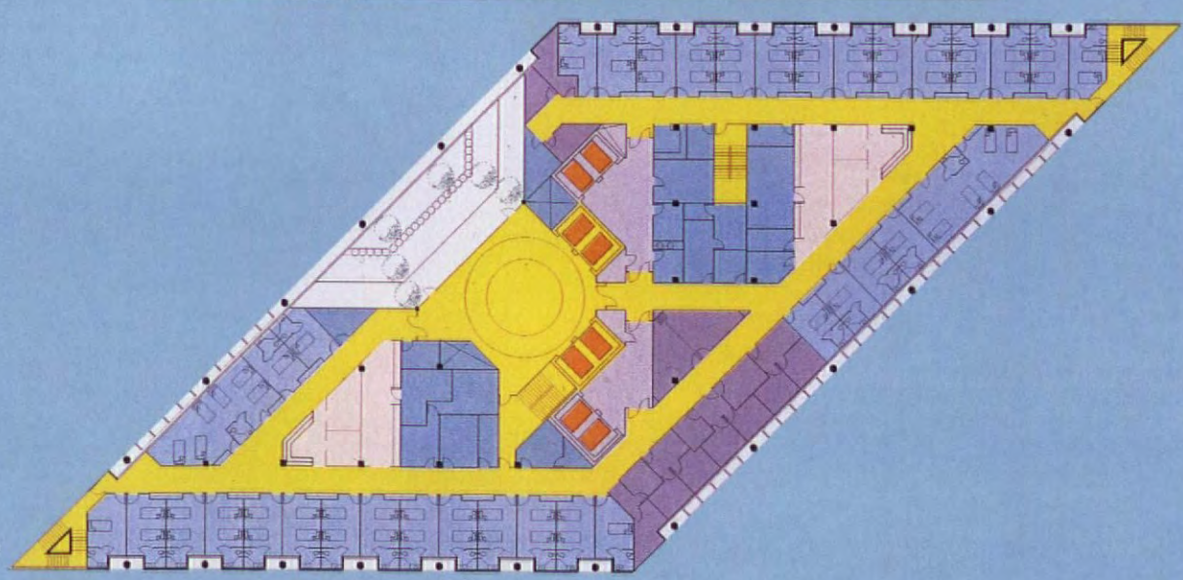
The winning design solution superimposes a 530-bed tower above the existing administrative block, with its knife-edge corner on axis with King David Boulevard, linking the Medical Centre complex to City Hall Plaza. In developing the building plan, an unusual parallelogram configuration was created, utilising vertical expansion of the existing elevator core as a planning fulcrum. This permits the creation of two highly efficient nursing units per floor, with each patient room enjoying commanding views of the surrounding cityscape.

Two stacked central atriums of four storeys afford ambulatory patients, visitors, and staff clear points of orientation, with views overlooking the Mediterranean coastline. The building skin of granite, metal, and green-tinted glass is highly transparent to project a friendly character from the exterior and optimise natural daylight deep within the interior. A large lattice-like circular helicopter platform above the top floor library adds to the tower's unique roof profile, creating a distinctive signature on the Tel Aviv skyline – a constant visible presence of the Medical Centre for miles around. Associated architects are Lerman Architects and Town Planners of Tel Aviv.

1

1: Knife edge corners, a helicopter platform and a skin of metal, stone and glass create a striking addition to the centre of Tel Aviv

2: The unusual parallelogram plan centres on the existing elevator core



2

Washington University Eric P. Newman Education Centre

Brief

By consolidating Washington University Medical Centre's thirty-plus meeting and conference spaces from scattered locations across the campus, the new Eric P. Newman Education Centre provides the institution with technologically sophisticated classroom and conference spaces within a single, centrally-controlled and schedule-monitored facility.

Challenge

The key component of the building is a 450-seat auditorium, equipped with satellite links and audio-visual equipment for projecting computer screens, transparencies, X-rays, and remote surgical procedures. Additional class and conference rooms vary in size and shape from flat-floor 30-person rooms to sloped-floor lecture halls accommodating 100, and become progressively smaller on the upper floors.

Solution

An atrium lobby and canopied recessed entry distinguish the building at street level. Above this, an elevated pedestrian walkway system connecting adjacent buildings on the Medical Centre's campus is woven into the plan, alternately as a bridge structure and a second-storey interior passage. The architectural presence of the building relies on movement and functions rather than secondary details. A materials palette of brick, aluminum, and green-tinted glass is combined through a subtly animated facade of overlapping planes and alternating voids.

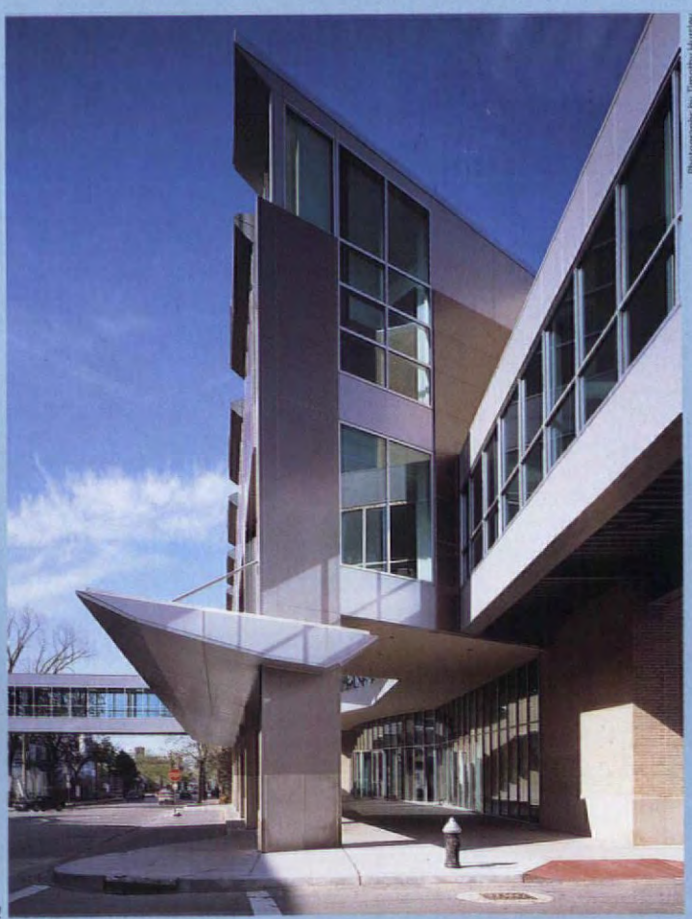
The success of the Newman Education Centre in meeting a complicated programme and achieving integration with adjacent facilities through design "with a play of perpendicular lines and rhythm of stepped rooflines that create a nicely scaled facade" earned an Honor Award for Design Excellence from the American Institute of Architects.

1

1: Facades are animated through the subtle use of planes and voids

2: Aluminium and glass produce crisp exterior detailing

3: The hollowed-out entry facade makes good use of the play of light and shadow



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3

Photographs by Timothy Hursley

Occidental Chemical Company corporate offices and hotel conversion

Brief

Designed and constructed in the midst of the oil crisis of the early 1980s, this landmark structure continues to maintain its place as one of the world's most energy-efficient commercial buildings. One of the original "intelligent buildings", it serves as a testament to Cannon's reputation for the seamless integration of innovative engineering strategies and award-winning design.

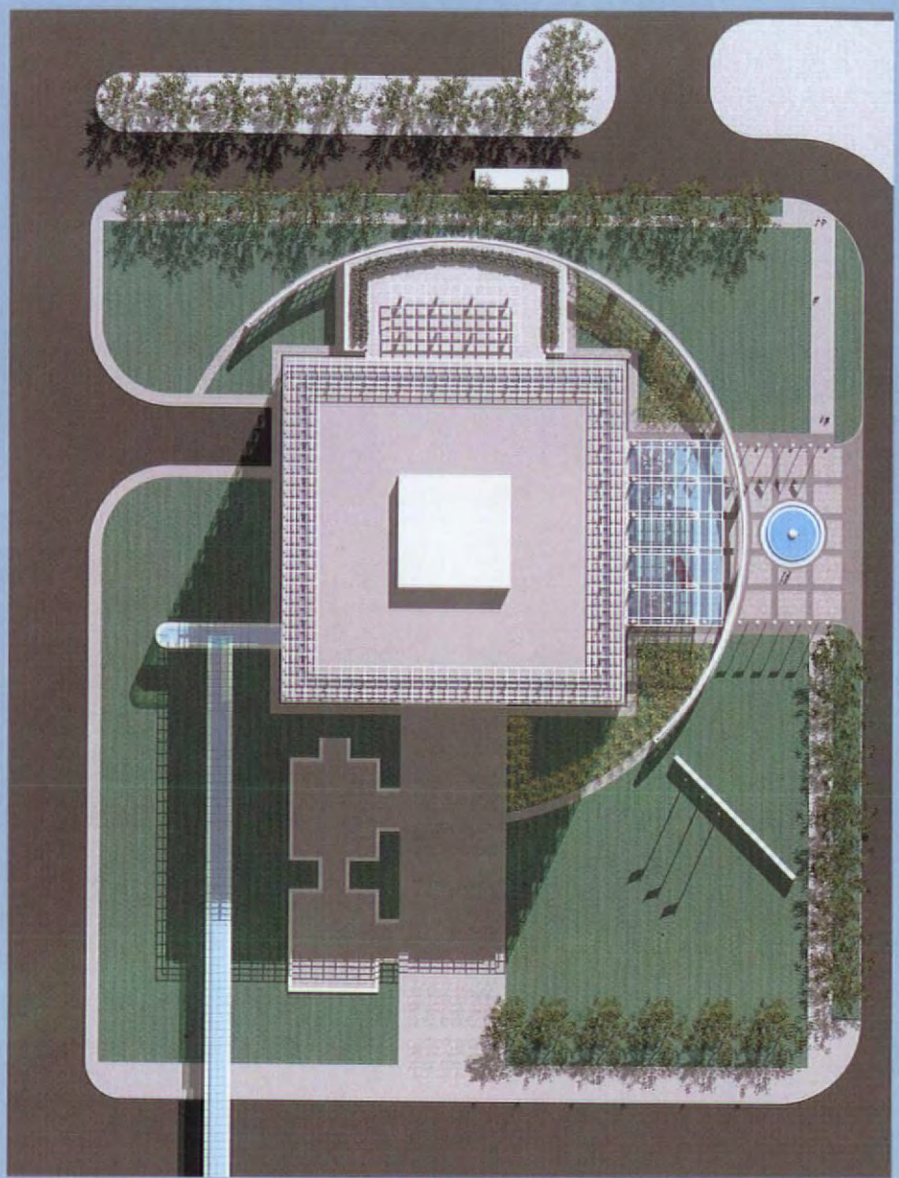
The all-glass exterior opposed conventional wisdom which then held that energy economies could only be achieved by reducing the proportion of glazed surface. Between two glass walls forming the building skin, automatically controlled louvres transform the building shell from fully transparent during occupied hours to a fully opaque, insulated condition during unoccupied periods. The louvres allow extensive use of daylighting through excellent diffusion of sunlight. At the same time they provide outstanding heat shielding of the interior through near-perfect solar shading. In addition, the four-foot space between the glass is vented at all floors, creating a continuous thermal chimney around the building perimeter. By controlling air movement within the vented space, heat is collected or purged, depending on building demand.

Challenge

With Occidental planning to relocate the centre's current functions, Cannon was commissioned to study various reuse options.

Solution

Cannon found that the building's modernist orthogonal massing – large bays and 45-foot clear span with column-free interior – made it well-suited as a suites hotel. Equally attractive are unobstructed views to Niagara Falls and a 2.3-acre site that can easily be fitted with pools, restaurants, and other amenities. One day the louvres, as much a design element as an engineering device, could be controlled by guests to customise room environments.



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2

1: Site plan showing the addition of facilities around the existing building

2: Computer image of new hotel entrance

3: Rendering of the converted building showing how it retains the lightness of the original

4: View of the existing building from the aerial walkway. The integrated louvres are clearly visible

5: The existing building at night

Barbara Elliott Martin

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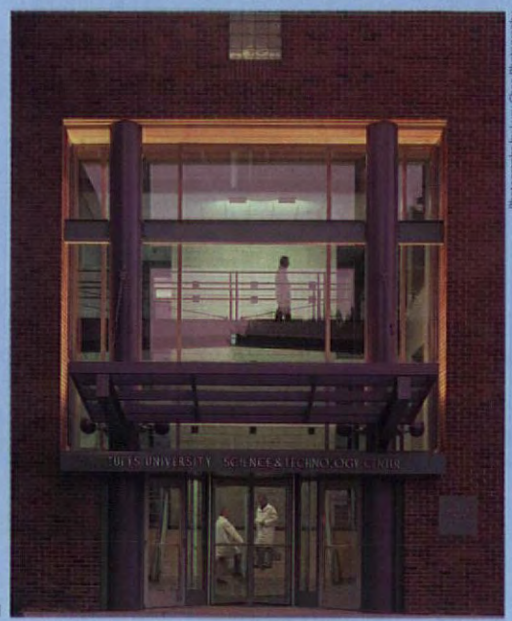
Barbara Elliott Martin

5

Tufts University Science and Technology Centre



1

Photographs by Lucy Chen Photography

Brief

Funded partially by a grant from the Department of Energy, three former warehouse buildings, the oldest dating from the 1920s, were renovated and adapted for use as a multidisciplinary science and research centre.

Challenge

Condensed Matter Physics, High Energy Physics, Chemical Engineering, and the Electro-Optics Technology Centre were to occupy the facility, sharing programme spaces such as clean rooms, factory assembly shop areas, laboratories, and a fully-equipped conference centre.

2

Solution

Warehouse imagery combined with the technological nature of the facility creates a stylised, industrial motif. Throughout the building, elements from structural, mechanical, and electrical systems are left exposed, an aesthetic expression of the building's function. Public areas are a focal point of the facility, especially the two-storey lobby, an inviting space designed as counterpoint to the solitude of the laboratory. A pedestrian bridge, visible from the street, spans this forum linking research areas at the second level.

The Science and Technology Centre at Tufts University illustrates that adaptive reuse, when thoroughly conceived, can add value far beyond programmatic goals. According to Robert Guertin, Dean of Graduate Studies, "Tufts not only added to its research space inventory, but it also contributed an attractive building addition to the neighbourhood adjacent to the campus." As a tool of urban renewal, the reborn Centre has been a stabilising influence on property values in the surrounding community.

The Centre was built at a cost per square foot less than half that of new construction and received the Boston Society of Architects Honor Award for Design Excellence.

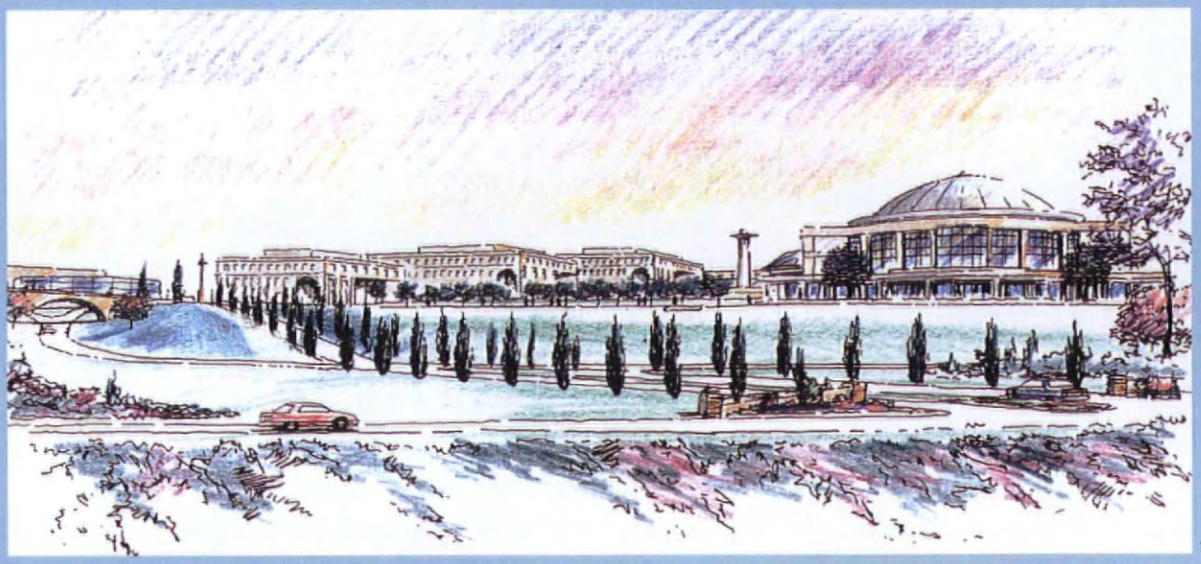
1: Original warehouses and modern materials mix to create a stylised industrial aesthetic

2: Structural, mechanical and electrical elements are left exposed throughout the building

3: The entrance lobby acts as a meeting place contrasting with the solitude of the laboratories

3

Sabanci University



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Brief

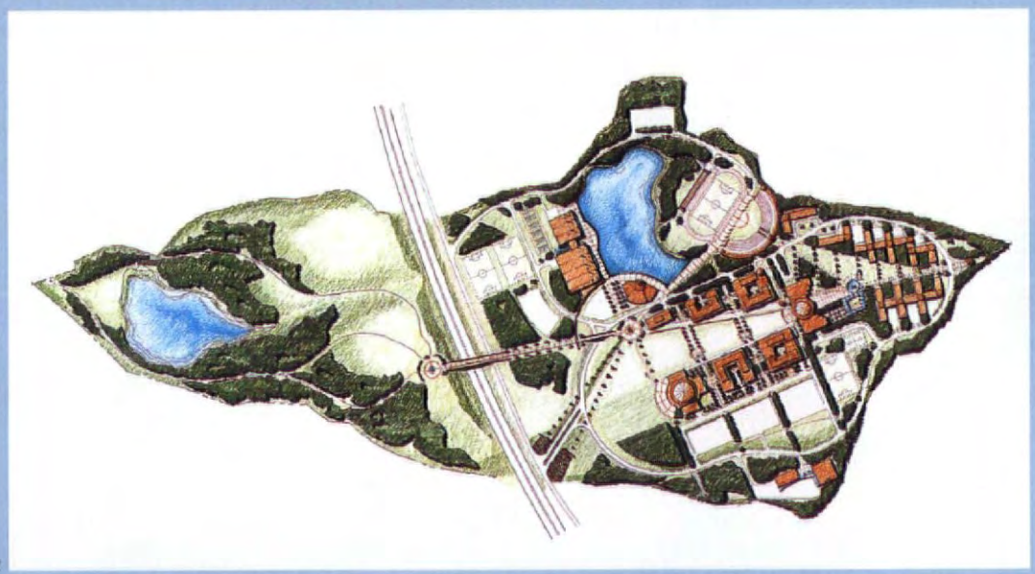
Sabanci University, named after its chief benefactor, is an entirely new institution dedicated to higher education on the outskirts of Istanbul.

Challenge

As a result of a winning entry in international competition, Cannon was granted the singular opportunity to plan and design a new institution rich in the forms and materials that mark a Turkish design vernacular.

Solution

The spirit and character of the 230-acre campus derive from the work of Sinan, imperial architect of the Ottoman Empire. Hallmarks of his design vocabulary, including shaded arcades, courtyards, and geometric symmetry of building forms, are incorporated into facilities that will compete with the most technologically advanced universities in the world. The same principle that drives the architectural context – the need to balance and bridge contrasts – is fundamental to the planning and design of the entire campus. Considerations balance a fluid world vision driven by technology versus a cloistered and physically separate academic environment; an interdisciplinary educational approach versus an individual discipline focus; the high visibility of an institution seen from a heavily-travelled roadway versus the creation of a sense of community appropriate to a university setting. The University is being built in two stages over a five-year period, with an initial enrollment of 3,000 students in Engineering, Management, Arts, Social Sciences and Language programmes. A 400,000-volume library, one of the largest in Turkey, is the symbolic centre of the campus, surrounded by the University centre, academic facilities, student and faculty housing, and a full range of indoor and outdoor facilities for sports and recreation.



2

1: The architects took the work of Sinan as a starting point in the design of the new university

2: Site plan shows the extent of the new development

St Vincent's Medical Centre

Brief

Over the past 20 years, St Vincent's Medical Centre has remained committed to a facilities development programme that will ensure continued leadership among healthcare institutions in the southeastern USA. Cannon has been a close partner with the Medical Centre in achieving this goal, effectively rebuilding the 500-bed tertiary care centre within the boundaries of the existing campus.

Challenge

Assignments have covered the full range of facilities for healthcare delivery from development of the original facilities master plan to the design of new inpatient and intensive care units, parking ramps and service support buildings, emergency and women's care centres.

Solution

The nine-storey De Paul Building is distinctive for establishing a new image for the institution while providing 160,000 square feet of high density space that meets dual functional requirements. Developed as a joint venture between hospital and private interests, three storeys of the structure interconnect directly with the Medical Centre, enabling expansion of patient services. Four upper levels, served by a separate entry, house physicians' offices in a condominium arrangement. Linked to the building is a 500-car parking ramp that can be converted to office or treatment space as needs dictate. Placed on street axis, the De Paul Building is partially elevated, creating a covered plaza that frames views to the St John's River beyond and creates a grand point of entry to the entire healthcare complex. The building's formal considerations relating to pattern and form consist of overlapping rectangular grids enriched with colour, with a more formal facade facing the street than on the riverside where the structure's curvilinear form follows the shoreline.

Additional components of the master plan which have recently been implemented include the four-storey Clinical Services Building and a complete reconfiguration of nursing units that has entailed the building of a five-storey addition.

Kathleen McKenzie

1

1: The nine-storey De Paul Building helped establish a new identity for the Medical Centre

2: Facilities are at the forefront of medical technology

3: The newly-built Clinical Sciences Building

Robert Pettus

2

Robert Pettus

3

Myrtle Beach Convention Centre

Brief

To maintain its stature as a major tourist and convention destination, the City of Myrtle Beach undertook an ambitious building programme to upgrade its ageing convention centre.

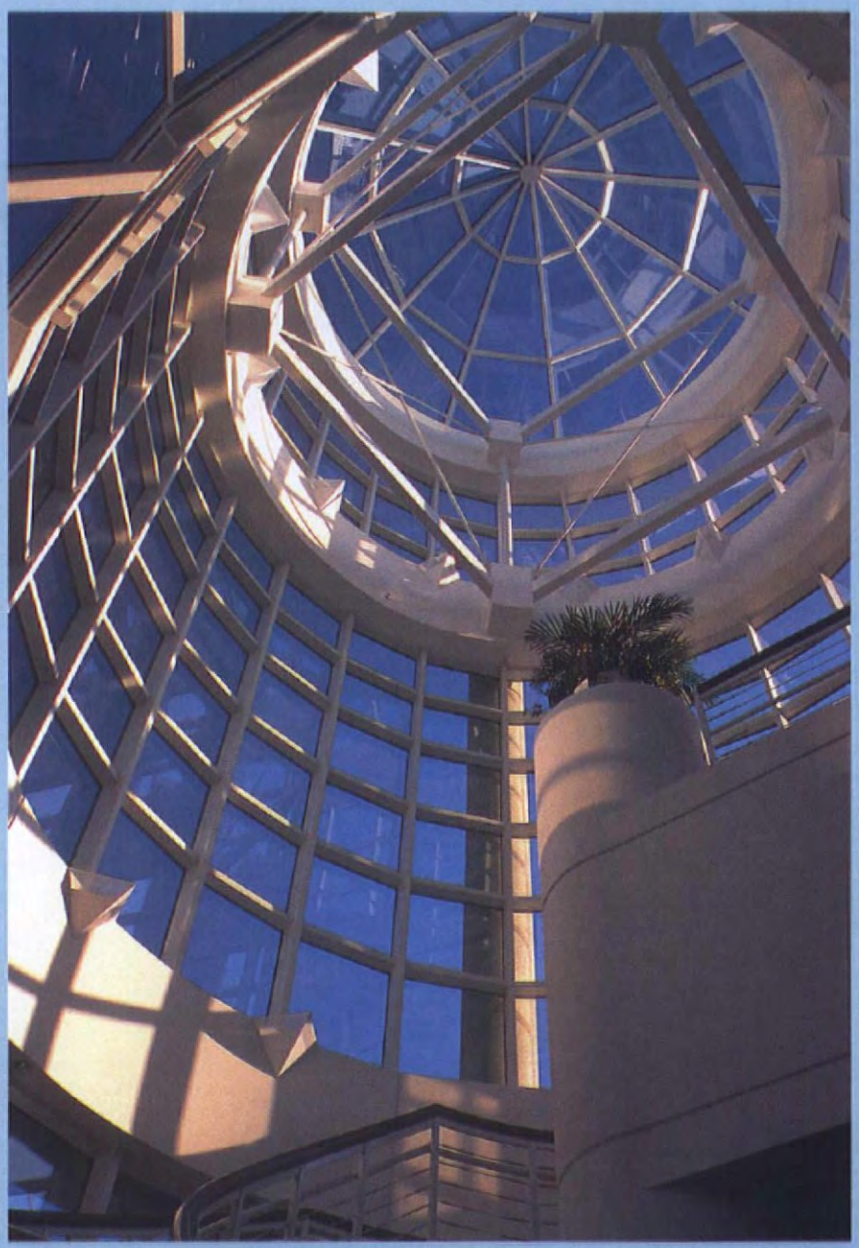
Challenge

Cannon's winning entry in a national competition resulted in the commission for this $23 million expansion and renovation programme, virtually tripling the size of the facility.

Solution

The new addition is set at a 45 degree angle to the existing facility, eliminating congestion at the main entry road and preserving mature stands of trees around the facility. New landscaping included a formal front court with a reflecting pool. Distinctive exterior features include two cylindrical glass towers serving as beacons to anchor the dramatic sloping glass facade. A continuous plaza with inviting lighting, landscaping and benches surrounds the Centre.

The extension includes a column-free exhibit hall with an interior clear height of 35 feet that can be subdivided into three spaces, each served by separate public and service entries. A two-storey glass-enclosed atrium lobby accommodates such pre-function activities as reception, registration and gallery exhibits. Renovation of the existing auditorium created an 18,000-square foot ballroom for large banquet gatherings, smaller assembly events, and lecture/meeting room functions. In keeping with its high profile and elegant atmosphere, the ballroom has its own prefunction area to accommodate special event, "black-tie" receptions.



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1: View up through one of the corner towers

2: Twin towers frame the sloping facade which is fronted by a continuous plaza

2

Photographs by Fotel Inc.

Motorola AIEG

Brief

Cannon's original mandate called for a total delivery of design and construction services for a large production facility.

Challenge

Completion of all project activities from programming to occupancy was required within 13 months. Moreover, for a leader in the manufacture of advanced automotive electronics, a design process that reinforced its internal quality objectives of empowerment and total customer satisfaction was as important to Motorola as the design image.

Solution

The Motorola AIEG facility represents a benchmark partnership of collaboration between Cannon and this winner of the Malcolm Baldrige National Quality Award. The facility's design uses industrial building elements in a powerful, yet simple and cost-effective composition focused upon the neighbouring expressway. Set on a promontory that makes it visible for a great distance, the 200,000-square-foot building is positioned to appear impressive to motorists passing at high speed. Upon entering the property however, extensive use of strategic plantings and earth berms creates an intimacy more in scale with the surrounding pastoral areas. Exposed air-handling units serving the production area within the manufacturing plant are treated as key design elements, clustered along the entry axis at the building edge. Contrasted with the all-white taut metal skin, their distinctive shapes engage in a striking dialogue with the sleek envelope.

In plan, advanced manufacturing and assembly operations flank centralised shipping and receiving areas and are directly accessible from technical support areas, reflecting collaborative efforts of the client and the design team to optimise production flow. The interior spaces are suffused with controlled natural light, with glazing positioned to afford views to the countryside throughout the interior environment. The two-storey administrative wing houses the employee cafeteria which overlooks a man-made retention pond, protected by one of the numerous landscape berms created to screen the mass of the building from the surrounding properties. Linking both elements of the plan – manufacturing and office wings – is a glass-enclosed atrium, a galleria space and dramatic focal point overlooking the nearby pond and distant highway.

Expanded several times since its original opening, the strong image that won an AIA First Prize for Design Excellence has been maintained at each stage of development. Cannon has also received an ASHRAE award for innovation and excellence in its engineering design of the project.

Photographs by Patricia Layman Bazelon

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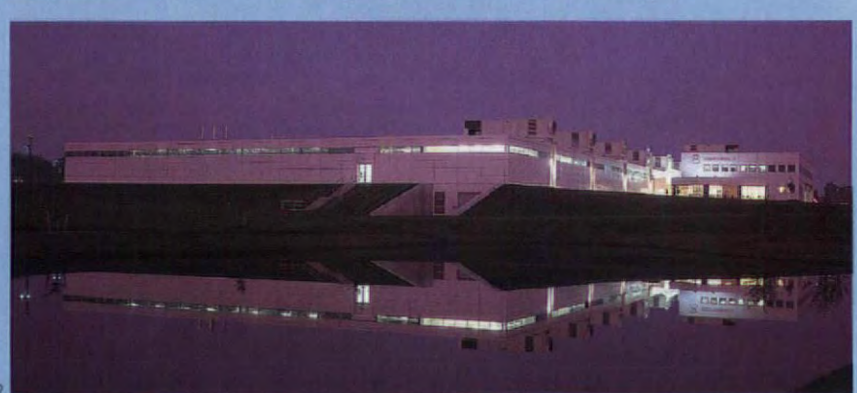

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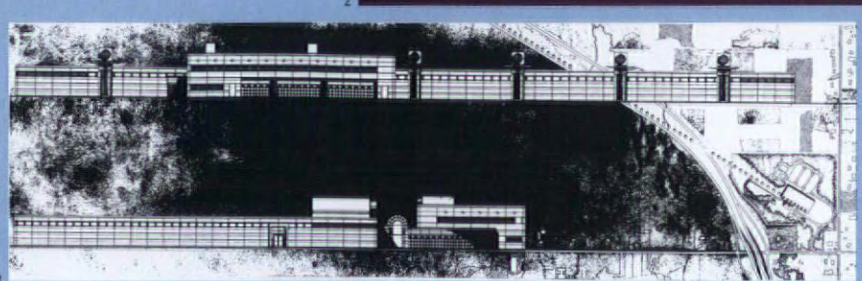


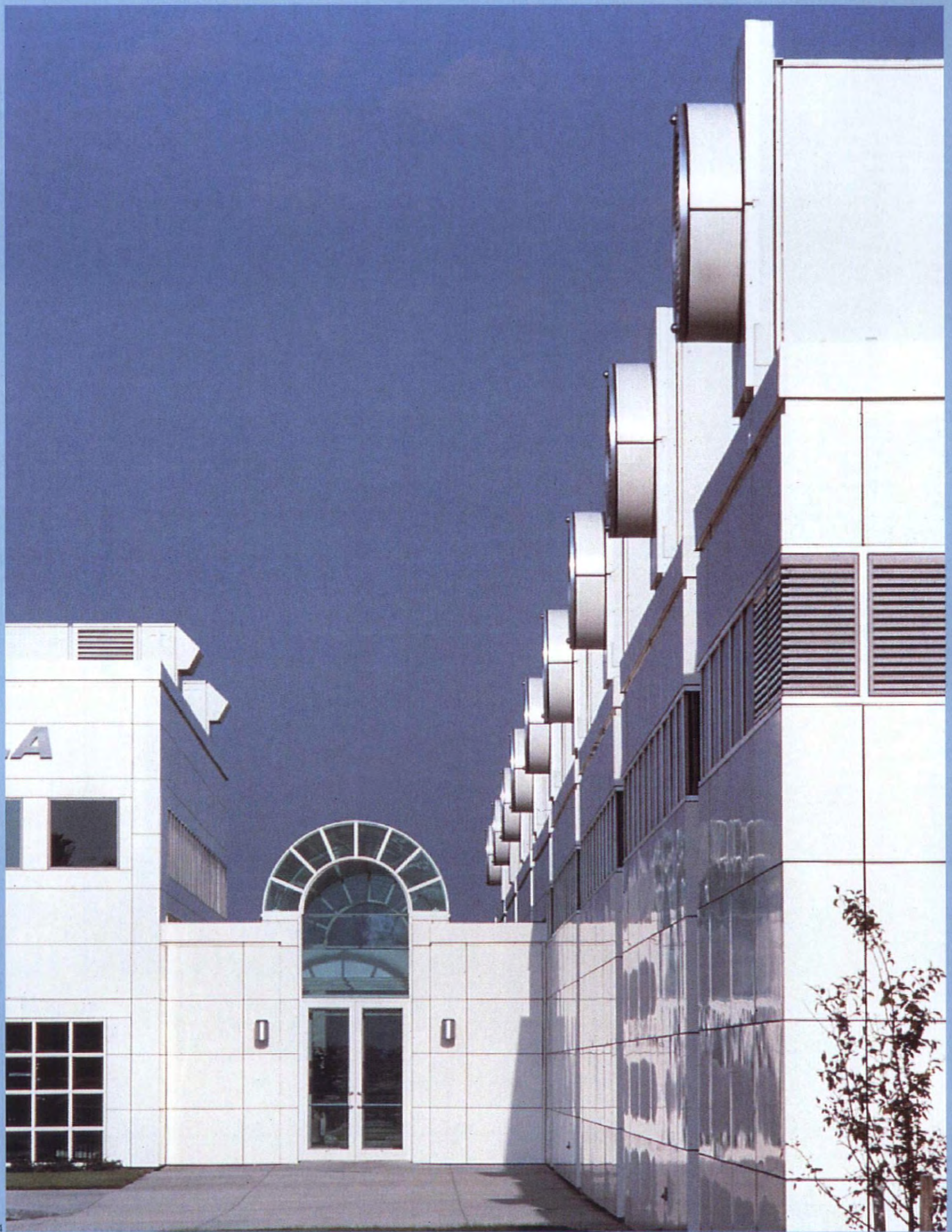
3

1: Great use is made of natural light throughout the sleek interior

2: Elevations show clearly how the air handling units have been used as key design elements

3: The simple but striking form of the facility is visible from a great distance

4: Industrial elements used in a powerful, simple and cost-effective way



4

Boston University Centre for Photonics Research

Brief

Uniting University and Industry in a model partnership, the Centre is dedicated to developing and commercialising new products for the photonics industry – the emerging technology of generating and harnessing light and other forms of radiant energy. According to the Centre's director, Dr Donald Fraser, formerly Under Secretary of the US Department of Defense, the aim of the Centre is "to take this new technology out of the laboratory and make it work in the real world."

Challenge

The centrepiece of this effort is a 270,000-square-foot, nine-storey building featuring advanced laboratories, a business incubator, specialised classrooms, lecture hall, seminar rooms, and library. Experimental, design, and developmental resources include a full suite of clean room and vibration-free facilities with telecommunications, teleconferencing, and interactive data transmission systems to support initiatives originating within the Centre, as well as those from commercial partners.

Solution

Sited on a major axis of the campus, the building's massing and materials complement the surrounding context. Four symmetrical setbacks on storeys rising above more modest neighbouring townhouses help mitigate the considerable scale of the building. The location of the main entry, on a short flank wall, is highlighted through the use of rusticated pre-cast cladding, framed window elements thrust outward beyond the facade, a glazed entrance, granite stairs flanked by sentinel lights, and fibre-optic signage. A symbolic 85-foot "light mast" adorning the facade is highly visible not only from the campus but also from the adjacent Massachusetts Turnpike, a major point of entry to the City of Boston.

Project sponsored by the US Department of the Navy, Office of Naval Research. The information given above does not necessarily reflect the position or the policy of the US Government, and no official endorsement should be inferred.

1

Photographs by Mandelkorn Photography

1: Four symmetrical setbacks help mitigate the scale of the building

2: Rusticated precast cladding and projecting windows define the entrance facade

3: Glazing and upper storey details

2

3

Boston University School of Management and Administrative Centre

Brief
The $104 million, Rafik B. Hariri Building is the largest project ever undertaken by a school of management.

Challenge
Boston University's new School of Management Building, expressing the school's restructured team learning/team teaching academic programme and quest for total excellence, is designed as a total quality facility. According to Louis E. Lataif, Dean of the School of Management, quality will be measured by the School's product (graduates), services (teaching and research), all aspects of its operations, and, ultimately, customer satisfaction. This building is designed to optimise these principles.

Solution
The physical arrangement of facilities within the nine-storey building is designed to be "customer friendly" for the School's 3,400 students and 200 faculty and staff. A central atrium provides a dramatic entry and serves as a common open space throughout the six floors occupied by the School.

Student services – academic programme offices, career planning and a 375-seat auditorium – are located on the first floor for easy access. On the second and third floors are the instructional spaces, while the 350-seat library is stacked on the second, third and fourth floors. The fourth floor houses the executive training programme, where classrooms, seminar rooms, break-out rooms and an executive dining room accommodate courses and conferences for senior managers from all over the world. Faculty offices, the Dean's suite and alumni offices are located on the fifth and sixth floors, with offices randomly assigned to encourage interaction and collaboration between academic disciplines.

Advanced communication systems are incorporated throughout the building. The use of interactive video equipment enables "guest lecturers" from remote locations thousands of miles away to engage in visual/audio dialogues in the classrooms. An electronically-displayed scheduling system with monitors throughout the building encourage rapid communication. The building's extensive computer network includes more than 2,000 computer ports, linking nearly every seat in the building to the main university system, as well as to networks of universities and corporations throughout the country.

In addition to the School of Management, the upper three floors are home for Boston University's Central Administration, including the offices of the President and the meeting spaces for the Board of Trustees. The project includes three-levels of below-grade parking.

ESTO/Peter Aaron

1

1: The dramatic six-storey atrium serves as common open space for the whole building

2: Boston University's new School of Management, a "total quality facility"

Mandelkorn Photography

2

Works for Boston University

Boston University is committed to an ambitious building programme to support its academic mission, seeking to develop a complex that will merit national acclaim. For over a decade, Cannon has been a close partner with the University in implementing this vision, designing over 25 projects including those highlighted here.

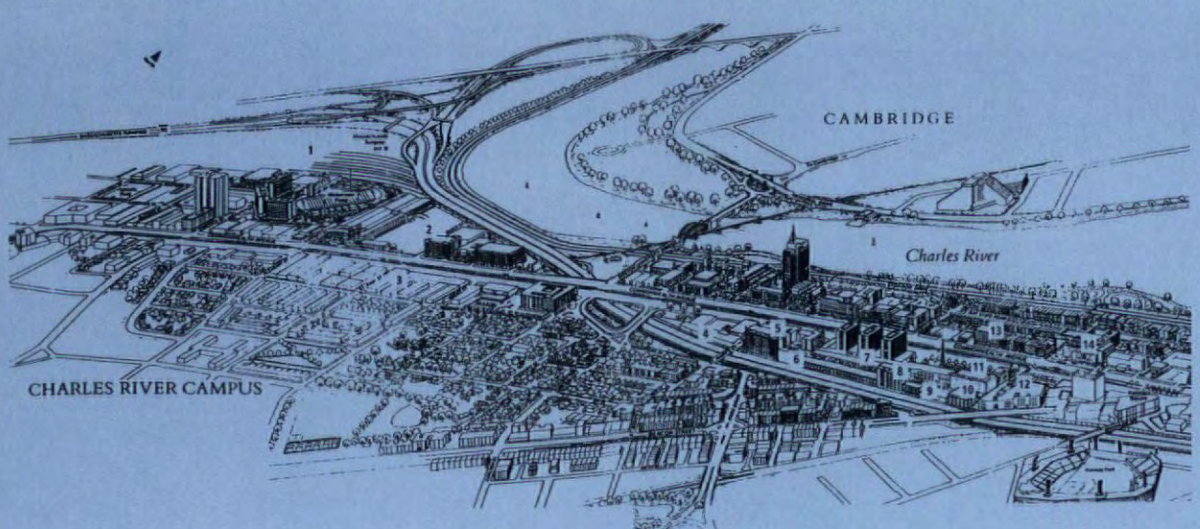
Bob Kramer Studio

Production Technology Centre

Description

Through adaptive reuse, two 1920s-era parking garages now house the Production Technology Centre, a manufacturing engineering research facility that unites a working industrial floor for advanced technology and equipment with the expertise of academicians and scientists.

According to Peter Z. Bulkeley of the University's Manufacturing Engineering Department, Cannon was able to "...capture the spirit of the building that is at once a laboratory and a factory." A "high bay", measuring 28 feet by 122 feet and reaching to the top of the structure, is the focal point of the facility, visible anywhere from a second-floor walkway. Conference rooms overlooking the bay feature fully-equipped video capabilities, enabling the Centre to broadcast seminars on the latest technologies and processes, many the result of on-going research.



Trustees of Boston University

Key to Cannon projects

1 Sports master plan
2 Proposed dorm project
3 Centre for English Language Orientation Programs
4 Production Technology Centre
5 Centre for Photonics Research
6 110/112 Cummington Street
7 Mathematics Department
8 College of Engineering
9 Cantor Smith Lab
10 2 Cummington Street
11 Biology-Physics Department
12 Metcalf Centre for Science and Engineering
13 Sargent College of Allied Health Professionals
14 School of Management

Lucy Chen Photography

Cantor Smith Laboratory

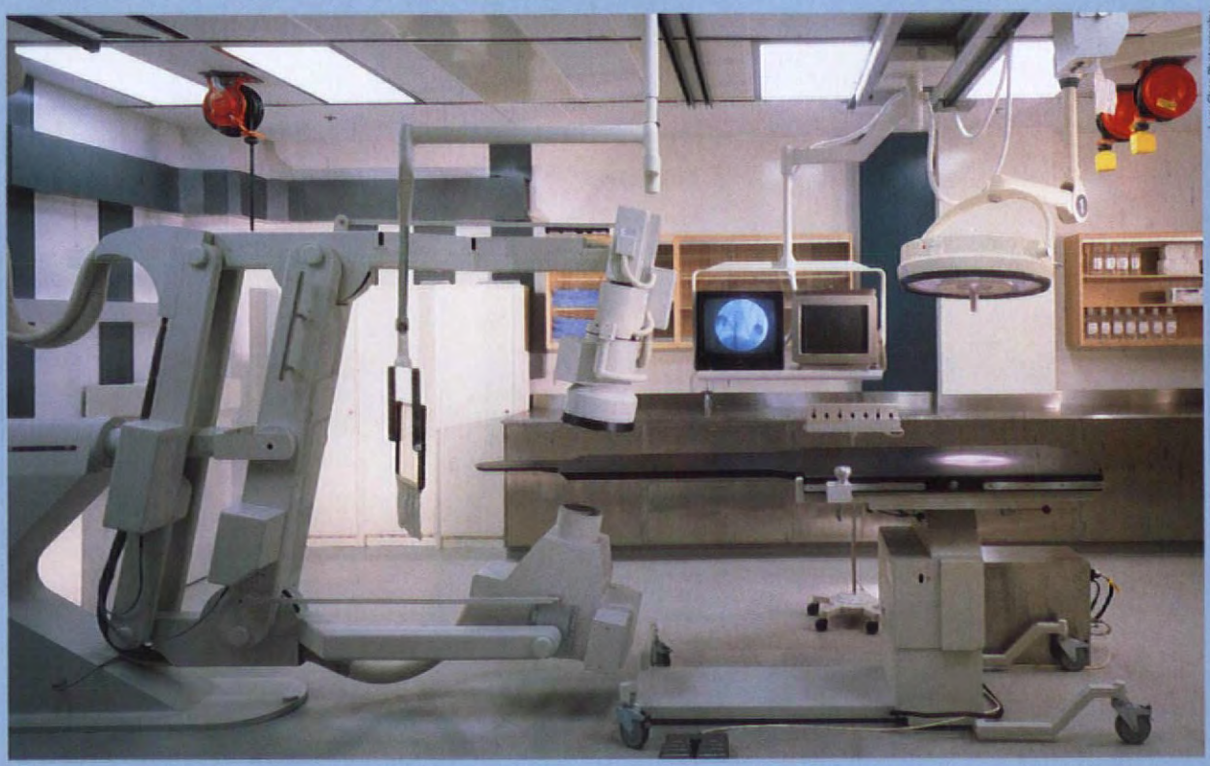
Description

The first biomedical research facility on Boston University's main campus, the Cantor Smith Laboratory is dedicated to genetics and AIDS research. An 80,000-square-foot, three-storey building was renovated to accommodate research laboratories, offices, conference and computer facilities, and other specialised support areas.

Centre for Advanced Biomedical Research

Description

The Centre for Advanced Biomedical Research, a 200,000-square-foot facility, provides advanced technological support for a variety of programmes in urology, human genetics, cardiothoracic and general surgery, dental, and biophysics research. The nine-storey facility is particularly noteworthy for its Laboratory Animal Science Centre (LASC), considered among the world's most advanced.



Lucy Chen Photography

Centres for Disease Control & Prevention
National Institute of Occupational Safety and Health (NIOSH)

Brief

Under the leadership of the CDC, the National Institute of Occupational Safety and Health (NIOSH) is charged with the task of ensuring that federal legislation keeps pace with research in workplace and environmental issues. Built to replace outdated facilities and aid in the recruitment of talented investigators, the NIOSH laboratory shares a campus setting with West Virginia University Medical Centre and ALOSH, an allied research agency with a similar but regional focus.

Challenge

The five-storey facility is a new gateway to the campus and site circulation has been carefully reorganised to emphasise the prominence of the building atop a sloping hillside, symbolic of the international stature of the organisation.

Solution

Inside, NIOSH provides the technologically sophisticated environment supportive of world-calibre research and, through linkage to the existing ALOSH facility, acts as a catalyst to promote scientific exchange and interaction between the two agencies.

A dramatic three-storey skylit atrium functions as the heart of old and new structures, creating a dynamic visual transition between the two, and flooding the interior lobby and dining areas with natural light. While the first floor is dedicated to administrative, reference library and educational facilities open to the University and public, upper floors house highly specialised research programmes. Laboratories line the perimeter of one wing of the L-shaped building and offices the other, capturing natural light and outdoor views. Sky-bridge connections between facilities and common areas for study, training and conference are consolidated at the union of two wings, encouraging dialogue and collaboration among the researchers. At ground level, terraces, plazas and courtyards offer opportunity for informal gatherings of staff and visitors while linking interior and exterior environments.

Photographs by Creative Sources Photography

1

1: The building acts as a new gateway to the campus

2: Dining area and lobby are flooded with light through the full-height glazing

2

Centre for Environmental Services and Technology Management (CESTM)

Brief

CESTM is a public/private partnership combining one of New York State's Centres for Advanced Technology with research, teaching and commercial applications related to the environmental sciences.

Led by the State University of New York at Albany, and supported by the Empire State Development Corporation, the US Weather Bureau and private industry, the project was launched through an invitational design competition.

Challenge

Cannon's winning submission is designed to express the pathway of technology transfer, from research and development, to incubation and public dissemination, in a sweeping form that culminates in a 115-foot-high communications tower that is both a functional and symbolic focal point.

Solution

Positioned at the corner of one of the city's most active crossroads, CESTM is the first physical expansion of the University beyond its original campus. As a result, the Centre has become an instant landmark, noted for its inventive geometry and striking ribbed metal and green glass skin.

Enhancing its mission as a showcase of technology, the Centre has also been designated as a photovoltaic (PV) demonstration project by the New York State Energy Department and is believed to be one of the largest building-integrated PV assemblies in the US. Incorporated along the full extent of the building's glazed southern facade, these assemblies simultaneously act as solar shading devices, substantially reducing building cooling loads.

In addition – and separate from the building itself – an array of free-standing PV pylons has been strategically integrated into the site design to define the building's entry court in a gesture of technological embrace.

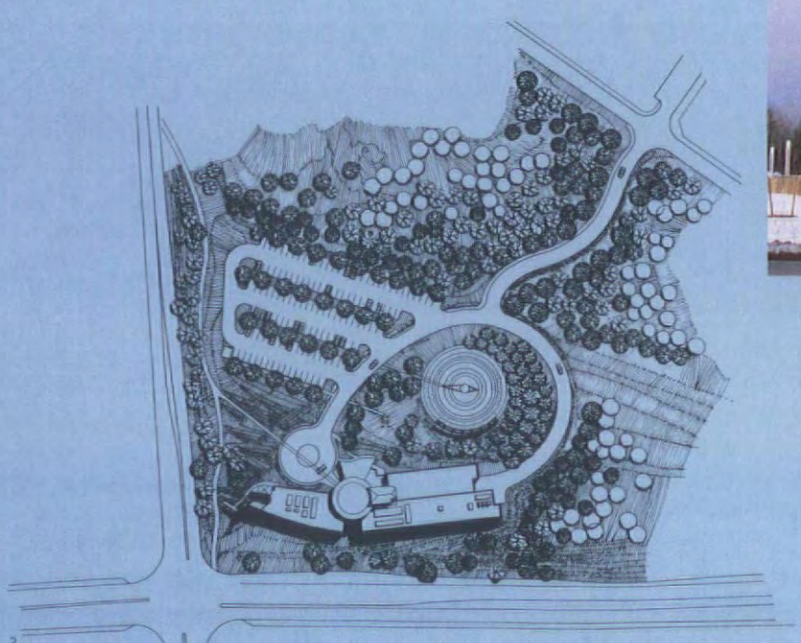
Photographs by Brian R. Burt Photography

1

2

1&2: Striking geometry and ribbed metal and green glass exterior finishes have made the building an instant landmark

3: Site plan shows "hinged" building plan



3

University of California San Diego Recreation/Intramural Athletic Complex (RIMAC)

Brief

This Athletic Complex provides facilities for recreation and intramurals, intercollegiate athletics, and performances and events for a university of 14,000 students.

Challenge

The facility was designed to minimise the impact of building mass on the campus while capitalising on spectacular views of the Pacific Ocean and coastal mountains. Organised horizontally by pedestrian malls and vertically by a three-storey atrium with a light-diffusing skylight, the building was developed on four levels to address the 90-foot slope of the site.

Solution

The entry level contains the main recreation components including weight/exercise and multi-purpose rooms and a two-court gym. These components are arranged around a spine terminating in a balcony overlooking the arena. The arena, like most areas of the facility, is built to serve a variety of purposes. Accessed by the public from a separate concourse level entrance, it accommodates 4,000 spectators for basketball and 5,000 for events but can be subdivided to create a more intimate atmosphere for crowds of varying size. All seats are retractable, releasing the entire floor for basketball, volleyball, badminton, recreation and intramural courts.

A middle level contains eight racquetball courts, two squash courts, lounge and locker facilities and an equipment issue area that controls access to the outdoor fields. This level is linked to the arena concourse which also serves as an indoor jogging track. The upper level, accessed directly from the lobby, houses administrative offices and commands a view of the outdoor fields, mountains, and ocean.

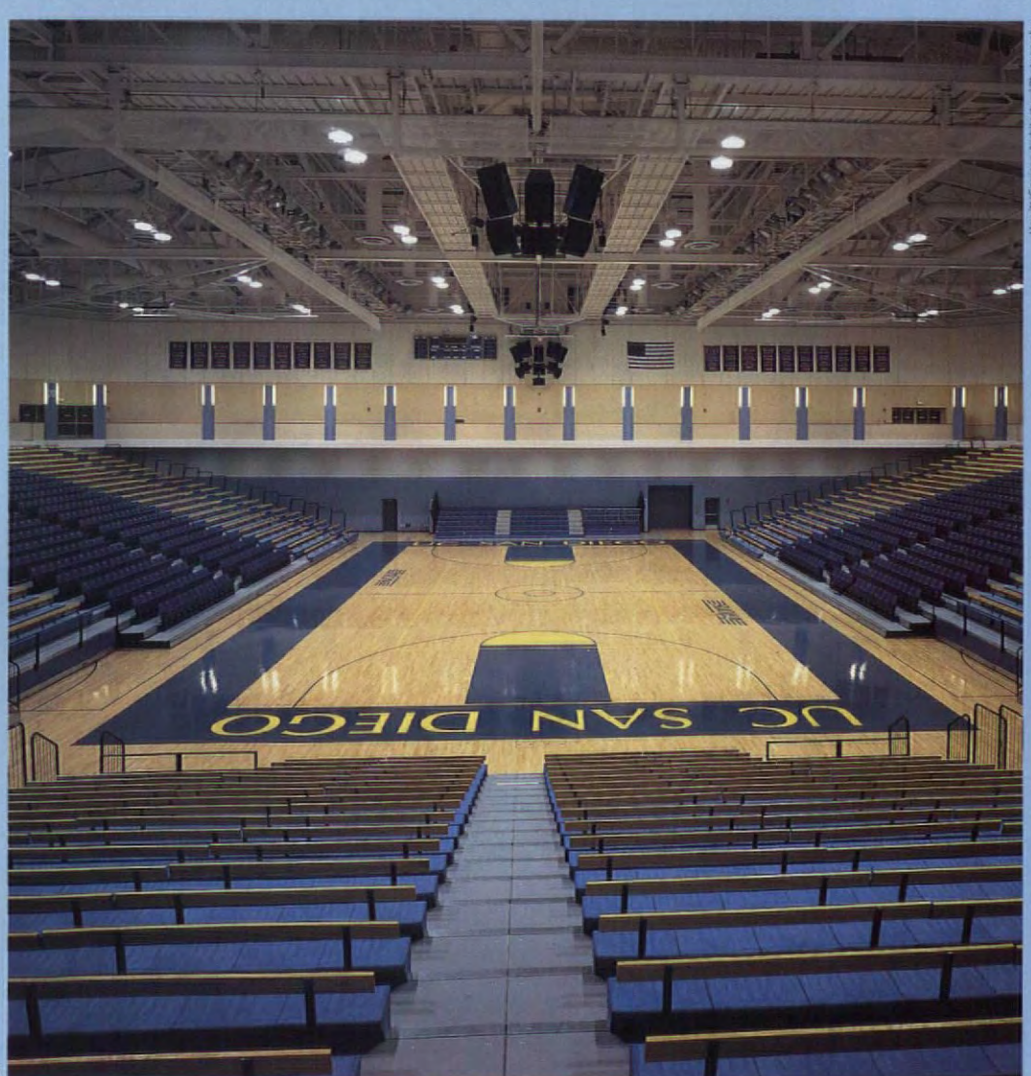
In awarding the project first place for design excellence, a jury of sports experts noted the successful integration of many different kinds of space, as well as the building's openness and use of natural light. One jury member called it a "very inviting building, with handsome use of materials. It's a well-executed design that makes excellent use of topography to address building scale, function and circulation."

Steve Simpson

1

1: The facility is built on four levels in order to take advantage of the slope of the site

2: The main arena can seat up to 5,000 people, or can be divided into smaller areas. All seats are retractable



Hewitt/Garrison Architectural Photography

2

Whitby Mental Health Centre

Brief

Whitby Mental Health Centre is the most comprehensive project of its kind undertaken in Canada in the past 25 years. Serving a catchment area of 2.1 million or 20 per cent of the Province, Whitby reflects the most progressive currents in psychiatric healthcare for the seriously ill. The campus consists of seven inpatient buildings with 325 beds and 14 nursing units that offer specialised treatment regimens. Six diagnostic and treatment buildings supporting these treatments serve both inpatient and outpatient needs. All are linked by a 1,500-foot-long enclosed gallery or "street", allowing the hospital to function as a linear village.

Challenge

The existing hospital, built in 1916, was organised as a campus of free-standing patient cottages that emphasised the therapeutic benefits of sunlight, access to nature, and identity of the residential unit. The new complex was required to retain these positive characteristics, while condensing the entire facility into a single two-storey structure to achieve economies of scale through centralised operations.

Solution

The arrangement of elements is designed subtly to establish a sense of community while providing privacy for the patients, many of them long-term residents. A skylit main lobby serves as lounge and metaphorical town square, giving access to public areas: administration, chapel, gift shop, auditorium and dining hall. Patient care and support units are aligned along the street in alternation with easily accessed courtyards. Where the street emerges between buildings, it becomes a glass-enclosed pavilion, providing orientation and views to the surrounding park and nearby Lake Ontario. The success of this plan was acknowledged by Modern Healthcare which cited the facility for "an absolutely fantastic job of taking a half-million square feet into a residential scale."

The design solution is, in part, the result of an unusually exacting international competition and the recipient of numerous awards. Joint venture architects were Crang & Boake/Cannon/Moffat Kinoshita.

Patrick Kennedy

1

Patrick Kennedy

2

Steven Evans

3

1: Part of the 1,500 foot-long internal "street" that serves the entire complex

2: The new hospital manages to take half a million square feet into a residential scale

3: Model view shows the combination of pavilions and courtyards

Facilities master plan for Janssen Pharmaceutica, NV

Brief

The strategic directives of Janssen Research Foundation, an arm of Janssen Pharmaceutica, include maintaining the position of Johnson & Johnson, the parent firm, among the most respected pharmaceutical companies worldwide. To accomplish that objective, Janssen commissioned a facilities master plan to leverage their investment in existing facilities and position future initiatives to best serve research requirements.

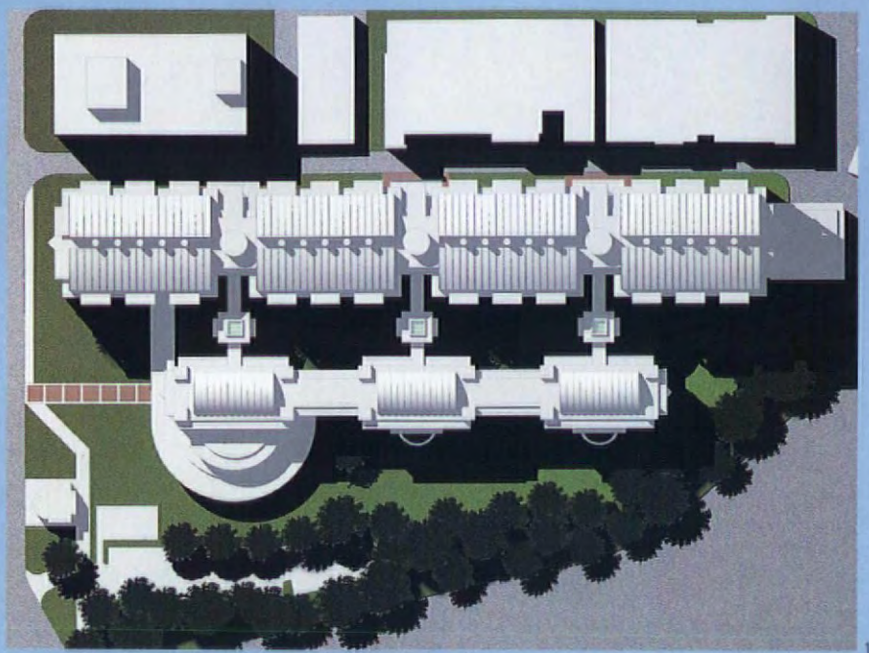
As part of this master plan, Cannon developed a series of concept alternatives that included building massing, engineering systems, floor layouts, and implementation schedules for a new research centre, renovation of existing laboratory facilities, addition of office space, and programme for infrastructure improvements.

Challenge

Because any new research centre and administration building would be highly visible as a gateway to the campus, design image was a key consideration.

Solution

Implementation strategies for the centre focused on constructability, economy, and operational efficiency. The use of strong geometries, multiple symmetries, and repetitive elements all contribute to the design vocabulary, minimising the scale of this 500,000-square-foot facility on the surrounding campus. In addition, Cannon developed a campus master plan for office and support space that includes a new four-storey administration building, multi-purpose fire station, infirmary, control building and a 600-car parking ramp. Cannon provided architectural/engineering design and master planning services, consulting to SST Planners.

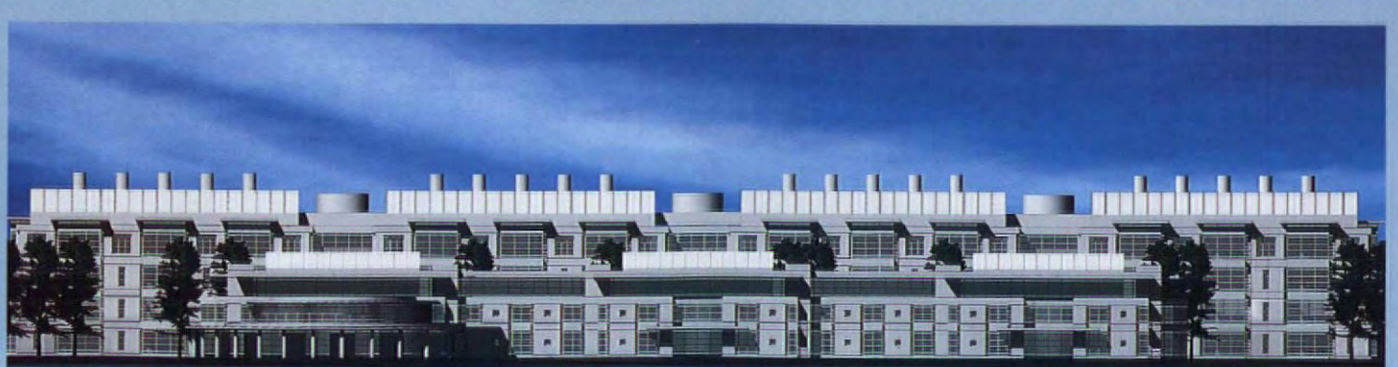


1

1&3: Multiple symmetries and repetitive elements help minimise the scale of the building

2: Design aesthetics were a key consideration for this "gateway" building

2



3

NCR Corporation

Brief

These projects represent Cannon's development and implementation of design standards for a planned series of coast-to-coast regional sales offices for NCR Corporation, highlighting completed facilities in New York and San Francisco.

Challenge

To serve the marketing objectives of this Fortune 100 provider of global information and communications technology, the designers set out to capture the spirit and personality of NCR's high-tech organisation, creating office environments that would enhance sales productivity while providing an exciting venue for display and demonstration of products.

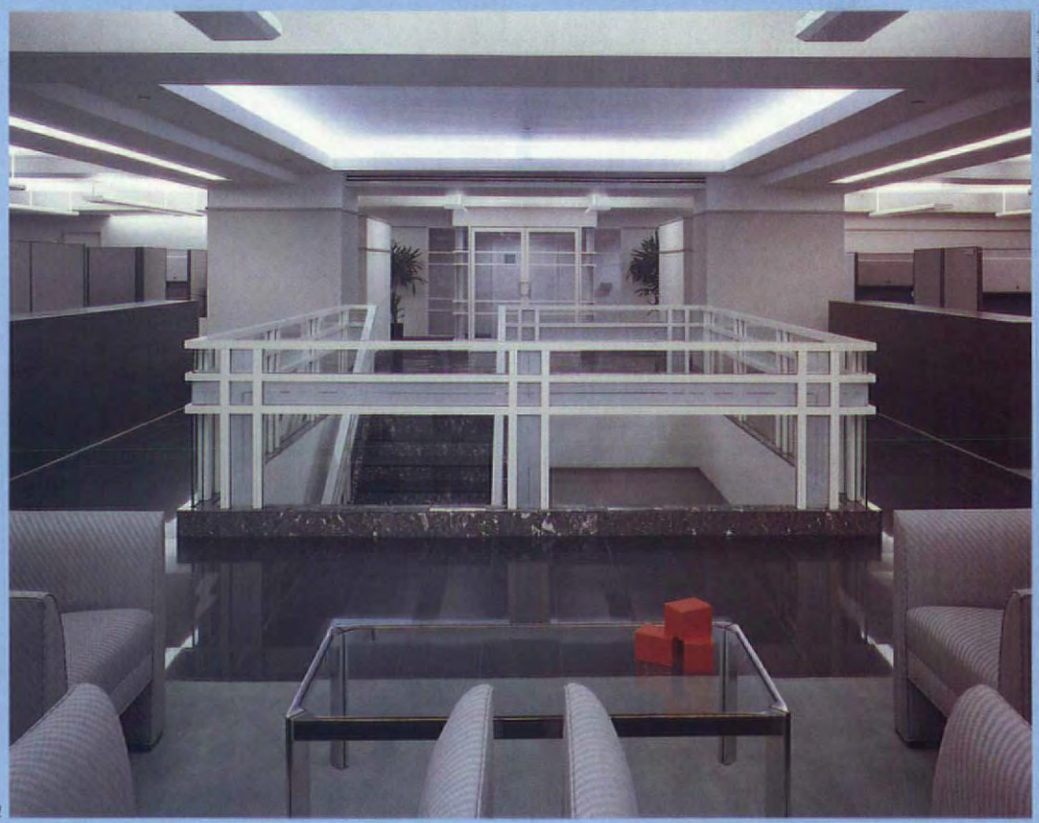
Solution

From the colour scheme of black, white and grey with accents of bright red, to the use of materials such as marble flooring and textured wallcoverings, each office features special lighting, sophisticated finishes, and refined detailing to convey an atmosphere of quality and substance. The NCR corporate symbol – a red square – was transformed into a thematic sculptural cube of corporate identity to complement the rich, subdued tones of public areas.

While conforming to standards, each facility has distinct characteristics that reflect its regional setting. For example, the organisation of the San Francisco office capitalises on dramatic views of the cityscape, while elements of Oriental design hint at the proximity to Chinatown, the city's position as a gateway to the Pacific Rim, and NCR's stature as a technology leader worldwide.

ESTO/Jeff Goldberg

1



Elliott Kaufman

2

1: The NCR logo, a red square, is used consistently as a sculptural element

2: Fine materials and elegant detailing were used to create an atmosphere of quality and substance

Guaranty Building (Prudential Building)

Brief

Celebrated as the first and most important nineteenth-century skyscraper in the history of American architecture, Louis H. Sullivan's 1895 Guaranty Building is noted for its originality of expression in the use of steel skeletal construction. The terracotta facade is an intricate tracery of foliage and geometric design, a lavish ornamentation of materials characteristic of the designer's greatest works.

Over time, the Guaranty faded in popular estimation, deserted by tenants and mistreated by owners who subjected it to misguided remodelling. Cannon led efforts to preserve this National Historic Landmark and was later commissioned to restore the building to the grandeur and prestige that marked its original elegance.

Challenge

The spirit of the architecture had to be preserved while bringing the building up to modern code requirements and standards of accommodation.

Solution

Restoration and preservation efforts were concentrated on the exterior and two lower public and retail levels. Marble mosaic ceilings, floors, friezes and art-glass skylights were restored. Ornamental stairways between the two floors were reopened, re-establishing the original circulation plan. At street level, the original projected storefront was restored.

The upper floors of the 13-storey structure were converted to contemporary office space. To conform to code requirements and provide greater flexibility in the planning of multi-tenant floors, the building configuration was converted to a square, adding rentable space and improving the financial viability of the project.

For its sensitive work on the Guaranty, Cannon received worldwide praise and numerous awards, including the US National Historic Preservation Award and BOMA International Historic Building of the Year.

Patricia Layman Bazelon

1

Patricia Layman Bazelon

2

3

1: Upper floors were converted to modern office space to increase revenue and conform to code requirements

2: Mosaics, glass and woodwork on the ground and first floors were fully restored

3: The ground floor of the Guaranty Building as built

Glen Arden Lifecare Community

Brief

Glen Arden is New York State's first healthcare provider granted permission to establish, construct and operate a lifecare retirement community.

Challenge

Comprised of 163 independent living units and a 40-bed skilled nursing facility, this project is intended to set the standard for retirement living, backed by the resources of a full-scale medical campus.

Solution

The design imagery developed for Glen Arden is that of a grand hotel, similar to the popular and historic resorts surrounding Lake George, but emphasising the residential scale and flavour of the Goshen community itself. A covered entry portico with a veranda above leads to a three-storey atrium, creating a special sense of arrival and the opportunity for visitors and residents to enjoy the majestic vistas of the 35-acre campus.

The complex consists of five building clusters, separated by courtyards with lush gardens, extending from a curvilinear "main street" spine that intersects the circulation avenues of each cluster. The curvilinear layout reinforces strong ties to the site as it follows the contours of the rolling hills, while the main street provides residents with a natural forum for walking, meeting and conversing. Intersections along the avenue serve as locations for elevator lobbies, semi-private lounges and other common areas, encouraging a sense of community.

The apartment units are designed as true private residences. A modular system accommodates differing room and furniture layout preferences, and each unit has its own patio or balcony, offering all residents views to the background hills, courtyard gardens, or manicured landscape foreground.

Photographs by Patricia Layman Bazelon

1: The community consists of 163 units in five clusters linked by a "main street", the curves of which follow the contours of the site

2: The complex is designed in the style of a grand hotel similar to those found in the vicinity

St Charles County Community College

Brief

The College provides a setting for commuter-based post-secondary education for up to 4,500 students

Challenge

"The problem with most community colleges," wrote Architectural Record in its coverage of the College, "is their remarkable lack of community...[This] is a striking exception."

Solution

The parti for this new and rapidly growing institution establishes the character for a 140-acre suburban campus whose master plan, also by Cannon, calls for 15 major buildings and outdoor recreational zones when fully implemented.

Taking full advantage of the rolling site, the campus occupies the high plateau. Three main buildings –the College Centre, the Academic Building, and the Library – are clustered around the campus plaza, encircled by a tree-lined perimeter road with unobtrusive but convenient commuter parking. The positioning of building forms on the site creates linked, internal courtyards, reinforcing a cohesive image of the academic environment.

Three shades of brick comprise the primary cladding, complemented by exposed steel trim and green-tinted windows. The design of individual buildings creates simple rectilinear volumes, intriguing by the manner of their linkage to one another and the manner of their juxtaposition. The interior's straightforward organisation is enriched by the introduction of two-storey volumes and clerestory natural lighting. Materials with a range of transparency, translucency and solidarity help define the character of each building. Extensive use of translucent wall panels provides the interior with natural light during the day and creates a welcoming aura at night.

Portions of the site have been identified as open-land resources for the community when adjoining properties are developed. Campus and individual buildings themselves have been planned in such a way that future expansion will enhance the established environment and respect original planning principles.

1

1: Use of translucent wall panels creates a welcoming aura at night

2: Public areas are used to reinforce the sense of community

2

Photographs by Robert Pettus

3

3: The buildings are clad in three shades of brick, complemented by exposed steel and green glass

4: Brightly daylit, double-height corridors enliven the interior

5: Translucent wall panels and clerestory windows provide light by day and endow the buildings with a welcoming aura by night

4

5

Bassett Clinic

Brief

Cannon was commissioned by Mary Imogene Bassett Hospital to develop a modern ambulatory care centre.

Challenge

Cooperstown, New York is located in a national historic district and the community is keenly attuned to the preservation of its distinctive character. This context presented a distinctive challenge to the design team.

Solution

Nestled into the embankment of the Susquehanna River, the 140,000-square-foot clinic was designed to capitalise upon its hillside topography by minimising the building's substantial mass in juxtaposition to adjacent two- and three-storey historic buildings. Two storeys of the structure are built into the hillside, while three storeys are terraced above grade. A power plant, also below grade, connects the clinic and existing buildings via service tunnel.

The planning concept focuses around a central common space which functions as the building's principal organising element and a focal point for patients, affording views across the river to the surrounding countryside.

In developing the interior concept, designers sought to convey an ambiance more commonly associated with an elegant hotel than a healthcare institution. The selective use of marble, natural wood, coffered ceilings, indirect lighting, and display of regional folk art and photography creates an atmosphere of restraint and refinement.

The centre's many outpatient clinics use a modular design, emphasising the use of repetitive exam rooms and nursing station layouts. This arrangement enables individual clinics to expand into adjacent spaces to meet changes in service utilisation and demand.

Photographs by David Lamb Photography

1

1: Two of the Clinic's five storeys are built into the hillside in order to minimise the building's mass compared to its two- and three-storey neighbours

2

2: The interior establishes a soothing tone of refinement and grace – rare for a healthcare institution

The Acadia Hospital

Brief

The Acadia Hospital, a subsidiary of Eastern Maine Medical Centre, is an acute care facility specialising in the treatment of mental illness, behavioural disorders, and chemical dependency.

Challenge

The hospital needed to combine an efficient organisation while presenting a friendly and familiar face to patients.

Solution

Patterned on the metaphor of the New England "farm-house, barn, and field", design elements and landscape treatment of this free-standing facility reflect features found throughout the region: stained clapboard, wood shingles, simple profiles, hedge rows of red maple and ornamental trees, meadows of natural grasses. The image is familiar to patients as well as the surrounding residential community.

The three primary building elements are organised in a campus plan. A new three-storey structure houses admissions, dining, crisis intervention and the 100-bed inpatient component. The interior of an existing but inoperative osteopathic facility was renovated to house administration, day hospital, education and occupational therapy and the exterior to mirror the design character of the new construction. New mechanical systems serving both buildings are concealed beneath the sloping roof and false chimneys and treated as architectural features.

Located between the renovated and new buildings is the new main entry to the hospital or "barn", designed as an interior loft space featuring natural materials, textures, and lighting. Beyond this lobby a gymnasium used for physical therapy and recreation repeats the same "barn" profile but at greater scale. An enclosed wood and glass loggia, the primary circulation corridor, links all three buildings, providing views to exterior courtyards and a means of patient orientation.

Photographs by Brian Vanden Brink

1: Echoing the New England "farmhouse, barn, and field", the Hospital is typical of much of the region's architecture

2: The Hospital succeeds in presenting a friendly and familiar face to its patients

Roberto Clemente Elementary School; Rochester Southwest Middle School; Oak Brook Elementary School

Brief

Three educational projects represent very different ways of achieving similar programmes in very different settings.

Challenge

Cannon's approach to educational planning is based on a number of fundamental beliefs: schools should be attractive, stimulating and fun, instilling pride in community, students and staff; they must accommodate evolving programmes and new technology, from equipment to systems and materials.

Solution

Outside the Roberto Clemente Elementary School, geometric shapes and forms add a sense of playfulness to a brick and block facade. Inside, colourful graphics provide information and educational reinforcement as symbols, numbers and words. Outside and in, the school clearly announces its purpose as a place for children to learn and grow. The three-storey structure, on a constricted site in an inner city residential neighbourhood, was designed for 800 students, replacing the oldest facility in the Rochester City School District. The building organisation reflects child-centred planning, with classrooms organised by grades as "neighbourhoods" and connecting corridors acting as "streets". The facility also accommodates community and adult education programmes, ensuring the school an active role in the life of the surrounding neighbourhood.

A similar programme in suburban St Louis – an elementary school for 650 children in grades from kindergarten to six – is nestled in a small hollow surrounded by tree-covered hills. Conceived as a simple path with functional nodes, Oak Brook Elementary School is organised along a main circulation spine adjacent to major programme spaces. The educational programme calls for subdividing the school into smaller groupings of primary and intermediate grade levels. Special attention is given to the use of colour and detail, incorporating scaling elements and whimsical touches.

To avoid the impersonal character often invoked by schools with large student populations, the Rochester Southwest Middle School is broken into four segments, or "houses". Each house consists of 250 students who remain together for common activities such as lunch or gym, creating a "school within a school". This concept encourages the camaraderie typical of smaller institutions within the context and resources of a larger institution.

In plan, a curved wall defines the primary circulation path, a "student street" connecting all major programme elements. Student houses sharing common science facilities extend from one side of the curve and define the formal entry court. Dining, library, lecture and athletic facilities face the recreational playing fields and frame the opposite side of the two-storey skylit street.

Robert Pettus

1

Oak Brook Elementary School

1: The circulation spine links major programme spaces

2: The school building was conceived as a simple path with functional nodes. Special attention was paid to the use of colour and detailing

Robert Pettus

2

Tim Wilkes Photography

3

Roberto Clemente School

3: Colourful graphics are used for information and educational reinforcement

4: Geometric shapes and forms add a touch of playfulness to the School's facade

Tim Wilkes Photography

4

James Cavanaugh

5

Rochester Southwest Middle School

5: The building consists of four "schools within a school", each serving 250 pupils

6: Plan clearly shows the curved wall that defines the primary circulation route

James Cavanaugh

6

Brandeis University Volen National Centre for Complex Systems

Brief
The Centre consolidates academic programmes in computer science and artificial intelligence, cognitive science, perception, neuroscience and structural biology. Its mission is to apply advances in these studies to the development and application of complex systems modelling, neural networks, parallel computing and energy technologies. The first component in a phased programme, the 55,000-square-foot facility houses classroom, research, office, library and support services including wet labs, dry labs, animal research areas and a seawater lab.

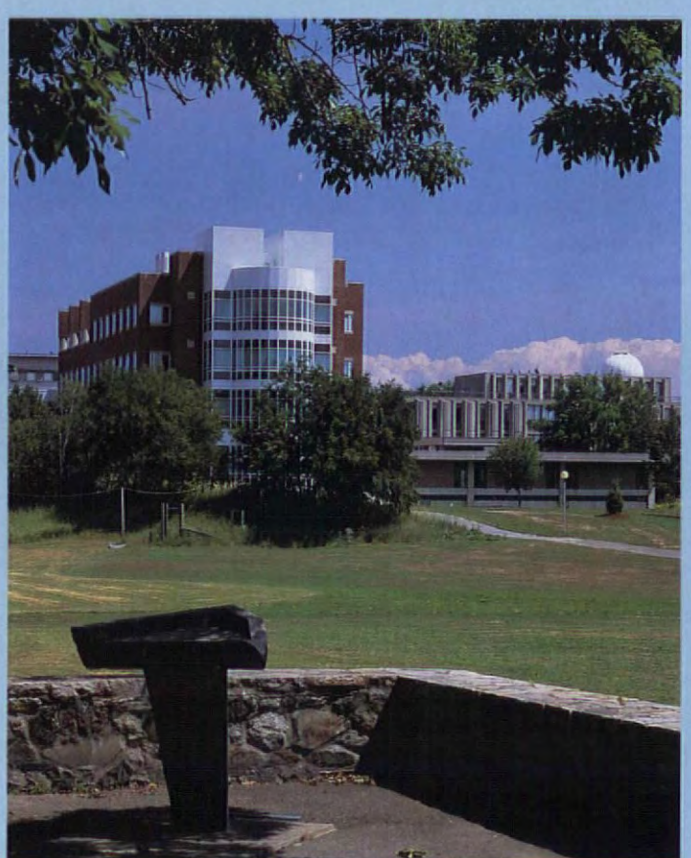
Challenge
With a focus on interdisciplinary collaboration, the building needed to encourage the sharing of facilities and information.

Solution
The Centre is intentionally designed to create casual encounters, with several departments occupying each floor, sharing labs, classroom and conference areas. Exterior site development – entries, piazzas and other gathering places – extend this interaction beyond the building walls, creating a new focal point for campus life.

1

Photographs by Mandelkorn Photography

2



3

1&2: Interior and exterior spaces are designed to encourage casual meetings and the sharing of ideas

3: The building contains classrooms, research and laboratory facilities, offices and a library

Projects in China

Xiamen World Trade Centre

Brief

Located at the intersection of two major thoroughfares, this mixed-use project consists of two 42-storey twin high-rise office towers, a 20-storey office tower housing the Transit Authority, a four-storey, 400,000-square-foot shopping mall, a 100,000-square-foot entertainment centre, food court, supermarket, two major department stores, and a 350-room hotel. Nearby are the city's main train station, bus terminal, and major retail and commercial centres, creating a vibrant and bustling hub reminiscent of New York City's Grand Central Station.

Challenge

Xiamen, one of southeast China's most beautiful and progressive cities, has always been an important trading port, but since its designation as one of the country's four Special Economic Zones, Xiamen is newly significant as a "window city" to the outside world. The city's economy is growing rapidly, attracting increasing foreign investment. It is within this context that a new World Trade Centre is under development on a 4.6-acre site in the heart of Xiamen city centre.

Solution

Conceptually, the three towers of the complex sit atop a five-storey podium. The twin 42-storey office towers are staggered on the podium and aligned with the oblique property frontage. This placement reinforces the edge of a thoroughfare that terminates in a formal plaza before the train station. In addition, this positioning ensures unobstructed views of the city.

Overall, the massing of the different components responds to pedestrian and vehicular circulation, play of light and shadow, height and scale of neighbouring buildings, and context of the surrounding district.

NBDI/Fujian Xiamen and East North Design Institute are associate architects and engineers.

Zhangjiang Hi-Tech Park

Brief

The result of a winning entry in an international design competition, Cannon developed a comprehensive master plan for a research and education park on a 2.8 million-square-metre site in the Pudong New Area, across the Huangpu River from the heart of Shanghai.

The master plan comprises over two million square metres of total building area and includes academic, business incubation, research and laboratory, and corporate components. The academic component will accommodate an enrollment of 12,000 students attending the new Second Medical University, the International Technology Institute, and the Pudong Foreign Language School in addition to providing faculty and student residences. The Innovation Centre will house multiple business incubators and a 450-room hotel and conference centre.

Challenge

This high technology industrial park is one of four key economic development zones established by the government to position Shanghai as a major international economic, financial, and trade centre.

Solution

The overall character of the master plan is of a riverfront park, landscaped with a series of canals, ponds, gardens, plazas, and fountains. The landscape concept synthesises the old and new, creating a rich texture of outdoor spaces that recall historic Shanghai and the Yangtze Delta while echoing western influences in systems, function and variety.

The Shanghai Pudong New Area Planning Design Research Institute is associate architect.

Children's Medical Centre of Israel

Brief

Located on the campus of Beilinson Medical Centre, the largest healthcare institution in the Middle East, this free-standing 224-bed hospital is an acute care centre of excellence, dedicated exclusively to children regardless of race, religion or nationality.

Challenge

The world of a child is very different from an adult's in scale, perspective, colour and complexity. Capturing that view and creating from it a special place for healing children was the challenge facing designers of the Children's Medical Centre of Israel. The design of this facility reflects a particular sensitivity to children's social and psychological needs, in keeping with the expressed goals of Medical Development for Israel, the not-for-profit organisation responsible for sponsoring the project in cooperation with Kupat Holim, Israel's largest manager of health facilities. Recognising that physical environments profoundly affect attitudes, behaviour and feelings, throughout every phase, designers consistently addressed the key question first: What's best for children?

Solution

The result is an open, inviting place with a uniquely non-institutional quality. Outdoor views, natural light, proximity to nature and parental involvement all play a role in the healing process here. In contrast to the softly-coloured limestone exterior is the use of colour in the building interior. A palette of colour freely mixed and applied to wall coverings, furniture and fixture leaves little doubt that this is a place created for, and to an extent by, children. From hundreds of children's drawings, Cannon designers selected the vibrant colour palette and images of wildlife and flowers later transformed into decorative mosaic tiles.

The building is organised to promote wayfinding and ease of orientation for children and their families who, beyond illness, may also face cultural and language barriers. Primary patient destinations, on the upper floors, are easily visible from the central atrium. The organisation of the upper floors fosters a sense of community with each dedicated to a medical specialty that accommodates both inpatient and outpatient care as well as diagnostic and treatment facilities. Arieh & Eldar Sharon of Israel were consulting architects.

Photographs by Paul Gross

1

1&2: The exterior is clad in Jerusalem stone with fenestration designed to maximise the use of natural light

3: Designers used children's drawings for decorative tiles

4: The atrium is typical of the open, inviting interior where patient destinations are clearly visible from a central point

2

3

4

Special Report – Libraries

Information power houses

Information is predicted to become the most valuable global currency of the twenty-first century. Those who have exclusive rights to that information will be in a position of power. World Architecture sent Cheryl Kent and Graham Coult to investigate the "information power houses" of the future. Hanscomb cost consultants summarise design features particular to library construction, and provide typical cost data.

"Libraries are both the mirror and the memory of society,"

Vartan Gregorian, former president of the New York Public Library

In the last decade there has been much discourse about the perceived unravelling of community. Surrounded by constant social, economic and political change society is fragmenting, this development runs parallel to the evolution of new methods of communication which are springing forth from the world of information technology.

In the midst of all this turmoil, libraries are embracing and embodying new possibilities – both as information centres and as social centres. Whereas libraries in the past viewed themselves strictly as collection facilities, as we approach the new millennium, academic libraries are seeing themselves as intellectual information centres and public libraries are becoming dynamic hi-tech social information centres. The introduction of the retail approach means that although libraries are still expressing themselves as the "intellectual heart" of the community, public libraries resonate with a more social and non-discriminatory atmosphere. Since libraries have adopted these social roles, cities, towns, and some universities are breaking the stereotypes of the older intimidating library building by designing warmer and friendlier environments that attract a cross-section of their community.

Corwin Robinson

1

LIBRARIES IN THE US

Driven principally by a need to update technical capabilities, major libraries have been, and continue to be, built across the US. These new buildings are quite different from those they are replacing and it is not only computer terminals and chases that are making them so. It is also the meeting rooms, exhibition galleries, services for the disabled, literacy programmes, auditoriums, museums, vendor-operated computer centres and photocopy centres, video rental shops, literacy programme rooms and more that make of these libraries new quasi-community centres.

Sunbelt libraries

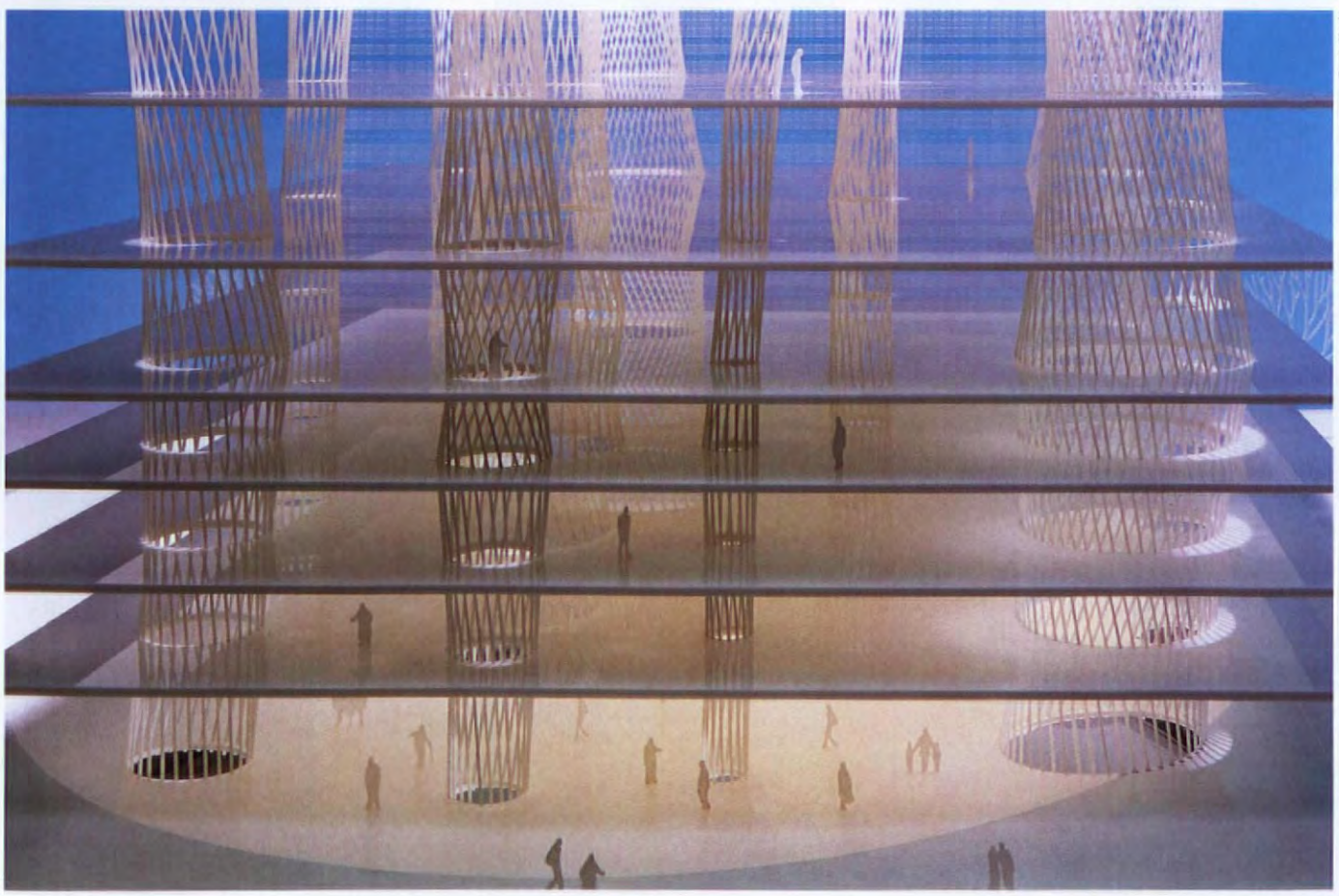
Most of the new library construction has been in the "Sunbelt" – the west and south-west states – where migration has enlarged populations. In these areas the car has been a great influence in determining urban form, and when added to the fact that the population influx caused crowding in the original structures it comes as no surprise that many of the new libraries have larger parking lots.

If crowding and population growth created a strain on existing Sunbelt libraries – many of those constructed in the 1950s and 1960s – it is also true that these facilities had been neglected during the 1970s and 1980s. Their

Previous page
Interior view of bookstack and reader area on the Irvine Campus of the University of California, by Stirling, Wilford and Associates (1994). Photograph Arcaid/Richard Bryant

1: Cleveland Public Library, Hardy Holzman Pfeiffer Associates. The three-phase redevelopment is due for completion in 1998

2: CAD image of Toyo Ito's Mediatheque in Sendai, Japan. The project seeks to combine the primitive and electronic worlds



Tomio Ohashi

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collections deteriorated, reflecting an urban neglect not uncommon in the US at the time. A study commissioned by the San Antonio Public Library found that, before constructing its new library, high school students were going to university libraries – where access is normally restricted to enrolled college students – for research because they couldn't find the materials they needed at their central library. Other libraries around the country found themselves in comparably diminished circumstances, undermining the premise of public libraries which are understood as a free and accessible means to self-improvement.

Public support

Citizens proved willing to support library construction in the flush 1980s. Voters approved mechanisms permitting the city to borrow for building their libraries, sometimes at the expense of other equally necessary municipal projects, like highway repair and construction and sewer projects. Library ballot propositions were carefully crafted to make them attractive to voters. To entice voters outside the urban core, where the majority of Americans now live, library financing referenda often included funding for one or more branch libraries. In San Antonio, of a $US46 million city budget, only $US28 million was for the new library, designed by Ricardo Legoretta, with the balance earmarked for renovation and construction of branch libraries.

The general public had their say in shaping these new libraries in important ways. Focus groups helped define library programmes long before construction began. They have asked for restaurants and coffee shops and got them although not all of these additions have been a success: the restaurant spaces at the San Antonio Public Library and at the Chicago Public Library have not found tenants despite efforts to fill them.

Indeed citizens were in many cases not just influential but passionate about their new libraries. In San Diego the public were represented on a selection committee for the architect, and a day-long, open invitation "predesign" workshop attracted 385 people on a Saturday. Many cities appeared anxious to avoid what was regarded as a "failing" in the Chicago library design competition where librarians and library patrons felt they had been overlooked in the design selection process. Once William P Bruder was selected as the Phoenix library architect a series of public meetings were held "before pencil was put to paper to see what people wanted," says Rosemary Nelson of the Phoenix library.

Who gets the job?

Processes for choosing architects for libraries in the US vary from one city to another. In one instance the process might begin with a request for qualifications, whilst in another a ›

AT A GLANCE...

Design trends for libraries in the 1990s

Libraries built before the 1980s were typically built to house a specific collection and offer patrons a quiet atmosphere for reading and research. Today, public library planners are shifting the paradigm of library design and designing public libraries to appeal to all ages and socio-economic groups. Academic library planners are also responding to the need to adapt, even though they have a more captive audience and more focused collection.

Exterior facades

The design of exterior facades is generally moving away from the inspiration of the classical monuments of the past and offering instead a more inviting and contemporary look. More curves and curtain walls are being incorporated into the design to induce the passer-by to enter the library.

Interiors

Once inside, the library of the 1990s welcomes the patron with a warm, friendly and dynamic atmosphere. Service desks are strategically positioned to enable patrons immediate assistance. Accessible interactive technology encourages the patron to explore the depths of the collection. Atriums, a popular organising element for libraries, and low-E type glazing provide more natural light over the detailed, often wood-finished, interiors.

Work spaces

Sitting areas are scattered throughout, inviting patrons to converse and socialise during their visit. Some libraries provide full-service copy centres and cafes. According to Linda Demmers, a Los Angeles-based library consultant, (see interview in this issue) at any time 75 percent of library patrons are using materials and facilities other than those housed in the collection, socialising, or attending a lecture. The demand for collaborative working areas and teaching spaces has forced library planners to appropriate special sections and furniture to ensure conducive work space. More and more square meterage of library space is being allocated to teachers, workshops, computers, and work-groups than ever before.

Information technology

The increase over the last ten years in telecommunications cabling has been astronomical. Libraries are being equipped with voice, data, fax, and video capabilities. Many new libraries are laying fibreoptic cable preparing for technology growth of the next ten years. The goal of the library of the future is to allow a user access to its collection and other collections and sources throughout the world via a library workstation. Libraries are also providing users with the ability to plug their laptops into the network at different points throughout the building. However, while the Internet connectivity does change the library, the prospect for a virtual library is still in the future.

Storage facilities for ever-expanding collections

Today's libraries are managing the growth of their collections through technology. A linear programming specialist may be required in the near future to determine the optimal amount of the collection to place on the network, in static shelves, compact shelves, and off-site storage facilities. Libraries must constantly be able to absorb the increase in collections while continuing to make it easy for people to retrieve information.

Compact shelving is becoming more popular as libraries attempt to lower the per-volume storage cost. Regular static shelving holds 105 – 160 volumes per square metre. Whereas, compact shelving (able to be manually opened by public) holds 300 – 375 volumes per square metre. However, there are initial cost considerations for the building (added structural capacity – 730 kg/m2 loading for static shelving versus 1465 kg/m2 for compact shelving) and equipment. Compact shelving uses about half the space of static shelving, but the equipment costs about three times more than static shelving. Many new libraries are combining lower level compact shelving with off-site storage.

short list of architects might be invited to submit proposals. Rick Ashton, city librarian of Denver Public Library described his experience of the process: "If you ask anyone on the selection committee why [Michael] Graves got the job, they would say it is because we felt confident that he could design and could hear us and work successfully in a collaboration to produce great architecture that would serve the purpose it was built for."

In Las Vegas – one of the fastest growing metropolitan areas in the US – three "hub" libraries (each combined with one of a children's museum, performance centre and fine arts museum) have been constructed in a little over six years creating a nearly instantaneous civitas where previously there had been only casinos and strip malls. The most recent of these hubs opened in January and was designed by the Minnesota firm, Meyer, Scherer & Rockcastle, the previous two were by Antoine Predock and Michael Graves.

In Denver, Michael Graves' addition effectively swallowed a 1956 library located with government buildings on a formal neo-classical mall in the heart of downtown. James Ingo Freed's (of Pei Cobb Freed & Partners) San Francisco Main Library completed the Civic Centre there. New York, a major exception in this crop, divided instead of consolidated its collection, putting its Science, Industry and Business Library into a landmark department store renovated by Gwathmey Siegel and Associates (see review in this issue). In addition to these Phoenix, San Diego, San Antonio, Chicago and Richmond have completed major library construction lately, and other smaller cities have library projects in the works.

The impact of technology

There was a time when microfilm was going to revolutionise libraries. Knowing this, that it is impossible to anticipate where or how far technology will take us; the current answer has been to build in as much flexibility as the library can bear. At the Phoenix Central Library designed by William P Bruder, the bay size was determined by the size of standard book shelving and lighting was attached to shelving so that both could be reconfigured as needed.

However, handling additional electrical demands as computers play an ever-increasing role in information management is the flexibility problem most absorbing to librarians and architects who design libraries. Librarians are inclined to ask for complete flexibility in every portion of the building. "That's impossible to provide" says Jeffrey Scherer who estimates his firm Meyer, Scherer and Rockcastle has built over 3,000,000 square feet of library space and gets half the library commissions it goes after. "[We decide] how much flexibility can we afford. Then we create hot zones and cool zones. Hot zones are non-fiction and reference. These are the most changeable areas

AT A GLANCE...

Library construction costs

Typical requirements 1960s – 1990s

Incorporating the new social elements, information technology advances, and flexibility for increased collections and changing user requirements into a library programme has serious cost implications. Since all libraries drastically vary in size and complexity, defining accurate cost ranges for public and academic libraries can be risky. Libraries built in the US between the 1960s and 1970s averaged around US$1,300-1,500 per square metre (construction cost escalated to current values). Today, with the added demands, new libraries may cost as much as US$2,370 per square metre.

The "Fibreoptics age"

New technology and electrical requirements are the largest source of cost increase. Electrical costs ten years ago ranged between US$75 – 110/per square metre. Today, they range between or $110-160 / m2 and can even be as high as $235 / m2. Libraries planning for the "fibreoptics age" are paying 30 percent more for wiring/cabling than libraries that are installing typical copper wiring.

Libraries are now paying closer attention to providing proper lighting in different sections. Fancier, speciality lighting is used which provides patrons with a more pleasing work environment as well as lighting that does not reflect off workstations. This attention to finer lighting detail has increased lighting costs 30-50 percent over the last 15-20 years.

Specialist equipment

We are seeing a consistent increase in project costs as a percentage of construction due in large part to the increased demands for equipment and the sophistication of furnishings to accommodate technology, according to Geoff Freeman, Principal of Shepley Bulfinch. The increased number of consultants (acoustic, lighting, security, telecommunications, computer, disability, library program, stack consultants) has added to the design cost. More specialised furniture, compact stacks, and other equipment have dramatically escalated the cost of outfitting a library.

Other sources of cost increases

– Pre-action Sprinkler systems are now becoming the more prevalent in library buildings. They cost about US$10 per square metre more than the typical wet system. Micro Mist Systems, which showers water with less density than the other systems, is another type of system being implemented.

– Additional casework and interior wood finishing are another area of cost increase. Library designers are using more wood to evoke a warm atmosphere in the open public spaces. Casework alone can range between US$1,400 - 3,300 per square metre.

– Exterior facades use higher-end materials to reduce future maintenance costs and more architectural elements (e.g., corners and curtain walls) than libraries of the 1960s and 1970s.

Typical elemental cost percentages based on US central public libraries

Foundations	2-5%
Substructure	2-5%
Superstructure	15-20%
Exterior Closure	11-18%
Roofing	2-4%
Interior Construction	15-21%
Conveying System	1-3%
Mechanical	19-24%
Electrical	12-20%

"It is impossible to anticipate where, or how far, technology will take us; the current answer is to build in as much flexibility as the library can bear"

where, gradually over time, the collection size will decrease and the work stations will increase." In most new libraries architects provide more access to power though chases. In New York's Science, Industry and Business Library, Gwathmey Siegel raised the floor in defined areas, making electrical revision easily accomplished through removable floor tiles.

LIBRARIES IN EUROPE

In Europe, the majority of openings in library design and construction are in publicly funded contracts – school, public and the occasional university or college thrown in for good measure. There is also a trend towards briefs that put the library at the heart of its community often linking buildings to larger projects.

Scandinavian interaction

Placing libraries in the heart of communities where several routes meet or where large numbers of people will gather for other reasons (such as shopping or entertainment) is policy in most countries and is particularly successful in socially conscious Scandinavian states.

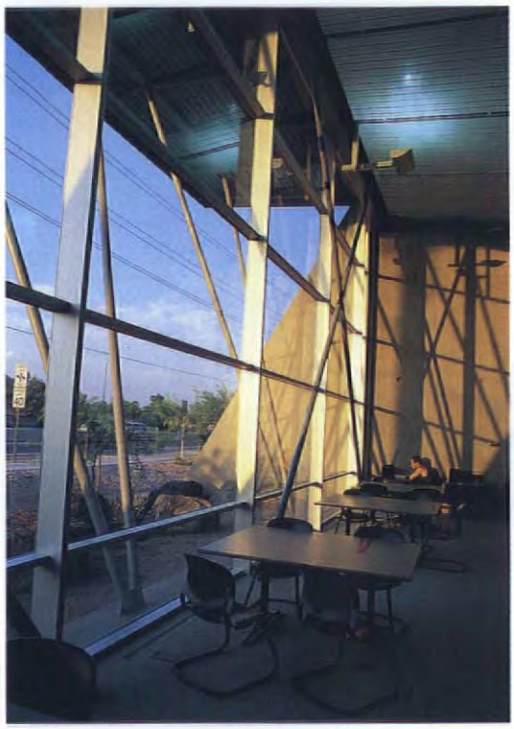
On a library project (1993) in Hinnerup, Denmark architect Hans Peter Svendler Nielsen also used a linking device to another civic building. A spire-like tower unites a library and an arts centre in an effort to emphasise the building's importance to a community that debated almost every subject relating to the scheme. In Scandinavia one should expect a high level of community involvement and a tendency to award work to local architects. The cost of the Hinnerup library's construction was US$2,297,931 (15,827,000 million Danish kroner).

In Finland, in 1996 only 20 percent of all library building schemes involved new construction. The 1980s was a boom time with some 20 new libraries being built each year. Since then state funding has been trimmed back to the point that in 1995 no funds at all were reserved by the state for new library building, although the municipalities were providing some funds. The emphasis now is on the conversion of existing buildings. A good example of this type was undertaken in the town of Tyrnava. Architects Maija Niemela and Pentti Myllymaki converted a disused planning mill into a library at a cost of US$1,043,050 million (FIM 5.3 million) excluding furnishings and equipment.

Imaginative design is essential in winning contracts, particularly given the Scandinavian emphasis on community involvement. In Kungsbacka, a town some 30 kilometres south of Goethenburg, Sweden, architect Christer Hakansson came up with a circular building which included space for other cultural activities at a cost of US$8,983,308 million (74 million Swedish Kroner). In a novel touch, the CAD CAM programme used to design the building was linked to the library catalogue. A three-dimensional image of the appropriate floor is shown to the reader, and a female figure called OLGA moves to indicate the relevant shelf for materials.

Médiathèques: the French model

Developments in computer technology form the engine behind many library construction ›



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Georges Fessy

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1: Full-height window at Randall Fonce Architect's Juniper Branch Library, Phoenix, USA (1996). The library provides the city with a distinct community symbol

2: Dominique Perrault's Bibliothèque Nationale de France, Paris, the last of François Mitterrand's Grands Projets

Peter Durant

1: The Ruskin Library, Lancaster University, UK by MacCormac Jamieson Prichard (1996). The library was purpose-built to house the Ruskin collection

projects. The French-speaking countries of France, Belgium, Luxembourg and Switzerland have coined a new word médiathèque to describe the change in emphasis from printed to electronic delivery of material in libraries, and is a play on the word bibliothèque. The municipality of Sierre in Switzerland decided to house its new médiathèque in a glass and concrete edifice. The existing library building, although built as recently as 1976 was already inadequate for the increasing demand being placed on services. In 1989, the newly elected municipality decided that the médiathèque should form the basis of a revamped library network. Again there was a strong local interest to the extent that there was a keen debate on the design of the building.

In France, médiathèques have become a matter of local prestige with the contracts for design being awarded to high profile practices. In Mulhouse, the debate centred around whether the building should reflect an architectural concept or should be merely functional. Was it a building or a space to be organised? This was perhaps irritating for the architect but nevertheless a healthy sign that design was being taken seriously, and hopefully an indication that the trend towards these new constructions would continue and even accelerate.

In other parts of France médiathèque developments have been linked to University projects. In La Rochelle for example, in an attempt to integrate the University into the city, and avoid the phenomenon of the campus, a university library and a municipal médiathèque have been built on one site. The two juxtaposed projects were executed by two different architectural practices but present a unified aspect from the exterior.

The need for all-round flexibility

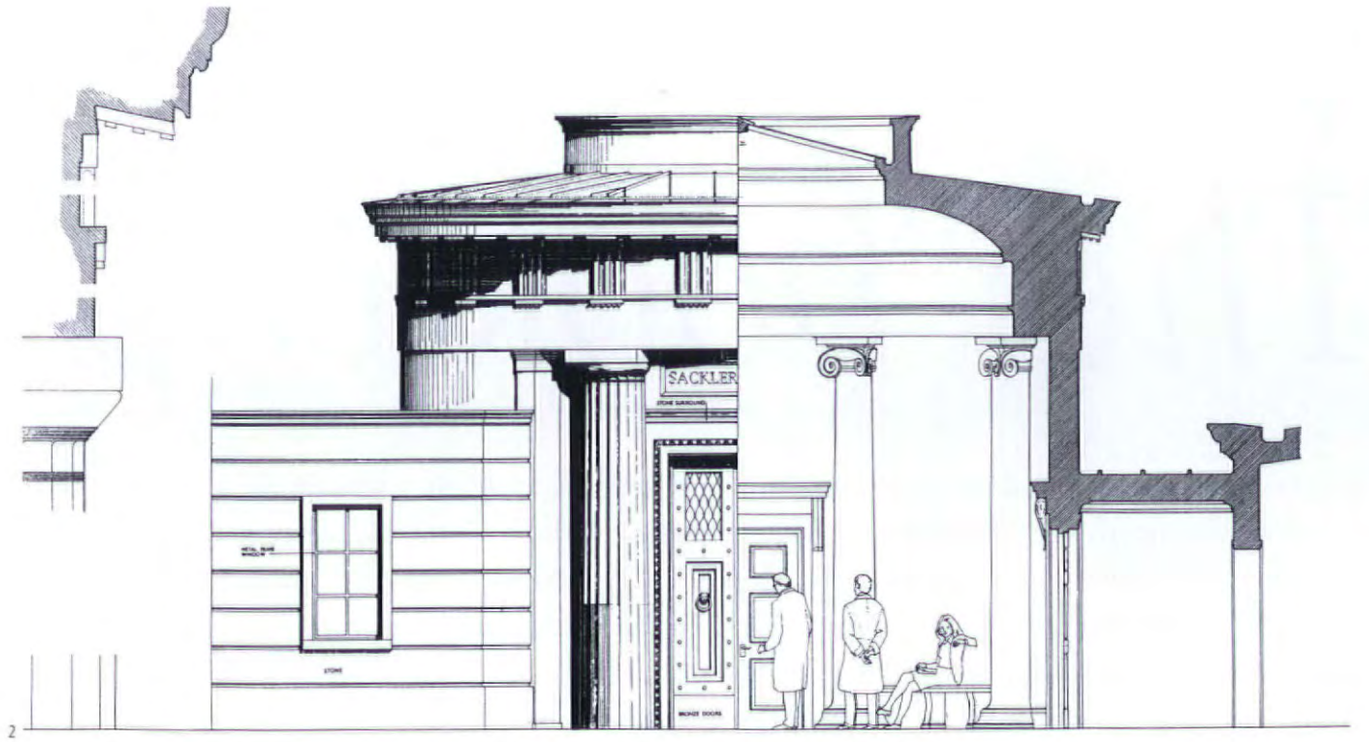
Library design must be flexible for future technology, increasing collections, and changing staff requirements, but also on a day-to-day basis for the varied user groups. According to Jay Lucker, a library building consultant based in Lexington, Massachusetts, flexibility needs to be in people, staff, and service spaces.

Technology flexibility – Planners need to build in capacity for additional wiring and cabling. An example Mr. Lucker uses is providing larger conduit in the design to allow capacity for future runs of wiring and cabling. Computer labs, teaching labs, and staff rooms, where there is an abundance of wiring requirements are using cable management systems (eg cable trays and cable loops) in ceilings and grids of data and power connections at locations that allow flexibility for changing staff layouts.

Structural Flexibility – New libraries are preparing for future expansions, and future increased floor loads (changing static shelving to compact shelving) in their designs by increasing structural capacity.

User group flexibility – Since libraries have become, in effect, a community centre, planners must anticipate changing demographics and user requirements. The patron profile of a city library changes throughout the day. In the morning, it is visited by non-working parents, college students and teachers, senior citizens, and business people. In the afternoon, the library will have children coming from school. In the evening, it is buzzing with working adults, students, and other citizens.

Libraries built before the 1980s are assessing whether their facilities meet new library requirements. Assessments will include functionality (collection capacity, children's centres, meeting rooms, computer labs, etc) location (proximity to schools and neighbourhoods) expandability (for collections, user groups, and technology) parking, and accessibility to transportation. Many communities, realising that their current facility does not satisfy many of the new demands for libraries, are faced with the dilemma of renovating, building an addition, or building a new facility.



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2: Vestibule details of Robert Adam Architects' New Sackler Library

3: Street view of Ashton Randall McDougall's extension to the St Kilda Library Complex, Melbourne Australia (1994).

4: Interior of Alvar Aalto's Viipuri Library, Italy. The 1935 original is currently under restoration

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Lean times in Germany

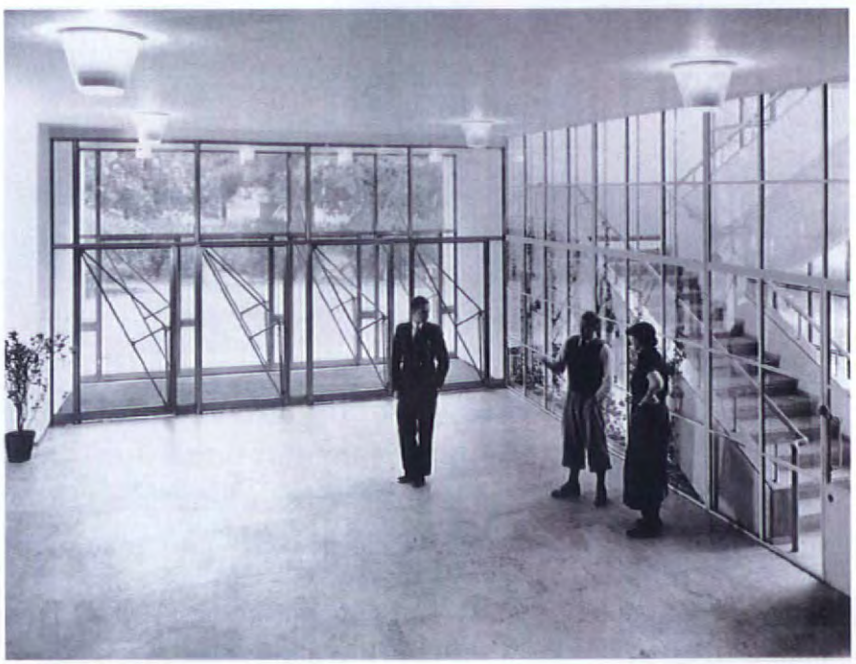
It is probable that in the future Germany will form the most lucrative market for library construction. Straining under economic difficulties imposed by the costs of reunification, and an expensive workforce which is not finding competing on world markets an easy task at the moment, construction is depressed. This trend is however, likely to be only a hiccup and it is a matter of time before the standards of provision on both sides of the former divide are brought to the same level.

Spanish upturn

Spain has witnessed an increase in library projects reflecting its increased prosperity since joining the European Community. Cataluña has proved particularly active in this regard with a policy of providing improved library services involving new construction for the public and students. In one of the more remarkable projects at the relatively new Universitat Pompeu Fabrat the main library is the result of an ambitious conversion. In an ambitious scheme two architects, Luis Clotet and Ignasi Paricio designed a conversion of the Edifici de les Aigues (a reservoir built in 1874 to irrigate a local park) into a main library with a newly constructed annex to provide ancillary services.

Eastern Europe– an enigma

In Eastern Europe, the picture is patchy. The Czech Republic had a well developed library infrastructure during its time under Soviet rule. There followed a period when libraries began to close in some numbers, but the situation is improving, particularly from the architects point of view since although libraries are still closing, it is because they are being replaced with new buildings. WA



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The "book cop"

Linda Demmers established her Library Consulting practice in 1989, after serving for 18 years as library director at several leading schools and colleges. She works with clients to survey the community, establish goals, and integrate technologies into facilities and programmes. She also advises architects and mediates between designers and clients during the planning process. Recent assignments have included five years as project coordinator on the Leavey Library at the University of Southern California, and long-term associations with Santa Monica College and the State of Mississippi. She tells Michael Webb that she likes to think of herself as a coach, nurturing winning teams and bringing them to a higher level of excellence.

"I am frequently asked why we are still building and expanding libraries when soon everyone can have everything at home," wrote Linda Demmers in a comment on the Santa Rosa Junior College Library. In response to the question she explained that libraries – especially in the US – have become much more than places to consult or borrow books. They now serve as community centres, meeting social and cultural needs. They are fully wired, and incorporate art galleries, performance and learning spaces, children's areas, cafes, copy shops, and multi-purpose meeting rooms. Users are more likely to be socialising, eating, listening to music, or checking their e-mail, than reading a book. And books on tape are often in greater demand than printed copies.

"The boom in library construction is partly the result of a similar boom in the late 1960s," she says. "Those libraries were planned to last 25 years, and they've now become obsolete. There are desperate people out there, with overflowing shelves, and rooms with one electrical socket and no telephone jacks; no climate controls and no space to add services." Meanwhile public demand has increased sharply. Tax cuts shut down school libraries. The population is aging and people are living longer. Public agencies are encouraging people to tele-commute and are willing to subsidise libraries that help abolish the divide between home and office. Demmers observes that user groups are segregated by time of day. The first to arrive are mothers with small children, then businessmen in search of information, then seniors, and finally, as school lets out, a wave of teenagers on homework assignments who claim the territory as their own.

Demmers has good advice for architects who want to enter this dynamic market. "They should spend time with librarians, working behind the desks, to understand the crucial importance of good lighting and acoustics, of sightlines and security and the proper heights of shelves," she insists. "Architects should look around the community and get a sense of what it needs. Where are the schools and seniors centres? Is the local council working out of rented space? If so, they may want a monument, as an expression of civic pride, or to celebrate a donor or the mayor who inaugurated the project."

But, she insists, every case is different. Some clients want trophy buildings. The city of Chicago commissioned a grand Beaux Arts monument before deciding exactly what it

"They [architects] should spend time with librarians, working behind the desks, to understand the crucial importance of good lighting and acoustics, of sightlines and security and the proper heights of shelves"

"Computers become faster and more numerous but the essential specifications for power and work surfaces don't change that fast"

would contain, and the result is magnificent, but compromised in function. Whilst the Spanish Mission-style library that Michael Graves designed for the small southern California town of San Juan Capistrano is cherished by its users, librarians would fault its small rooms, lack of flexibility and poor sightlines. San Francisco and Phoenix held public competitions for their award-winning central libraries, but the process is often quite informal. Demmers will advise clients on how to select an architect, but she declines to make recommendations in order to avoid a conflict of interest.

Architects need to understand the process by which library programmes are developed. "Some are donor-driven, and some exclude the librarians," says Demmers. "A few clients grab at the opportunity to achieve a great design, others care more about economy. As a consultant, I ask everyone concerned to tell me what they are looking for or to sketch a diagram. Usually, they all want to be on the main floor, next to everyone, and close to the rest rooms. "The costs of storing books in conventional stacks has become so high, that books are routinely stored off-site or on compact shelving. Priority is given to spaces that serve people and programmes.

Flexibility is the key requirement. "Often you don't know exactly how a space is going to be used," Demmers admits. "And it's hard to know how much print to plan for – the crystal ball is cloudy. Computers become faster and more numerous but the essential specifications for power and work surfaces don't change that fast. Eight years ago I was told that wires were going out and flat screens coming in, but I haven't seen either yet. What has changed are services. Copying and catering are often outsourced, and we now have profit-driven entrepreneurial libraries."

She cites the USC Leavey Library as an example of how challenging the problems have become. The architectural design became a political football; one design was thrown out, another was drastically compromised. The facility was planned as an introduction to the other libraries on campus, to the cataloguing system and the Internet. The staff were dubbed "navigational assistants". Demmers spent a year working with a manufacturer to design and fabricate an ideal multiple work station that would meet her tough criteria on durability, comfort and maintenance, and incorporate a contoured work surface as a wrist support. She used heavy-duty hospital desks for the reception area, and specified carpets that were guaranteed for ten years of hard use.

Nobody anticipated how successful Leavey would be. The library has 0.3 percent of the books at USC, and 90 percent of the circulation. In the first year there were over 1.5 million visitors and the carpet wore out. So sophisticated are the electronic resources, that it's become a favourite resource for architecture and music students.

Demmers is proud of her contribution to Leavey, but is just as pleased with her contribution to local and high school libraries, for these can be almost as challenging. And she doesn't take her job too seriously even though, as a librarian, she was nicknamed "the book cop". Now, she says: "I tell architects and clients to have fun – and do the same for the users. My favourite branch library has a Groucho Marx quote in big lettering around the reading room – "Outside of a dog, a book is a man's best friend. Inside, it's hard to read." WA

Architects
Gwathmey Siegel & Associates Architects
Photography
Peter Aaron

Technological overdrive

The Science, Industry and Business Library, New York City, New York, USA

1: Healy Hall, the double-height entry space includes an exhibition area, information desks and access to the library

This turn-of-the-century B Altman department store on the corner of Madison Avenue and 34th Street has been transformed into a library of, and for, the future. As the Science, Industry and Business Library (SIBL), the building was put forward by the AIA and the American Library Association for the 1997 AIA award of Excellence for Library Architecture.

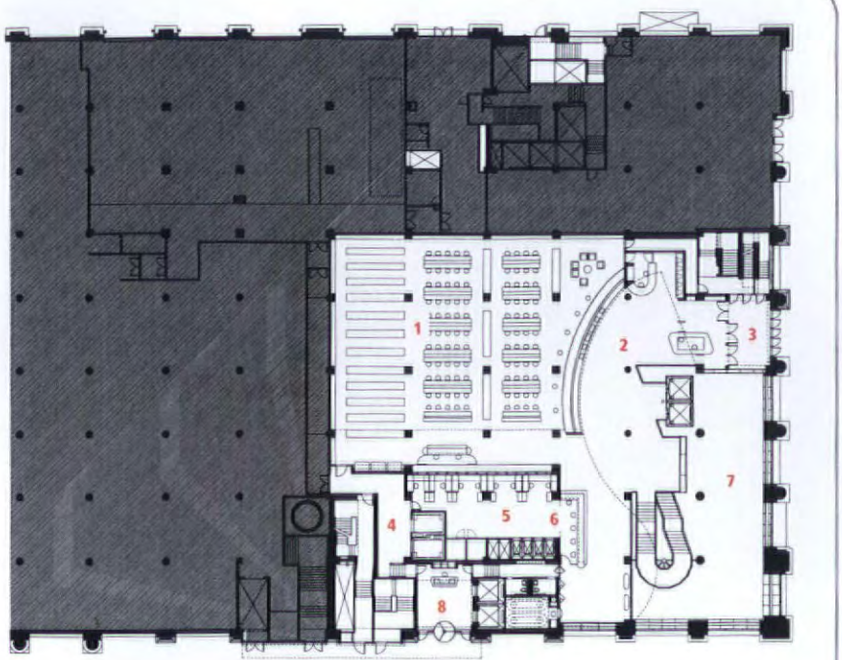
The SIBL is characterised by the influence of technology. This can be seen in both the space-touch-screen kiosks, which replace traditional information desks, and in the reading room, where the readers leaf through the pages of the Internet. "The French have spent US$1.6 billion on a new library and the British more than US$500 million but none of them offer the Internet access people can get here" says Paul Le Clerc, president of the New York Public Library (NYPL).

Betty Turock, president of the American Library Association claims that: "People ask if there will still be the need for a physical facility if everyone can plug into a virtual library". Le Clerc argues that since publishing is an industry interested in making profits "access for all would create a problem because if everyone could [download] a book for free, why buys it? Of course, you could institute a fee system to compensate writers, but that would defeat the purpose of a public library – to provide access to information free of charge".

Although the SIBL is not "virtual" Gwathmey Siegel & Associates (GS & A) have tried to create a library without walls: "a transparent membrane through which information and resources flow freely between the library, international business and research communities and the public" with its book collection occupying the upper five floors.

GS & A were awarded the commission following an interview process and design-ideas competition. While other teams distributed the public space among several floors, GS & A made the basement level – the single largest floor place – not as stack space, but entirely public. "The programme required 550,000 square feet of public space. To put it on a single level is more manageable for staff to supervise". According to William Walker, director of the Research of Libraries of NYPL, this was one of ›

East Thirty-Fifth Street



Madison Avenue

East Thirty-Fourth Street

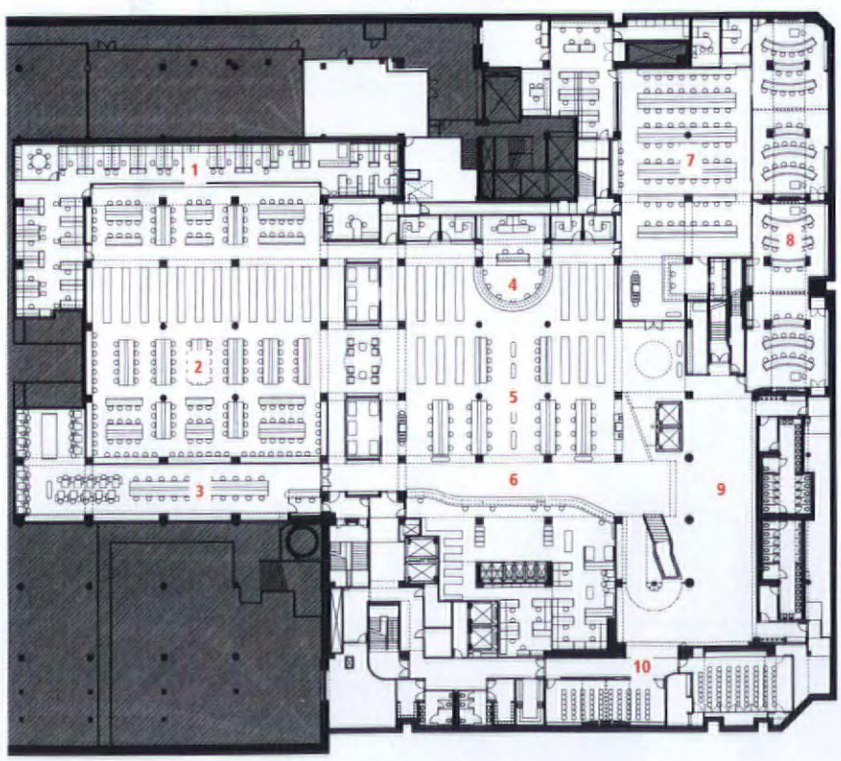
2

Street level floor plan

Key

1. Lewis B and Dorothy Cullman circulating library and reading room
2. Lobby/display
3. Entry vestibule
4. SIBL service lobby
5. Circulating workroom
6. Circulating desk
7. Healy Hall
8. NYPL office lobby

East Thirty-Fifth Street



Madison Avenue

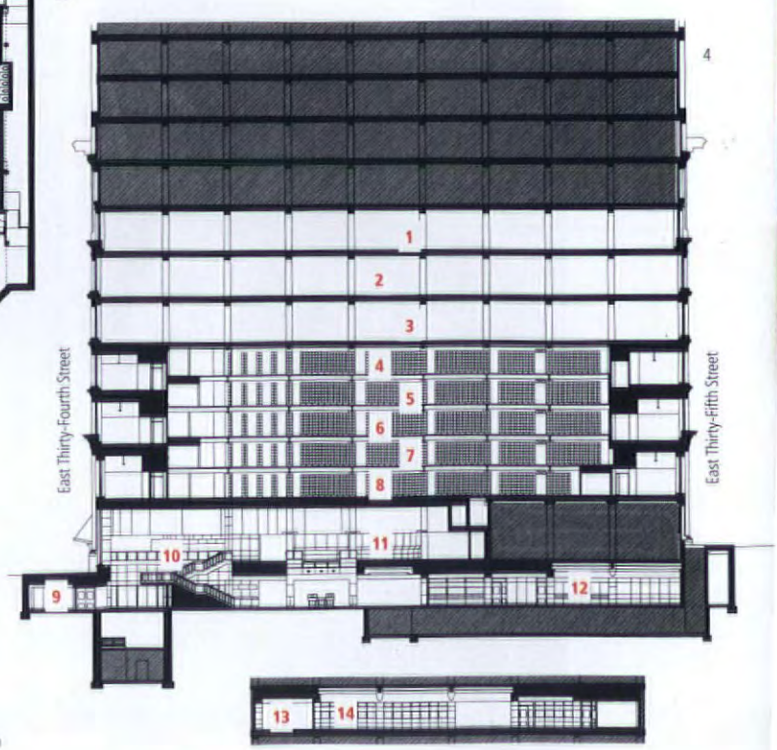
East Thirty-Fourth Street

3

Basement floor plan

Key

1. Offices/workrooms
2. Richard B Salomon research reading room
3. Microform and patents reading room
4. McGraw information services centre
5. Online catalogue centre
6. The B Altman delivery room
7. Electronic information centre
8. Harrison S Kravis electronic training centre
9. Healy Hall
10. Conference centre



North-south section

Key

1. Offices
2. Offices
3. NYPL offices
4. Stack level 5
5. Stack level 4
6. Stack level 3
7. Stack level 2
8. Stack level 1
9. Conference centre
10. Healy Hall
11. Lobby/display
12. Electronic information centre
13. Microform and patents
14. Richard B Salomon research reading room

1: The McGraw information services centre, located on the basement level

› the main reasons that GS & A were chosen.

Public areas of the library are distributed on ground and lower levels providing easy public access to the entry level circulating library and for the lower level research library facilities. Major structural reconfiguration allowed five levels of stacks accommodating 1.5 million books, and 50,000 square feet of administration offices to fit into three existing floors.

The grand window arcade invites pedestrians to look into one of the few monumental public spaces in New York with an immediate street-level impact. Healy Hall, an airy 33-foot- tall, two-storey volume provides a visible venue for changing exhibitions and receptions and also allows natural light to penetrate to the research workers at the core of the library. The grand stainless steel and terrazzo staircase and two elevators lead down from the entrance lobby to the 45,000-square-foot information services area containing an on-line catalogue section, research library services, reading spaces including microforms, an electronic information centre, training rooms and a multi-room conference centre. In the information services area an innovative stainless steel custom fixture that incorporates fluorescent lamps, sprinklers and acoustic panels into a single linear element, runs the length of each of the original terracotta ceiling vaults.

Since the building must accommodate new technologies as they emerge, flexibility and accessibility were goals of every aspect of the design. Work stations are separated by adjustable perforated acoustic dividers that provide lateral flexibility to allow for changes in equipment sizes and work areas. A grid of removable panels raises the floor by six inches which allows power and data lines to be reconfigured as needs and technologies change. WA

2

Client
The New York Public Library
Architects
Gwathmey Siegel & Associates Architects
Project architect
Earl Swisher
Structural engineers
Severud Associates
Electro/Mechanical engineers
Jaros Baum & Bolles
Lighting consultant
Hillman Di Bernardo & Associates
Shelving consultant
Weinzimmer Associates
Electronics display consultant
Edwin Schlossberg Inc

3

4

2: Computer access is available throughout all of the seven floors

3: With the exception of the double-height glazing on the ground level, Gwathmey Siegel left the original exterior untouched

4: Stainless steel staircase leading to conference centre

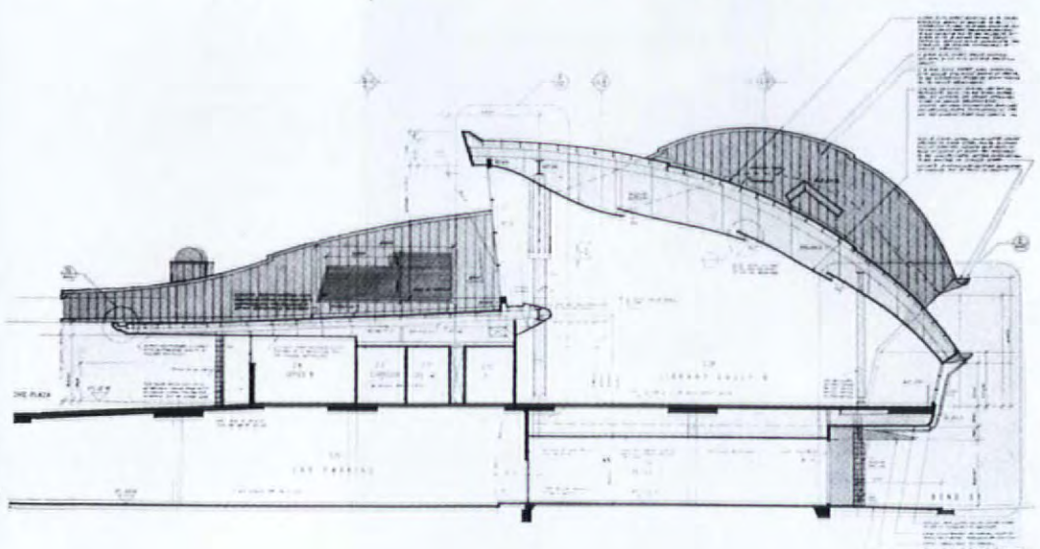
Architects
Edmond and Corrigan Architects
Reviewed by
Alex Selenitsch

Community connections

Ringwood Library, Melbourne, Victoria, Australia

John Gollings

1



2

1: Stairwell from the carpark

2: Section through the library

Ringwood is a suburb of Melbourne, 23 kilometres from the city centre. Originally a small township clinging to the Maroondah Highway, it has become part of Melbourne's eastern sprawl. Ringwood's suburban phase began in the 1950s, a decade in which the formula of one nuclear family per one free-standing house began to be seriously elaborated. Now, as Ringwood is consolidating its suburban fabric, this simple formula is being challenged by a shift in the make-up of the family with the emergence of single parents, serial marriages and so on.

Ringwood's new library, by Melbourne architects Edmond and Corrigan, is a monument to this state of flux. Set one street in from the highway, the new building links the older shops along the highway and a huge shopping complex behind it. In fact, to cope with the site, the project is a conglomerate of carpark, bus-stops, shops and restaurants, community service offices, an outdoor plaza and covered way linking the highway and the shopping complex. In amongst this the library space can be identified as a curved roof which sweeps up and over like a giant civic wave.

The context for this new library is shopping and more shopping and it invites comparisons. Unlike the shops, the library is an institution under-pinned by ideas of cultural continuity rather than the quick buck. But set on a carpark, it also corresponds to the pattern of gathering and dispersal that forms the community life of Ringwood whether one is talking of cars, people, goods, money or books.

The connection of the Edmond and Corrigan complex to the shopping centre behind it provides a way of reading their architecture. The covered way leads from the library level, across a road and into the white-painted, tastefully-finished and conventionally-scaled shopping centre. Walking back into Edmond and Corrigan's architecture, one sees and touches galvanised and stainless steel, strongly-coloured tiles and block work, glazed bricks, enamelled steel sheet: robust finishes which reveal their materiality and identity, unlike the homogenous white paint of the shopping centre. Whereas the shopping centre consists

Peter Hyatt

3

3: Interior view of the south window wall, with information desk lights in the foreground

4: The library's roof is composed of coloured sheets of corrugated steel

5: Perspective of the library complex – the covered way is in the foreground; the carpark at the back

of simple cathedral spaces, it is a labyrinth to negotiate. The library zone is free-form yet immediately legible, being generated through a consideration of pedestrian movement and articulated as separate pavilion-like buildings.

The conventional measure of the shopping centre appears to double in the new library complex: two handrails instead of one, tiles twice the normal size, huge gutters and fascias. Once inside the library, this impression is confirmed by the huge space. The library is one big room with a ceiling at least twice the height of a standard suburban library, making it a memorable volume in this visually tough neighbourhood.

But the volume is also an architectural hint forward to the vast space of the Internet whose access points are available along the library's western wall. The library interior also suggests the architecture of the 1950s the decade of Ringwood's rush into sub urbanisation. It is reminicent of that decade's Scandinavian influence, felt very keenly in Melbourne. In particular, Alvar Aalto is invoked in the striated cylinders of the columns. For Melbournians, Aalto's attention to variety, difference and the non–standard still identifies one aspect of the suburban discourse, the other aspect being a processed conformity. It is the same pair of values that are pointed out by the connection of the library complex to the shopping centre behind it. WA

Peter Hyatt

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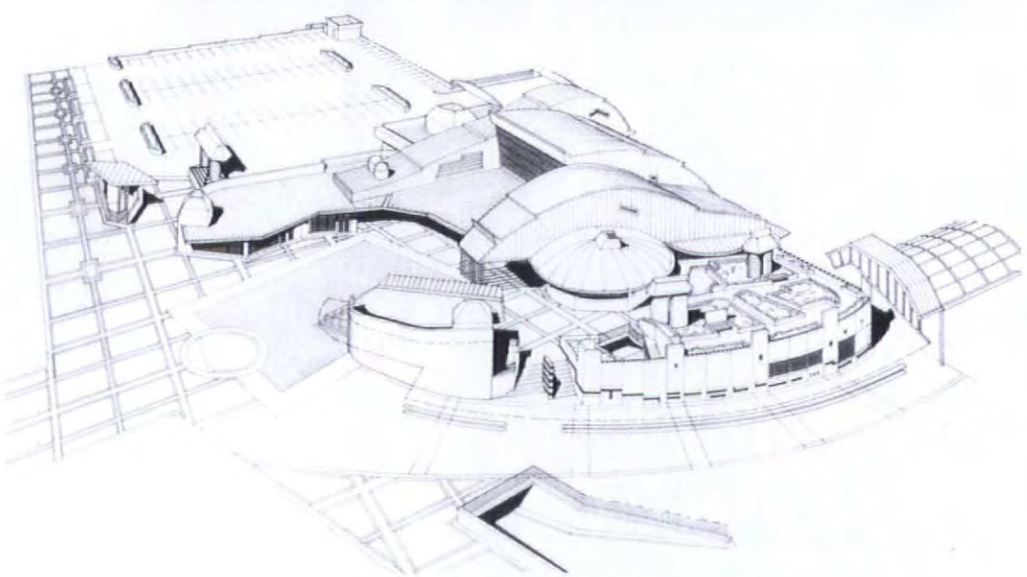


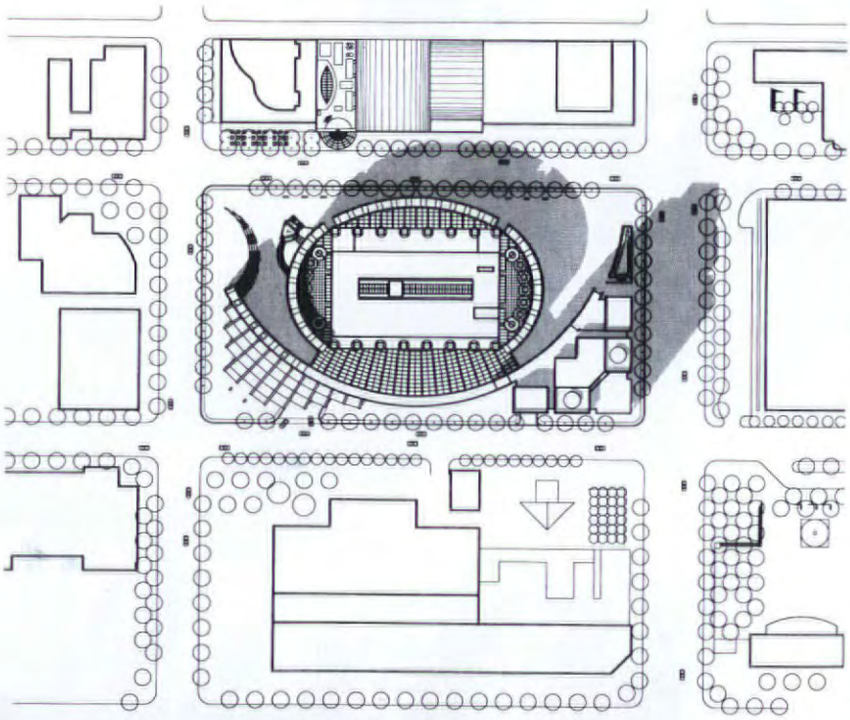
5

Client
Maroondah City Council
Developer
Ringwood Trust/Maroondah City Council
Structural consultant
Bonacci Winward
Civil consultant
Lanigan Baldwin
Quantity surveyor
Rider Hunt

Architects
Moshe Safdie and Associates
Reviewed by
Cheryl Kent

Canada's Colosseum

Vancouver Library Square, Vancouver, British Columbia, Canada



1: Site plan of the Vancouver Library Square Development

2: View of light well showing internal bridges linking reading rooms and book stacks

Moshe Safdie's US$72,545,757 (C$109 million) Vancouver Library Square project dwarfs all other recent library developments in North America. It was completed at the end of 1995, and replaces an existing 130,000-square-foot library with a building three times that size. Participation in the competition was by invitation only, and Safdie was chosen from a shortlist of three. The Boston-based architect's proposal was the favourite of both the architecture selection panel and the public, although in response to the design's resemblance to the Colosseum in Rome local architecture students sported togas to the building's opening, which might not be read as such a positive endorsement.

The Library Square programme could scarcely have been more complicated. The brief required Safdie to incorporate the public library, an office tower, retail area and restaurant whilst retaining a generally "inviting and transparent" atmosphere.

"Integrating a major office building with a major civic structure and making the office building fit" was the principal challenge, Safdie says. It was accomplished through a layering process. At the heart is the crystalline library, a rectangular glass structure with its workings exposed. Five-storey light wells, spanned by bridges, highlight the separation between the reading rooms and book stacks. The library is wrapped inside a curving precast concrete wall within which are the retail operations. And stepping up from the eastern edge of the composition is the office tower.

The angled site was used to support Moshe Safdie's strategy, emphasising the crowning effect of the tower and providing an obvious point of entry to the user. To achieve the flexibility that will accommodate coming changes in computer technology, the floors in the library were made two feet deep and are fitted with all the ventilation systems as well as electrical components; to make alterations floor tiles are removable. This system was only slightly more expensive than a conventional ceiling and electrical chase system. WA

All photographs by Timothy Hursley

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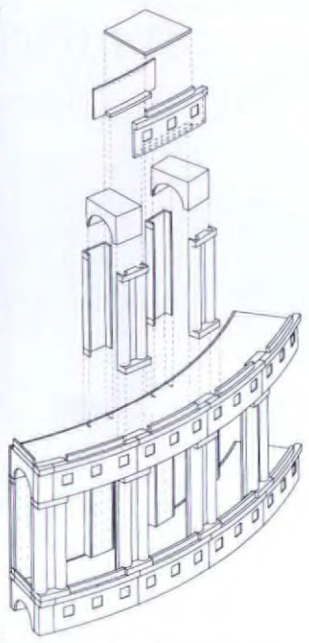


4

Client
City of Vancouver
Associate architects
Downs Archambault & Partners
General contractors
PCL Contractors Pacific Inc
Structural engineers
Read Jones Christoffersen
Mechanical engineers
Keen Engineering
Electrical engineering
Schenke/Bawol Engineering

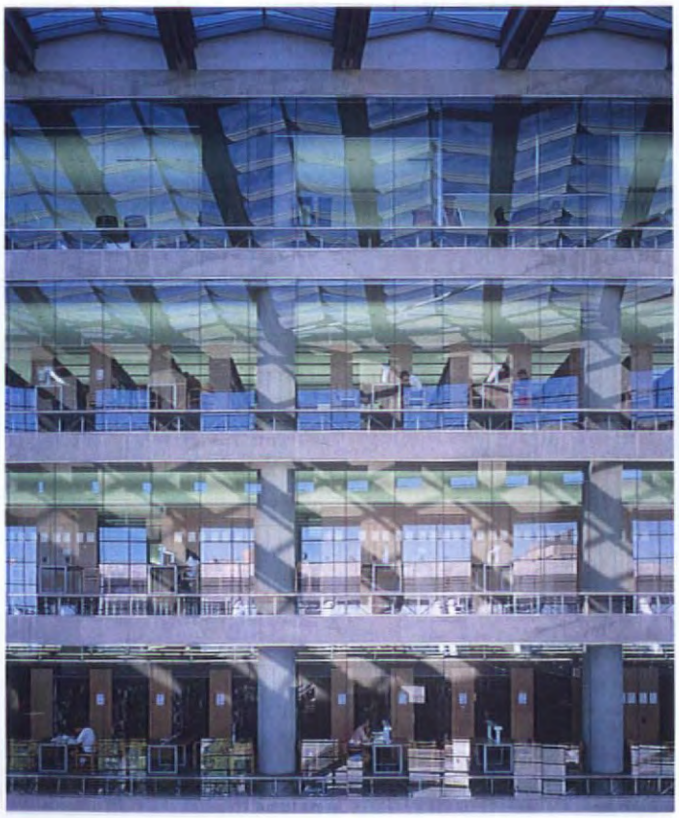
5

3: Night shot of Library Square with Colosseum-shaped library in foreground, and the government-leased office block behind

4: Detail of components making up the precast concrete arcade encircling the rectangular glass library

5: Retail outlets and restaurants are located on the underground and street level floors

6: View of five-storey, "transparent" library



6

Architects
Long & Kentish
Photography
Seago, Long and McNeill

British Library mark II

The Aldrich Library, Brighton, UK

Long and Kentish, the architects of the new Aldrich library for the University of Brighton in the UK, have succeeded in overcoming their inauspicious start as part of Colin St John Wilson & Partners' team working on the British Library in London. They might even have learned a lesson, because unlike the British Library their Brighton project was completed on time and within the budget of US$6.4 million (£4 million).

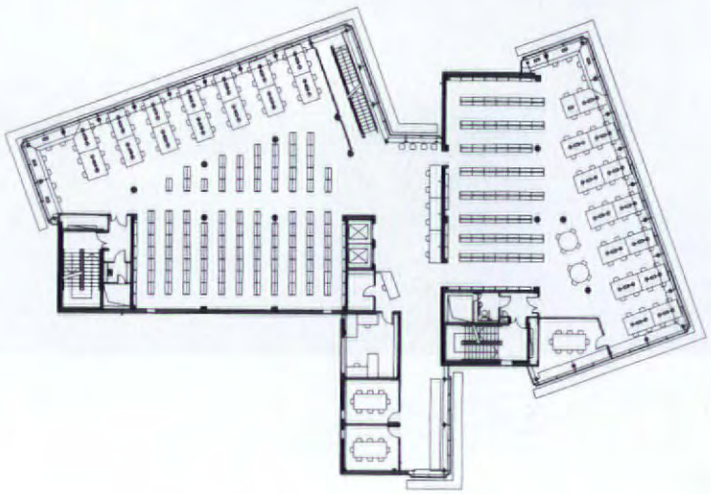
"As we developed the British Library during that period, it seemed to us that the principal criticism of some of these libraries was that they could be stupefyingly monotonous, and, for all their seeming simplicity, quite disorienting in use." Focusing on the spatial delight of libraries such as Labrouste's Bibliothèque Ste Genevieve in Paris, Long and Kentish designed spaces which afford the long-term reader a much needed distant view as a rest from the close reading task.

As well as a coherent spatial plan, the architects set themselves the task of "doing away with air conditioning, keeping the use of short-life finishing materials to a minimum, giving priority to the long-term distribution of power and data cabling to every reader and developing a pleasing and intelligible sequence of reading areas".

The use of stacks as a heat sink in a section of the building was designed to keep heat gain to a minimum. Only the air extract is mechanically assisted since the air supply is provided with naturally through "light shelves" which have attenuated air paths built into them. The location of readers along the perimeter with good natural daylight and individually-operated desk lights was made possible by perimeter trunking (where the power and data cabling are carried to the end of each table).

"Lighting accounts for a larger part of the building budget than is normal in university libraries", admits Rolfe Kentish, " but it creates a variety of spaces, and gives some measure of individual control over the environment". The lighting is more than paid for by the absence of suspended ceilings and air conditioning.

MJ Long claims that their three year old practice owes part of its success to its modest approach and client relations: "clients dread having someone coming in and saying 'we're the great architects, this is what you need'". An example of this is the architectural tendency towards open plan which Long & Kentish claim has actually led to noise problems especially as it seems to coincide with a tendency for students to work in (often noisy) groups. The provision of study rooms permits groups to be isolated from the areas of more sustained study. WA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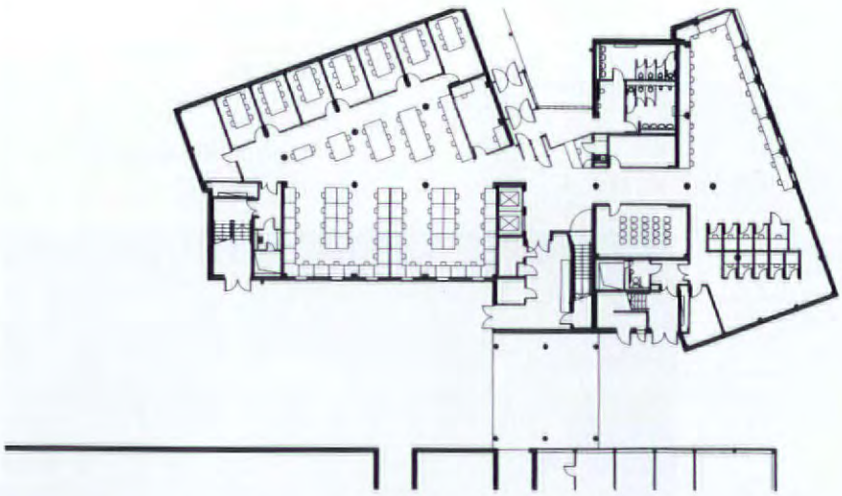
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Client
Department of Learning Resources, Brighton
Structural and service engineers
Ove Arup & Partners
Quantity surveyors
Davis Langdon & Everest
Window and curtain wall system
Schüco International AG
Curtain wall manufacturer
Topside Group Ltd

3

4

5

1: Second floor plan showing shelving systems

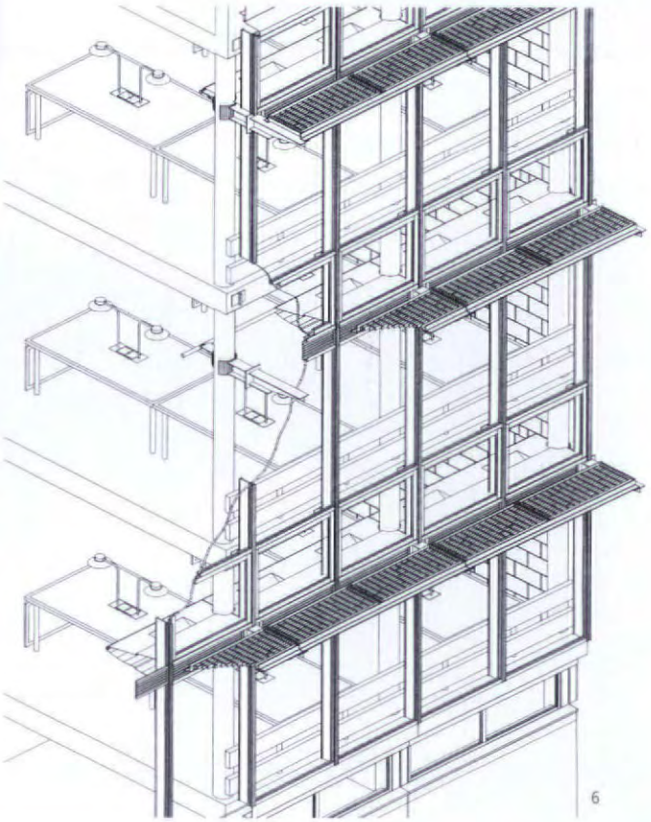
2: Ground floor plan showing group reading rooms designed to prevent the noise problems encountered with open plan

3: Coherent circulation spaces with reading areas around the perimeter

4: Obviating the need for windows, air is brought in through the light shelves which have sound insulating grills

5: North facing facade at night

6: Isometric showing the relationship between interior and exterior



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Architects
Sylvain Giacomazzi and Laurent Beaudouin in association with Hervé Beaudouin
Reviewed by
Michael Rowe

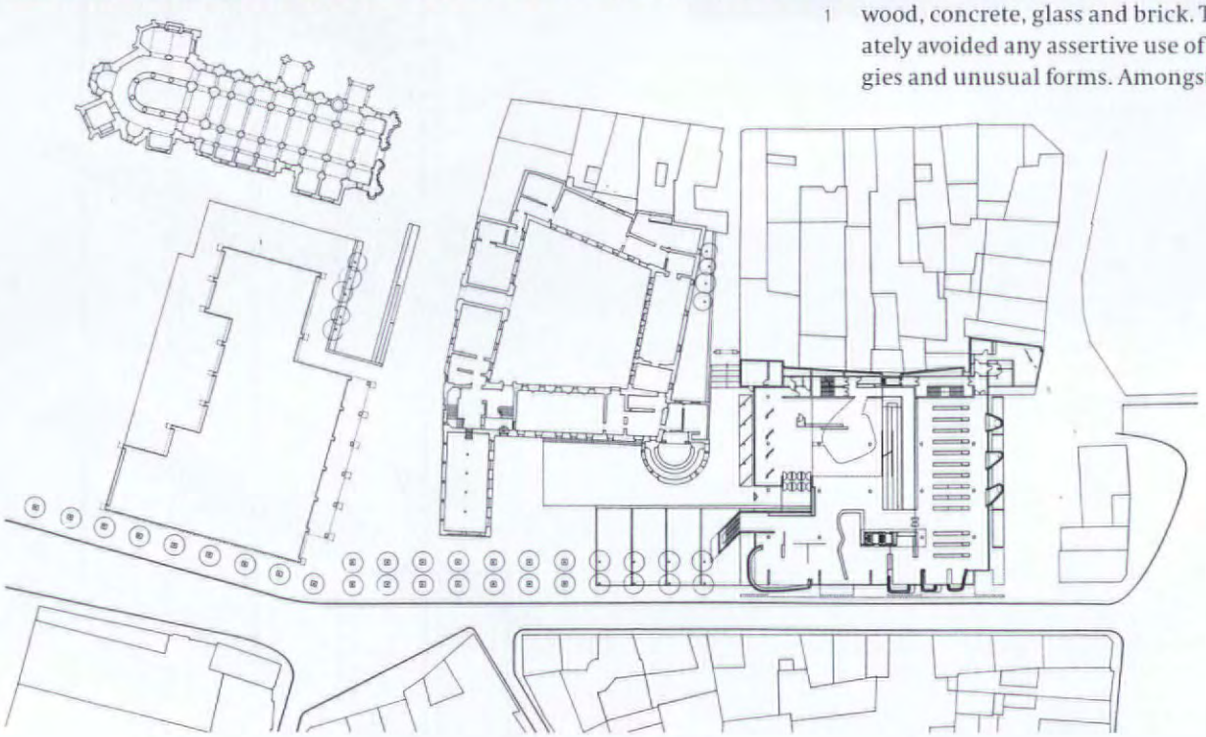
The light touch

François Mitterrand Médiathèque, Poitiers, France

1

1: Roof of the médiathèque. Skylights allow natural light into the reading area

2: Site plan showing the position of the médiathèque in relation to Poitiers' romanesque church, Notre-Dame-la-Grande



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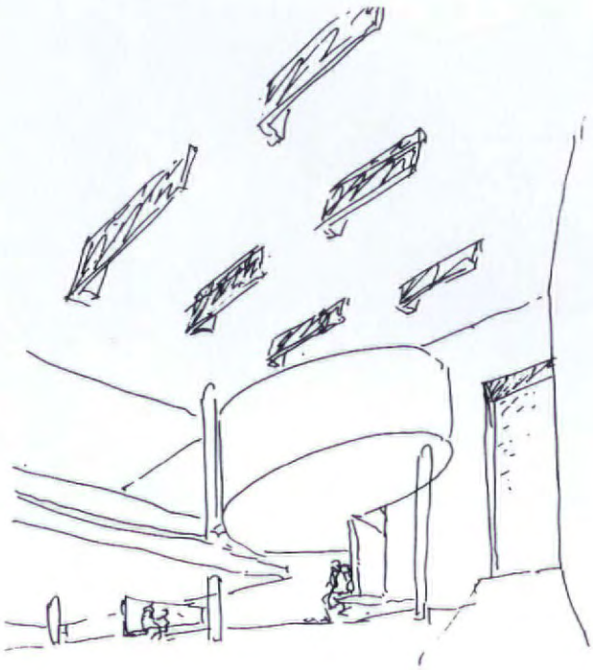
Poitiers' new "François Mitterrand" Médiathèque is, in a sense, one of the late French President's last "Grands Projets". Inaugurated in September 1996, the Poitiers scheme – which combines local and central government financing – was initiated in 1990. At that time France still harboured ambitions to foster projects across the land that would reproduce on a smaller scale the major works being carried out in the capital.

The médiathèque was designed jointly by architects Sylvain Giacomazzi and Laurent Beaudouin, both based in Nancy, north-eastern France, in association with Hervé Beaudouin, who works in the west-central French town of Niort, near Poitiers. The major challenge facing them was to create a multi-purpose building of some 8,000 square metres that would exist – and be seen to exist – on its own terms, yet still maintain the visual harmony of an historic city centre site that includes the noted romanesque church of Notre-Dame-la-Grande.

Their solution was to produce a solidly modern building on four levels (plus two basements) that employs a variety of traditional materials and building methods, including wood, concrete, glass and brick. They deliberately avoided any assertive use of new technologies and unusual forms. Amongst influences ›



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4

3: Concept sketch showing the "window" openings on the ceiling

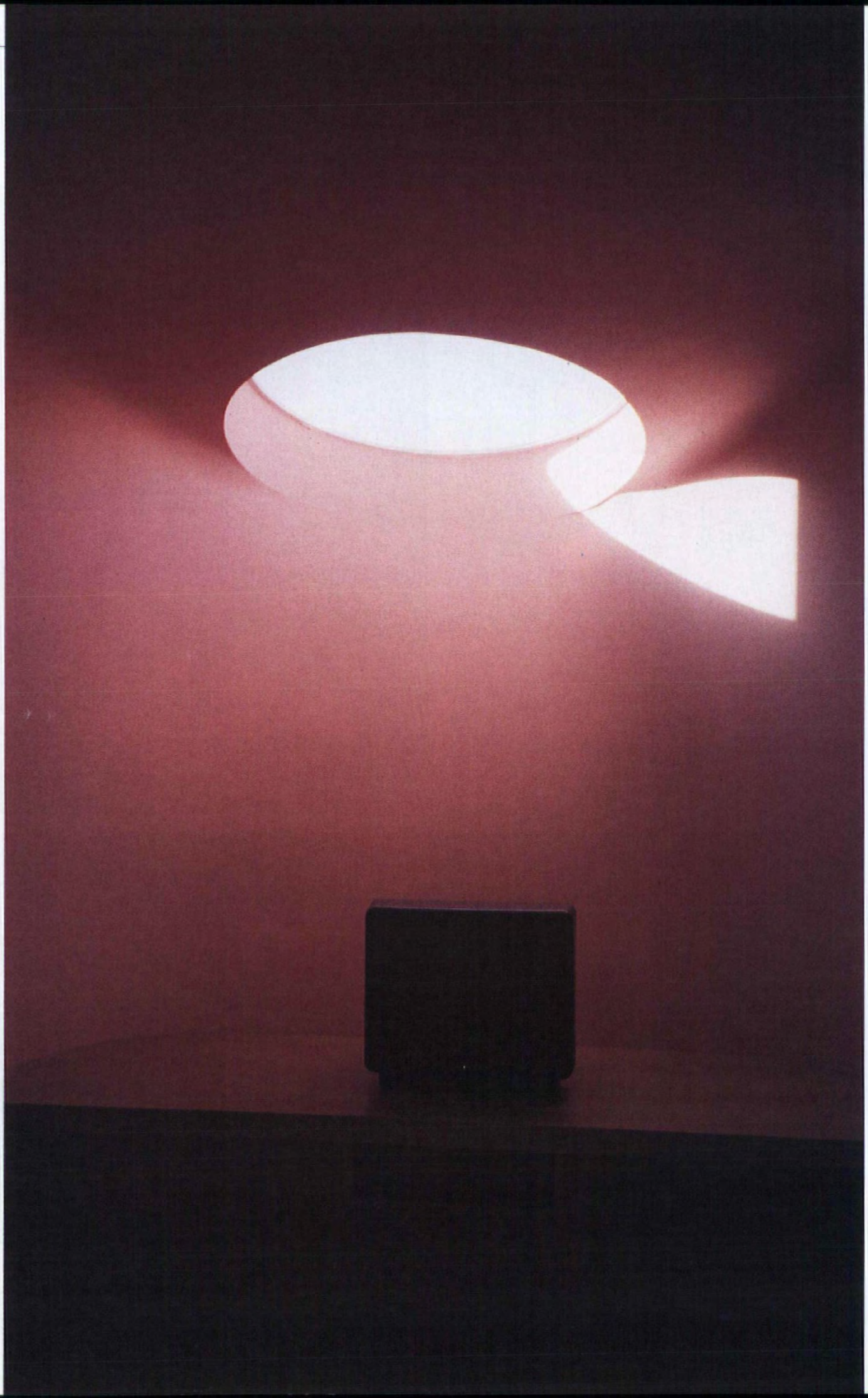
4: View of a lecture theatre on the second floor

5: View of the entrance from the courtyard

5

All photographs by J M Monthers

1: A range of colours was chosen for the interior to accentuate the natural illumination



on their work the architects have referred to Le Corbusier and Henri Ciriani.

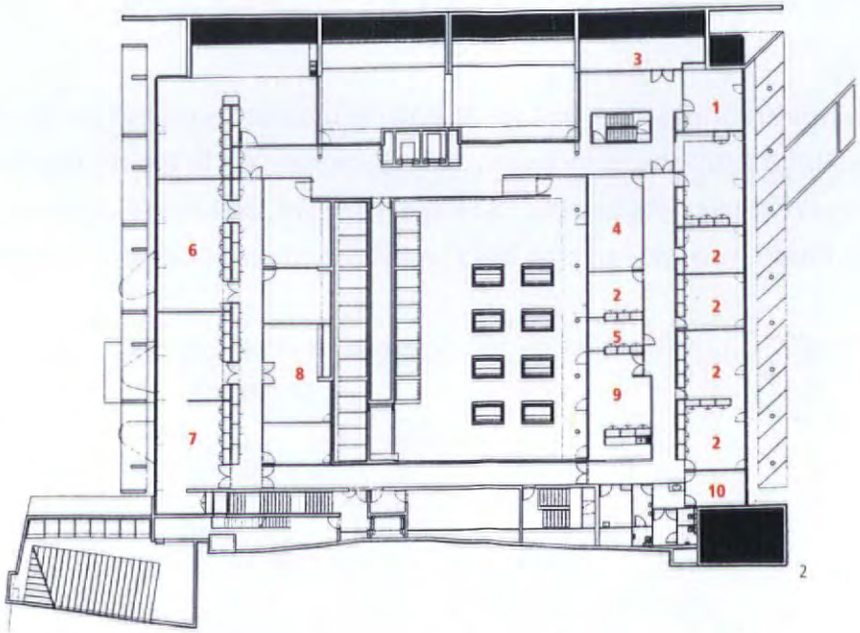
A range of different colours has been chosen for the interior in order to accentuate the effect of natural illumination. This relationship, of the play of light on and within the building, is also emphasised on the exterior facades which have been designed to suggest different qualities of light: transparency (west), depth (east), and reflection (north).

In addition, the architects have allowed natural light from outside to penetrate to all levels through an arrangement of light wells. This serves the practical purpose of minimising the need for artificial lighting during the day time as well as suggesting the continuity between exterior and interior design. Movement through the building is stimulated by the use of open spaces and ramps rising from one level to another.

The médiathèque provides a multi-media library and documentation facilities for both the public and academic researchers, together with conference facilities. In addition the building houses a national centre of the Middle Ages, associated with the new Library of France in Paris. In total it cost approximately US$23.7 million (FF127.5 million) to build.

Poitiers and its district boast a total population of some 110,000, including around 30,000 students. Apart from the médiathèque the city plays host to a theme park known as the Futuroscope, which provides a series of presentations based on advanced cinema technology. The local council is now thinking about building a theatre to herald the year 2000. WA

Client
Marie de Poitiers/Ministere de la Culture, Direction du Livre
Associate architect
Sylvain Giacomazzi
Herve Beaudouin Architecte DPLG/ Laurent Beaudouin Architecte DPLG
Structural engineer
Claude Winninger
Electrical engineer
CEAT – Equipement Electrique
Service engineer
INEX –Equipement climatisation

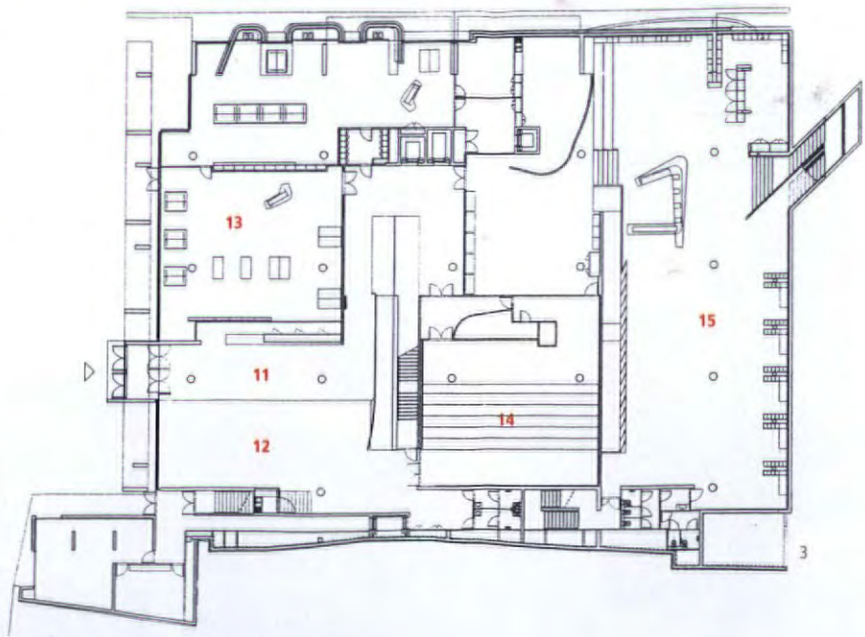


2

2: Plan of the third floor where the archives and library staff offices are located

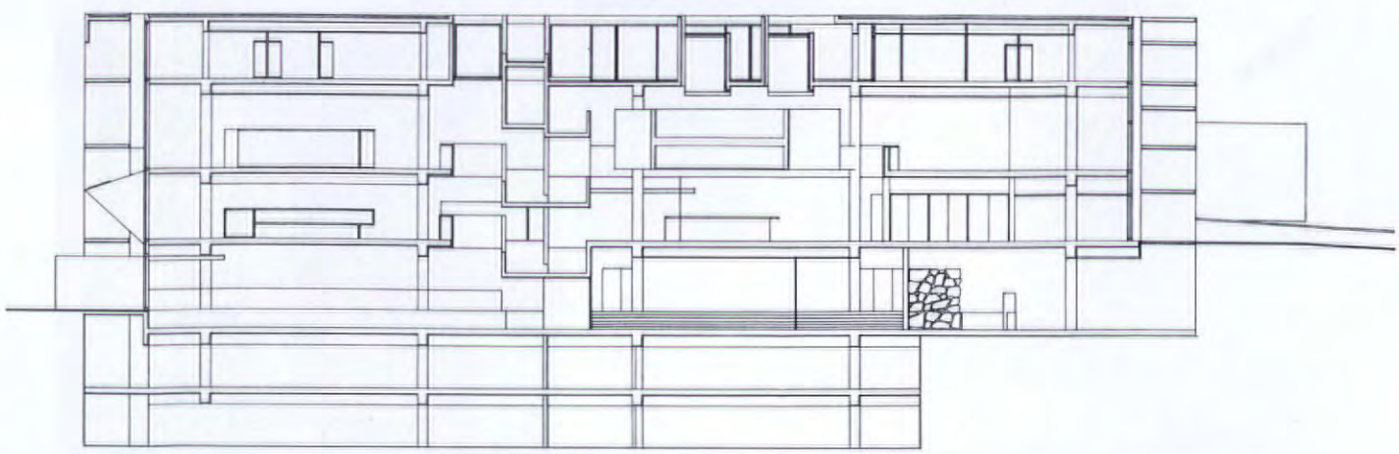
3: Plan of the ground floor showing the library for adults and the library for children

4: Section through the building showing two floors below ground level and three above



3

Key
1. Director's office
2. Offices
3. Archives
4. Meeting rooms
5. Administrative office
6. Registration
7. Database
8. Audiovisual facilities
9. Cloakroom
10. Canteen
11. Reception
12. Exhibition area
13. Centre of the Middle Ages
14. Conference hall
15. Multi-media studio



4

The word on the street

Street furnishings are more than just the urban accessories which make a city user-friendly; they contribute to a city's identity. Hugh Broughton in Spain, Lidia Smoleanschi in Rio de Janeiro and Takeshi Nishizawa in Tokyo interpret these differences in terms of national context, and demonstrate that styles and systems of management differ not only from city to city, but sometimes even between city districts.

Hugh Broughton

1

Street furniture plays a critical role in the visual and organisational cohesion of late-twentieth-century cities. All too often inadequate strategy or design consideration is applied to the panoply of elements which litter our streets. From bus stops to advertising hoardings, inconsistency and confusion are rife with no one body assuming control of this critical component of urban design.

Decentralised authority and privatisation have compounded the problem so that even one type of furniture may assume innumerable guises within a city. On a short journey in London it is possible to count up to seven different bus stop designs and four different telephone kiosks. In the two principal Spanish cities, Madrid and Barcelona, this feature of modern life has been confronted in very different ways.

Madrid, Spain

In Madrid the right wing city government commissioned the French manufacturer J C Decaux to supply recurring elements of furniture. Prior to the 1995 local elections an array of bus stops, advertising columns, bill boards, battery recycling units and public toilets mushroomed. The dominant components were tall advertising columns designed to accommodate a variety of add-on features. Nicknamed *chirimbolos* ("thingamajigs") by a vociferous opposition the columns were justified by the local authority on the basis of potential advertising revenue. Covered in baroque detail,

Hugh Broughton

2

1: "Tall light" in Barcelona, designed by Beth Galí and Marius Quintana

2: Advertising column and bottle recycling unit in Madrid by French manufacturer, J C Decaux

Hugh Broughton

3

they are a shocking attempt to bring a touch of heritage to an unashamedly capitalist advertising concept.

Decaux's furniture has denigrated Madrid, undermining its visual vibrancy with poor plastic pastiche. The fault inherent in this policy stems from commissioning one company to provide a non-city-specific family of elements without thought of the overall impact on the heritage or culture of the city. This is an approach driven solely by financial consideration with little thought given to urban consequence.

Barcelona, Spain

In stark contrast, the street furniture of Barcelona leaves the city enriched by its presence, setting it apart as an icon of civilised urban design. To complement the urban regeneration programme initiated by Oriol Bohigas in the 1980s, the socialist city government established a Department of Urban Elements, run by architects. This body acts as a design laboratory, commissioning some designs from amongst the city's best architects and designers and creating others in-house. Prototypes are then developed in association with established manufacturers and, once tried, tested and approved they are adopted as a standard for the city. The responsibility for the purchase and location of the various elements falls on the relevant local government department or statutory body. The cohesive strategy is financially justified by the economies of scale inherent in a city-wide policy. Its success is derived from the existence of one umbrella body with the power to promote individuality and an ability to appreciate good functional design.

The key to developing an appropriate policy for urban street furniture lies in imaginatively organised centralised authority. With so many organisations and groups jostling to place components on every pavement, it is critical that one organisation takes control to ensure consistency and appropriateness of design. Without this rationale, cities will sink ever further towards urban chaos. In the context of this increasing threat to urban homogeneity, the enlightenment of Barcelona should stand out as a shining example to authorities around the world.

Rio de Janeiro, Brazil

Rio Cidade was a project masterminded by IplanRio, Rio de Janeiro's city planning agency. The team was lead by the architect Luiz Paulo Conde, Secretary for Urban Development and Mr Cesar Maia, the City Mayor. In 1993 the brief for a "methodology" competition was published, inviting submissions from all qualified architects practising in Rio de Janeiro State.

The aim was the redevelopment of 12 districts of Rio; a series of punctual interventions on urban spaces which were identified as the "structural corridor" of the city. Those spaces were, in fact, the main roads connecting the 12 areas. It was up to the architects to suggest within those "corridors" which points were to be developed.

The idea was to revitalise the concept of the street as a space of social exchange. The aim, as Mr Maia had put it, was to improve pedestrian circulation, as opposed to the recent tradition of urban interventions where vehicles were the focus of attention. This was to be achieved, in accordance with the brief, by creating safer pavements and pedestrian crossings, better lighting, improved signage and street furniture and the overall layout of the pavements.

Seventeen practices were involved ›

3: Olympic Port street lights, Barcelona by MBMP Arquitectes

4: ONCE lottery kiosk, Barcelona, designed by Antonio Rosselló

5: Bus stop in the Méier district of Rio de Janeiro, designed by Mayerhofer + Toledo Planejamento Arquitetura e Consultoria Ltda

4

Hugh Broughton

5

George Untermann

1

2

1: Lamp post with public telephone attached in the Leblon district of Rio de Janeiro, designed by Indio da Costa Arquitetura e Design

2: Vehicular signage in the Leblon district of Rio de Janerio, designed by Indio da Costa Arquitetura e Design

3: Bus stop with cantilevered roof in Rio de Janeiro's Leblon district, designed by Indio da Costa Arquitetura e Design

›with the project. Conde claims that all were given total freedom to develop the design of the area to which they were allocated. The original brief also predicted the discussion of the proposals with the local government, business owners and the population of each district.

Leaving aside the aesthetic merits of each project, the final result for the city had several implications. Rio de Janeiro relies on tourism as a source of income and undoubtedly needed a major refurbishment. One noticeable improvement was that the aerial cables were removed, greatly reducing visual pollution and creating a less chaotic view of the city. Much needed infra-structural works were also carried out, clearing obstructed draining systems in an attempt to prevent the city's annual floods.

The freedom given to designers did cause some problems. There are at least 17 different bus stops in Rio, numerous types of phone booths, different indications for pedestrian crossings and filter boxes, different types and locations for street names and general signage, besides a variety of lamp posts with different types of bulbs. The result was that the ability to identify certain essential street furniture/facilities, almost immediately, was lost. A first time visitor to Rio, when looking for a telephone has to guess what it looks like – the same can happen to one of its citizens going to a different district of town with which he/she is not familiar. The vast array of designed objects and general signage can sometimes prove unsafe – particularly if one is looking for directional signs and trying, at the same time, to keep up with the fast speed practised by local drivers.

Another issue brought about by the variety of design relates to the maintenance costs for the municipality. One can get lost with the numbers involved in the storage and replacement of light bulbs for all the different light fittings.

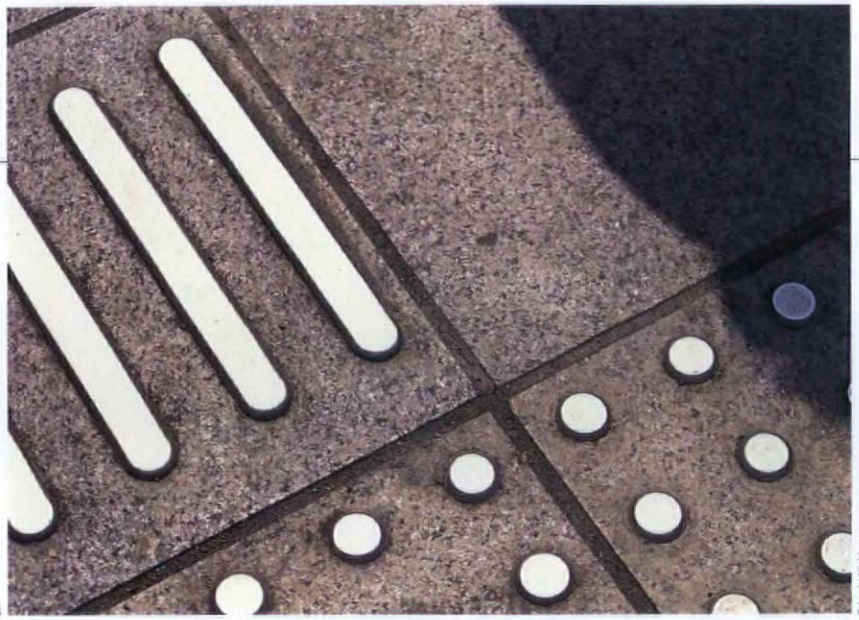
For the two years that it took for the project to be built, apparently without a logical programme for its implementation, Rio became a vision of chaos. However, since the completion of the first phase of Rio Cidade, the population appear to have familiarised themselves with their revamped streets. Conde was recently elected Rio's Mayor and has already published the competition brief for the second phase of Rio Cidade.

Tokyo, Japan

Some foreigners describe Tokyo as a "pavilion" city, comprised of a disor-

George Untermann

3



4 Takeshi Nishizawa

ganised melange of buildings and lacking any homogeneity. However it should also be read as an oriental response to a city of the twentieth century, where the identity of individual localities is respected. Japan's geographical make up of a group of small islands, running from north to south, has historically fostered a series of isolated communities. However, since 1972, high-speed motorways and Bullet Trains have been introduced to encourage communication between the country's 120 million inhabitants. The result should be that there is increased standardisation in the design of street furniture, but this is not the case.

The Japanese attitude towards applying design to public spaces has evolved since the period of recovery after the war, when economics and functionalism took precedence over the quality of the urban environment. The resultant manufacturing boom produced excessive exports which made Japan unpopular among its trading partner countries, so the Japanese government introduced a policy to increase domestic demand.

The empowerment of the consumer produced a parallel demand for a higher standard of living and particularly greater attention to the design of their city. The international exhibition held in Osaka in 1970, marked the starting point of rethinking the life and design of the city.

The roads, in post-war Japan, were constructed without any overall plan as they were considered temporary measures to deal with the rapid increase in motor traffic. Now there are guard-rails dividing the road and the pedestrian footpath. In many areas, such as Ginza, Chuo-ku, there are braille indentations with raised metal discs or strips on the street surface for the benefit of blind pedestrians. These are standardised for intelligibility producing a consistent pattern on the pedestrian's route.

A similar development can be observed with street lighting. Although matching lampposts are used in the area of the Imperial Palace, away from the palace area, there are contrasting designs of lamp posts every 100 or 200 metres. In some areas the designs of lamp posts vary from the right side to the left of the same street because different local authorities and associations of shops opt for different styles. In the Ginza district, Takeshi Nishizawa and G KSekkei have designed lighting poles which incorporate a vertical neon cylinder into the top of four sections of a pole.

Takeshi Nishizawa

6

The design of modern street furniture in Tokyo lacks symbolism. In the past, even when functionalism and rationalism were important, symbolism was a feature of the design. The bus stops, public toilets and police stations were clearly identifiable from their form. The modern styles do not facilitate the recognition of function, as the design features are determined primarily by the local service providers and lack any national symbolic style. However the focus on the locality has resulted in the development of some visual arts such as sculptures in public places. Benches and ventilators, which have a functional purpose have also sometimes become a form of artistic expression. WA

4: Pavement design with directional "dots" for the sight imparired in Ginza, Chuo-ku, Tokyo

5: Pedestrian signage in Shinjuku-ku, Nishi-Shinjuku, Tokyo

6: Lighting "poles" in Ginza, Chuo-ku, Tokyo, designed by Takeshi Nishizawa and G K Sekkei Inc

5

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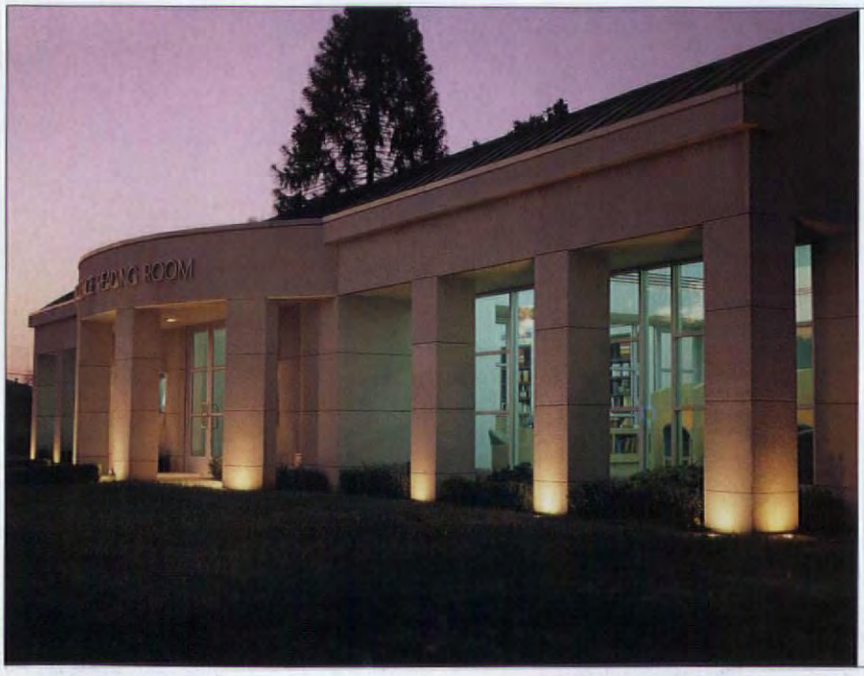

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forbo KROMMENIE

Linoleum Gets Wired

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1: Leo's Gifts (Toy Factory and Offices) Architect: Steven Winderickx, St Genesius-Rode

2: Clinique François 1er (Hospital) Architect: Hospital Extension: Arch Amoyal et Pasquinelli, Le Havre; Decoration Entrance Hall: Arch Duflo, Le Havre

It's hard to think of any other building material that is as environmentally benign as linoleum. We tend to think of eco-friendly goods as being easily identifiable as the product of cottage industries but, unlike many other products, it is not immediately obvious where linoleum comes from. Many people may even think that it's some early form of oil-derived plastic, with all that that implies in terms of environmental complications. On the contrary, Forbo-Krommenie shows us that "industrialized" materials can also be green

The company's plant is situated in what is claimed to be the oldest and therefore most experienced industrial area in the world. Originally, industries were always centred on sources of power: in Holland it was the wind. The mills with which the country is so closely associated were used not only for milling flour and draining land but also for powering saw mills and other simple machines.

Perhaps that was why the Kaars-Sijpesteijn family were based in the area. They were sail makers who, faced with a decline in demand during the 1890s because of the growing popularity of the steamship, smartly moved into linoleum production. This particular example of technology transfer made a lot of

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3: Academisch Ziekenhuis Groningen (Academic Hospital Groningen) Architect: Team 4 Architecten, Groningen; Patijn Architecten, Rotterdam

4: Rietveld Lyceum Architect: G Rietveld

5: Four Courts of Ireland Architect: Costello Murray Beaumont, Dublin

6: School Kitchen Nordre Skole (Primary School)

5

sense, as linseed oil was already used as a waterproofing agent for sails. Today Forbo-Krommenie, successor to the Kaars-Sijpesteyn family, is the biggest single purchaser of linseed oil in the world, and the world leader in linoleum manufacture.

The production of linoleum is, like that of many natural products, a process that takes time. It takes about six weeks for the raw materials to be processed, oxidized and cured, finally emerging to be carried by monorail under cover to Forbo-Krommenie's nearby warehouse.

The first clue to the origins of linoleum comes from its distinctive and very pleasant smell when new, thanks to the linseed oil that is its main constituent. Combining this with natural resins and oxidizing the mixture by boiling it with air produces a substance called "linseed cement" which looks and feels like a sticky mixture of rubber and jelly. This is combined with limestone powder and wood flour, which absorbs the pigment. The mixture is then heated, rolled and stretched out before being calendered on to a woven jute backing from India or Bangladesh. The only waste product that is not recycled is the dust and loose fibres vacuumed from the jute before it enters the production process.

Few users specify linoleum solely because of its numerous environmental credentials. The reasons for its still increasing popularity around the world in both ecologically conscious and unconscious cultures are ones

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with which even the most sceptical and hard-nosed of accountants can identify.

First amongst these is its durability: if well-maintained, life spans of 20 to 30 years are normal. Linoleum can also withstand heavy loads and wheeled traffic. It is fire-resistant: it will not self-ignite and does not contribute in any way to the early spread of flames. Cigarette burns can be easily removed and polished over. Its maintenance costs are low and the recommended dry cleaning method is substantially cheaper in labour than most wet methods. Linoleum's hygiene and ease of cleaning are reinforced by its natural anti-static properties and the ease with which dust can be controlled, while common bacteria such as staphylococcus aureus will not multiply on its surface.

Lastly, there is the matter of its decorative potential. Aquajet cutting allows complex designs to be formed, while the use of a contrasting welding rod colour creates the possibility of graphical outlines. Taken together, its qualities are such that it has recently been used for the restoration of important public buildings such as Dudok's Hilversum Town Hall and the High Court of Ireland.

Linoleum's cleanliness and durability have made it popular above all in hospitals, kitchens

7: SPV (Office Building)
Architect: FFNS, Sundsvall, Håkan Snith

8: Kommunaler Kindergarten

9: Lokalcenter Tranbjerg Vænge (Activity Centre for the Elderly)
Architect: Sahls Tegnestue A/S, Århus

10: Kaiser-Permanente (Healthcare Institution)
Architect: Nix Mann & Associates, Inc, Atlanta, GA

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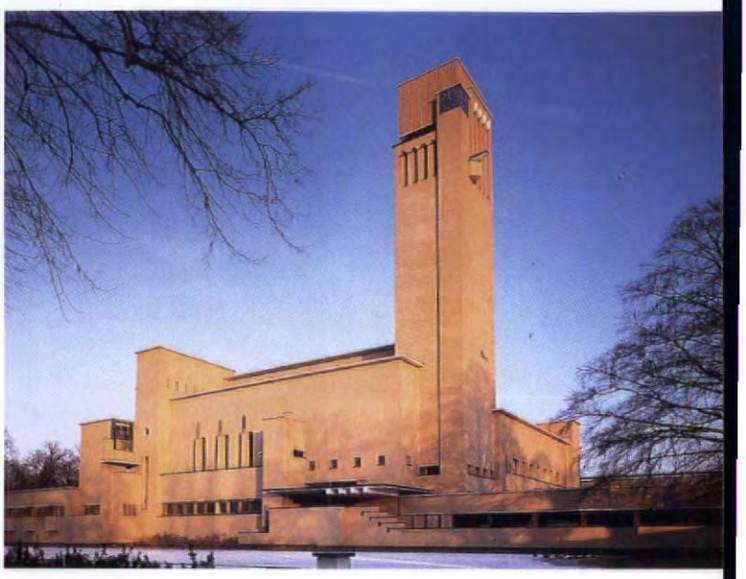
11: Villégiale St Jacques Hôtel Dieu Castres (Home For Retired People / Nursing School



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and schools. Together, these have always made up linoleum's biggest market. Its resurgence as a high fashion material, however – at least in the U.K. – probably dates from its use by Piers Gough of CZWG for the influential 1981 Lutyens exhibition at the Hayward Gallery. His designs made extensive use of newly-developed aquajet cutting techniques to recreate Lutyens' floor designs that were originally formed in marble. This return to favour marked the end of a period during which widespread pessimism about the prospects for linoleum had prompted some major producers to leave the market.

Forbo-Krommenie's continued faith in the product has been richly rewarded. "Nowadays it is very fashionable to use linoleum," says Robin Bevers, Director of International Sales and Marketing. "You see it especially among young people. They're getting bored with using carpets. Linoleum's seen as avant-garde".

In response to linoleum's new-found designer status, and in order to differentiate their range more clearly from their competitors', in 1994 Forbo-Krommenie introduced Artoleum. The design brief to their designer Pieter Zeegers and his team called for a new standing-structure (i.e. the mix that gives the pattern) using more contrast and more colour. Zeegers' innovative solution made great demands on the production process – "we had to build a completely new factory," says Bevers – but has been a resounding success. Launched just three years ago, it is now selling at a rate of a million square metres a year.

Other speciality products include Desk Top, which makes an unusually pleasant, resilient writing surface, and Bulletin Board which, as its name suggests, is an ideal environment for drawing pins.

But Forbo-Krommenie's most important single product is the marbled linoleum known as Marmoleum and this spring Forbo-Krommenie announce the collection of colours that will take them into the Millennium.

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12: Restauratie Gemeentehuis Hilversum (Restoration Town Hall Hilversum) Architect: Building (1931): W M Dudok; Restoration (1989-95): G W van Hoogevest, Van Hoogevest architecten, Amersfoort

13: Mabuchi Motor Technical Centre, Chiba prefecture, Japan

14: Head Office, Sugar Factory, Malmö, Sweden
Architect: Ahlsen & Lindström

15: High Court of Ireland, Dublin, Rep of Ireland

13

To call the new range a "collection" is to imply that it is a branch of the fashion industry – ironic, considering that linoleum was originally only available in brown. The range of colours possible today is virtually infinite. Zeegers is the man charged with the task of identifying those that will be in demand during the range's four-yearly cycle. His choice was made only after an exhausting amount of international travel, consulting with users and other designers across the world.

The result of this global consensus is Marmoleum's new range. Zeegers' key discovery was that brighter, warmer colours are back. Even orange – out of favour since its conspicuous overuse during the 1970s – is making a comeback. Specifiers, it seems, have become tired of the low-key hues of the early nineties and are looking for a bit more excitement.

In the spirit of its new collection, Forbo are also taking advantage of newly-emerging communication possibilities in order to enhance customer support. Backing up the World Tour – which, visiting 29 cities, will be on a scale worthy of Phil Collins – will be a new site on the World Wide Web (http://www.forbo-krommenie.com).

"One of our reasons for wanting the web site in place," says Bevers, "is so in future we can provide a help desk for users around the world – at local telephone rates."

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"We want to give people a chance to become acquainted with us, so we tell them something about our environment, our products and activities. To provide interesting reading for architects and designers, we will give an extensive overview of our projects world-wide."

The home page will provide direct access to three other areas. One will give more information about Forbo-Krommenie itself, with special attention devoted to news and the environment. One (http://www.marmoleum.com) will be devoted to the World Tour itself, with more specific information — updated weekly — about events and location. Finally the Products area carries a complete overview of Forbo's product lines, with technical specification, information on ecological performance and a Java-enabled interactive module allowing specifiers to view actual samples on screen and try out different colour combinations. Users may even download samples for onward export to renderings or CAD programs. Not least, visitors can easily contact Forbo by email for sales or technical support: samples will also be available by email.

Forbo-Krommenie's presence on the Internet is a demonstration of how in future, the ease of keeping a Web page up-to-date and its interactivity will do more than ease international product distribution and customer care. It may also make the product brochure redundant.

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PO Box 13, 1560 AA Krommenie
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Tel: +31 75 647 74 77
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18

16: With Artoleum, traditional preconceptions about floor design possibilities disappear

17: Forbo's Bulletin Board is specially formulated with a high cork content to combine functionality with an appearance that is smarter than the average pinboard

18: Forbo's Marmoleum makes it easy to make unique and attractive floor patterns that bring an entirely new dimension to interior design

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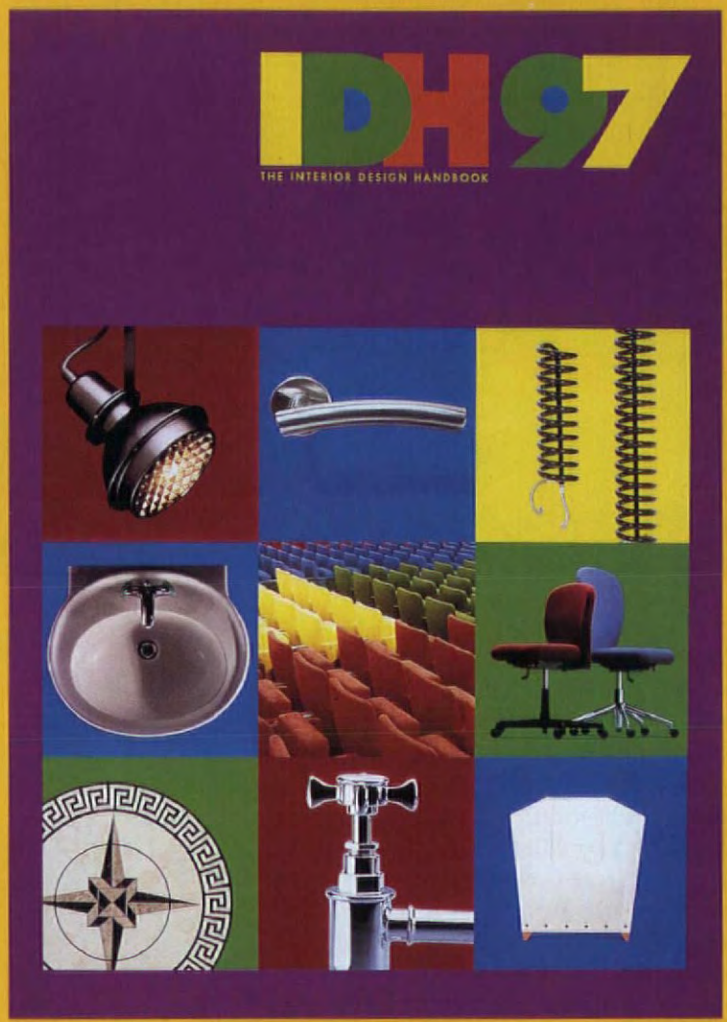

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In next month's WORLDARCHITECTURE

Whitney Cox

1

1: Exterior view of the New Amsterdam Theatre, Broadway, New York redeveloped by Walt Disney Imagineering

2: Ocean Park Butterfly Farm, Hong Kong by Leigh & Orange

3: Ove Arup & Partners' logo

Denis Kirtley

ARUP

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REGIONAL FOCUS – EAST COAST US

America's recession in the late 1980s had serious consequences for the architectural profession and construction industry. Joseph Giovannini reviews the situations on the East Coast at the end of the 1990s, and charts the fortunes of firms who diversified to include a wider variety of building type and geographical spread in order to adapt to the economic climate. Plus building reviews including SOM's spectacular new State Library in Virginia; the North Carolina State University Engineering Graduate REsearch Center by Odell Associates; KPF's World Bank in Washington and Arquitectonica's All-Star Disney resort in Miami.

PROFILE - LEIGH & ORANGE

Founded at a time when the Opium Wars were only a recent memory, Leigh & Orange is Hong Kong's oldest firm of architects, responsible for many of the landmarks most closely associated with the territory's colonial past. As such, they could be forgiven for being a little nervous about the handover in June. But the truth could hardly be more different. Having successfully completed their own process of transformation from "pillar of the establishment" to" international design firm" based in Hong Kong, Leigh & Orange are looking forward eagerly to the new opportunities they see emerging in China's new Special Administrative Region – and beyond.

SPECIAL REPORT - THEATRES

Theatres and concert halls offer entertainment and escapism. But it is difficult to make entertainment pay, and increasingly architects are being commissioned to design interchangeable "entertainment spaces" creating a challenging job for acousticians like Arup Acoustic's Richard Cowell who explains to *World Architecture* the contrasting requirements each theatre "type" requires. Six buildings represent the current state of entertainment architecture internationally, including reviews of the new Japanese National Theatre; an analysis of William Rawn Associates' New Concert Hall at Tanglewood, Boston and RHWL's Bridgewater Hall in Manchester. Plus two restoration projects from the US.

PLUS -

EXCLUSIVE SURVEY OF THE WORLD'S TOP 125 STRUCTURAL ENGINEERS

World Architecture's first global survey of structural engineers. The top 125 firms are ranked by number of employees and the international market place for their services is analysed in detail. Including breakdowns of activity by region, home market and sector, plus an analysis of trends, comment by leading industry figures and a wealth of other statistics organised to give an accessible in-depth picture of a dynamic profession.

PROFILE – OVE ARUP & PARTNERS

Voted by architects for two years running the best engineering consultancy in the world, Ove Arup & Partners is the subject of a 24-page profile within the Survey of the World's Top 125 Structural Engineers.

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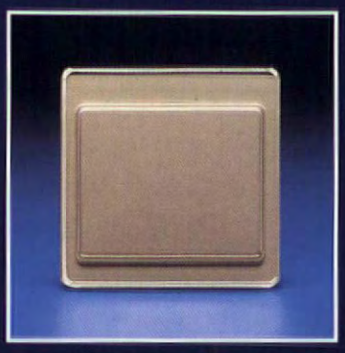

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