WORLD ARCHITECTURE

ISSUE NO. 28 US$10 UK£10

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THE TRUTH ABOUT TOYOTA HOMES
LATEST MURPHY/JAHN
THE STORY OF LIFTS - PART ONE

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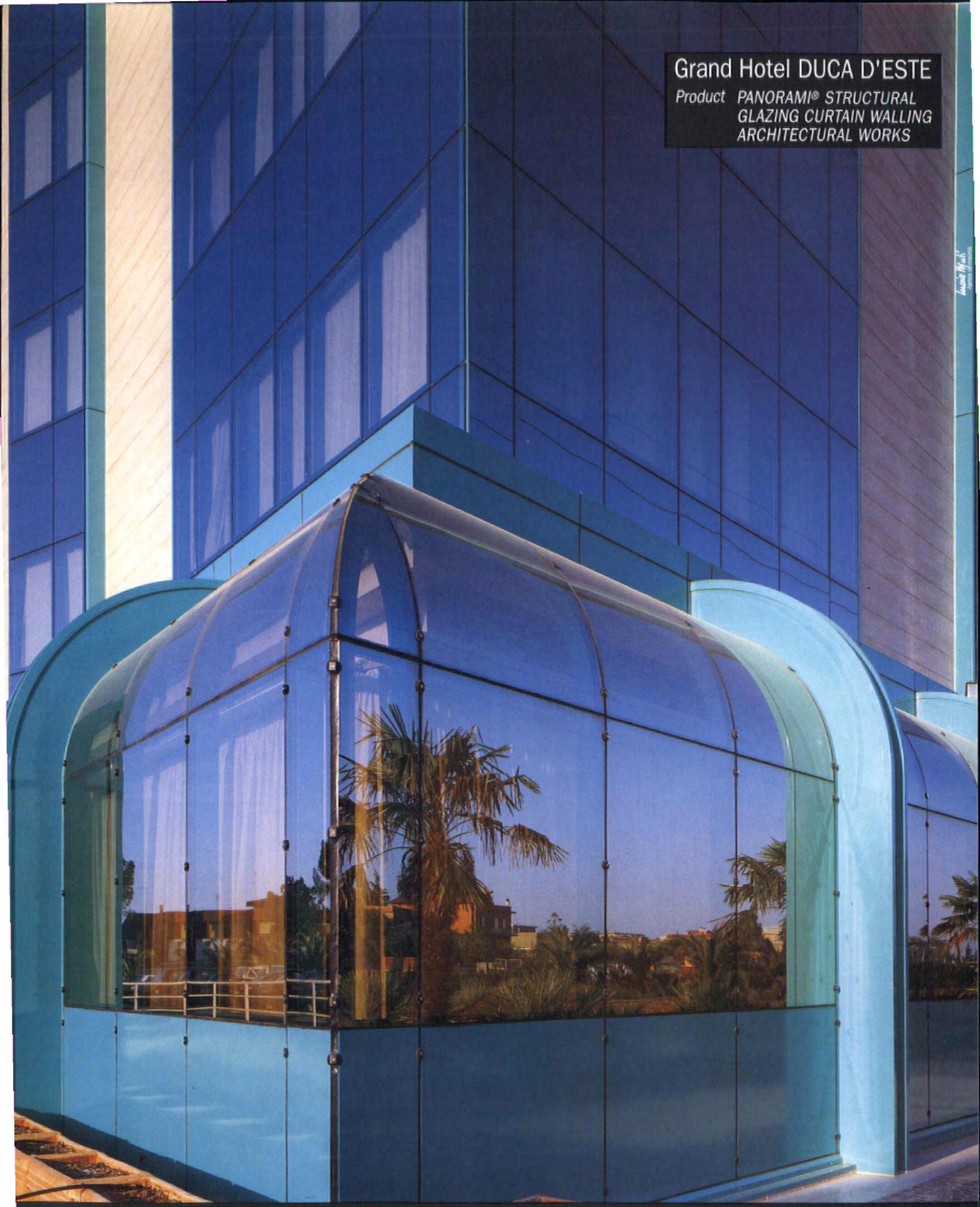

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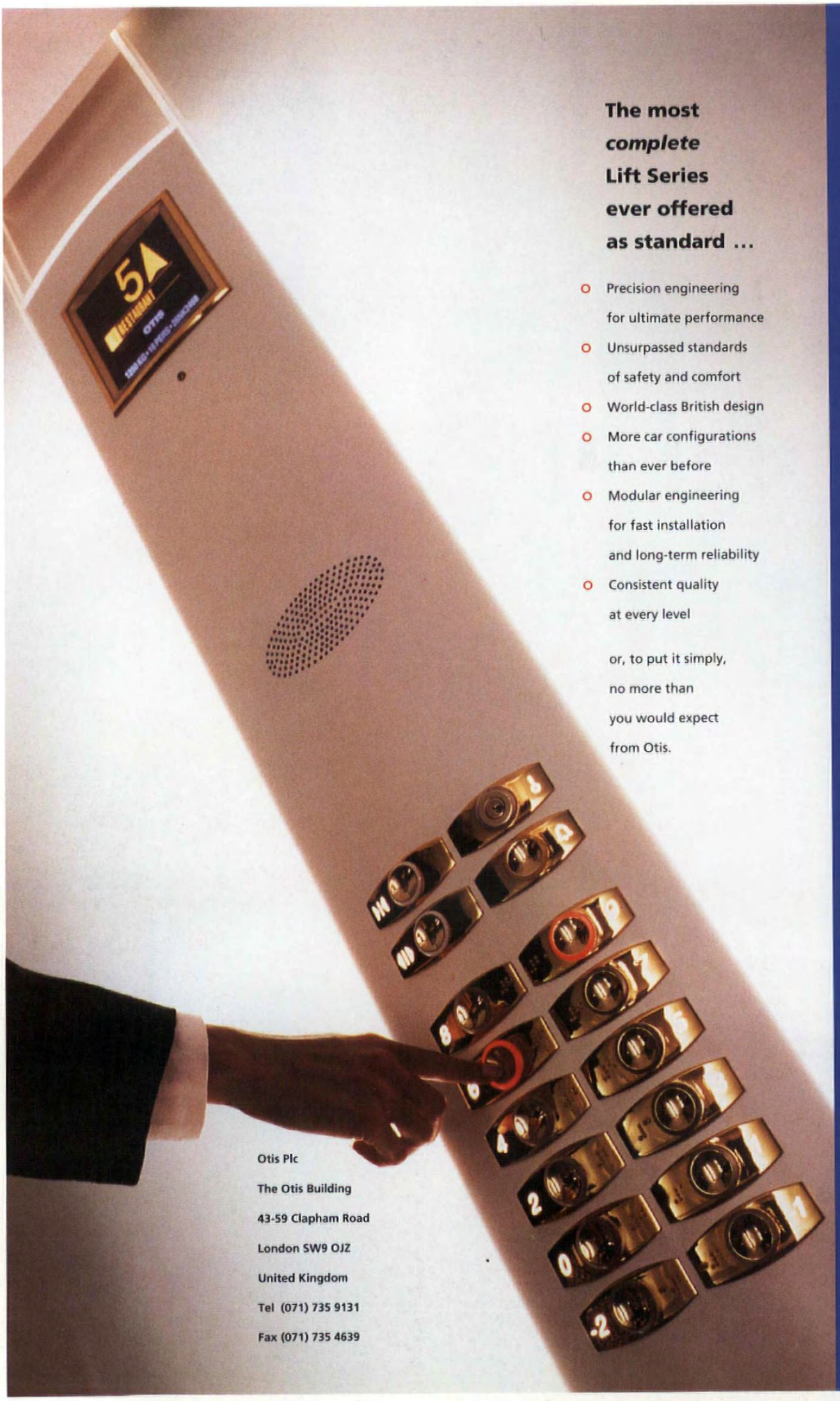

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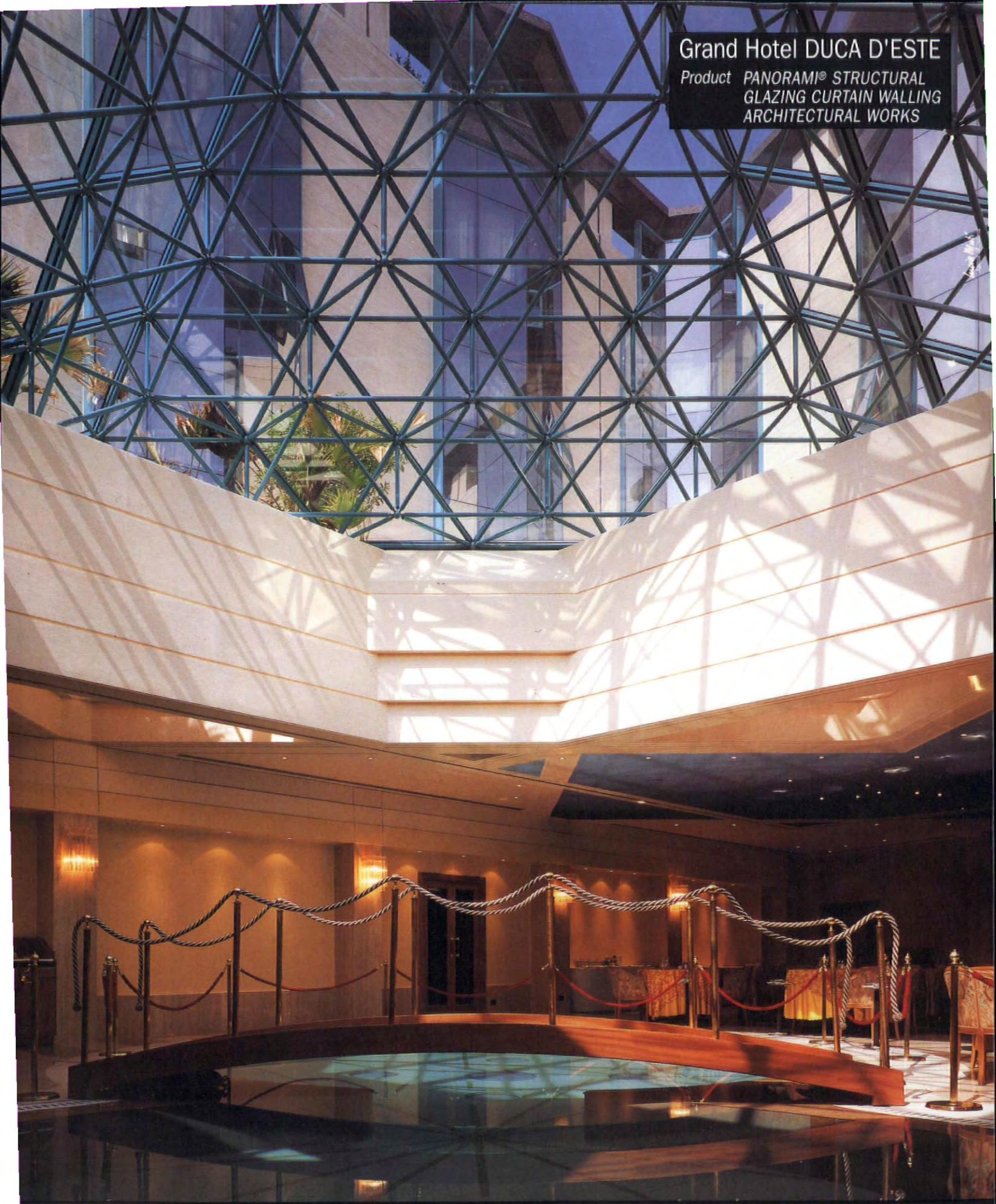

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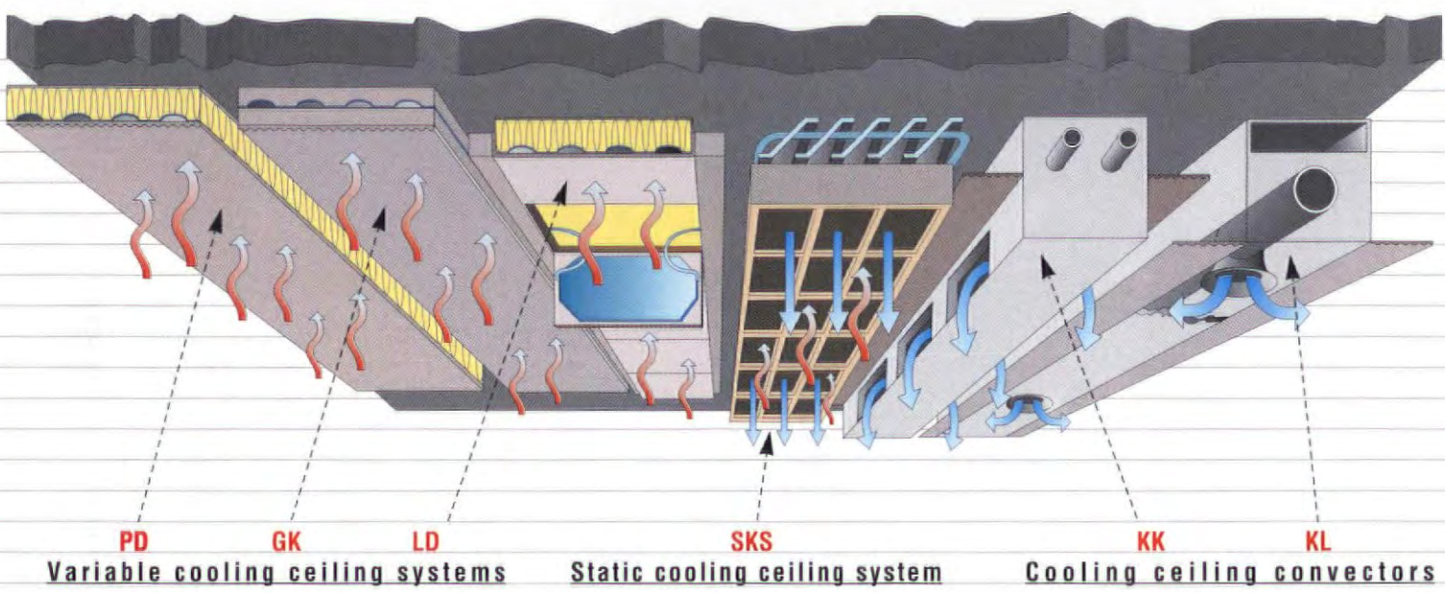

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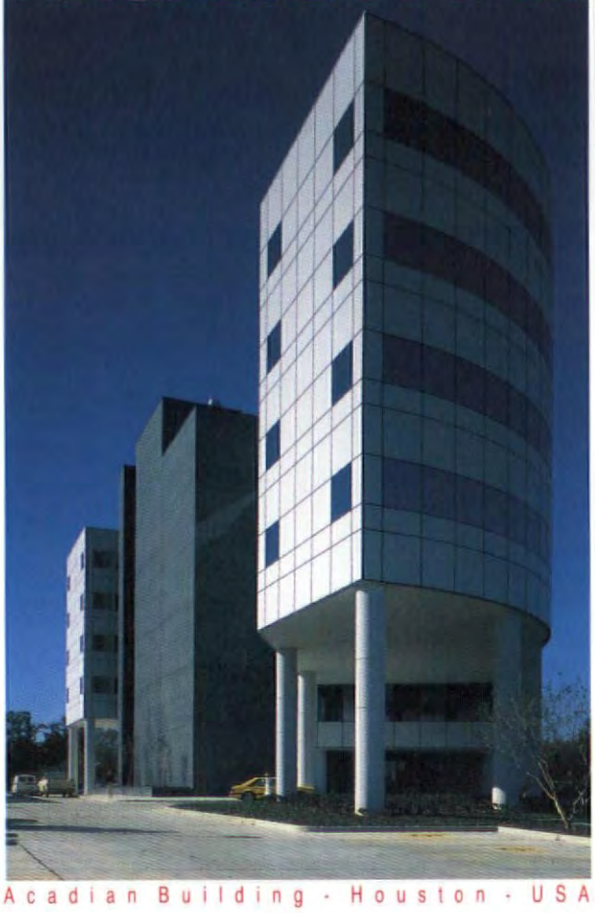

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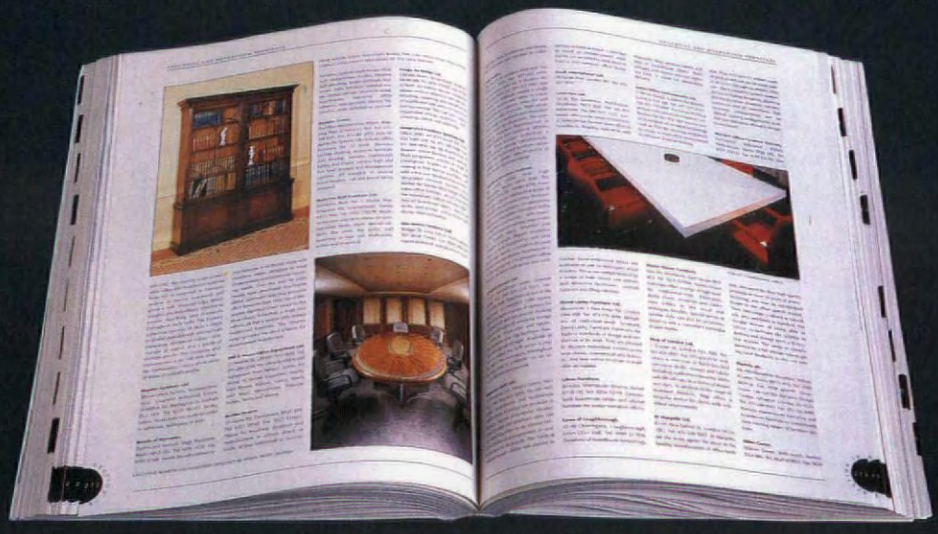

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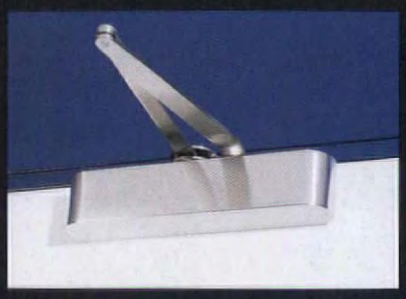

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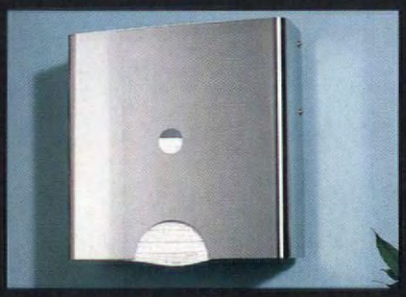

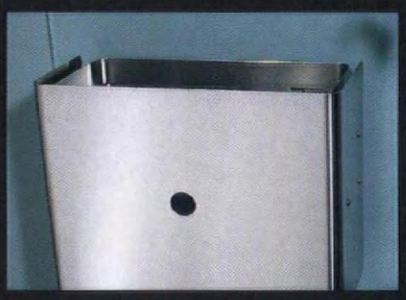

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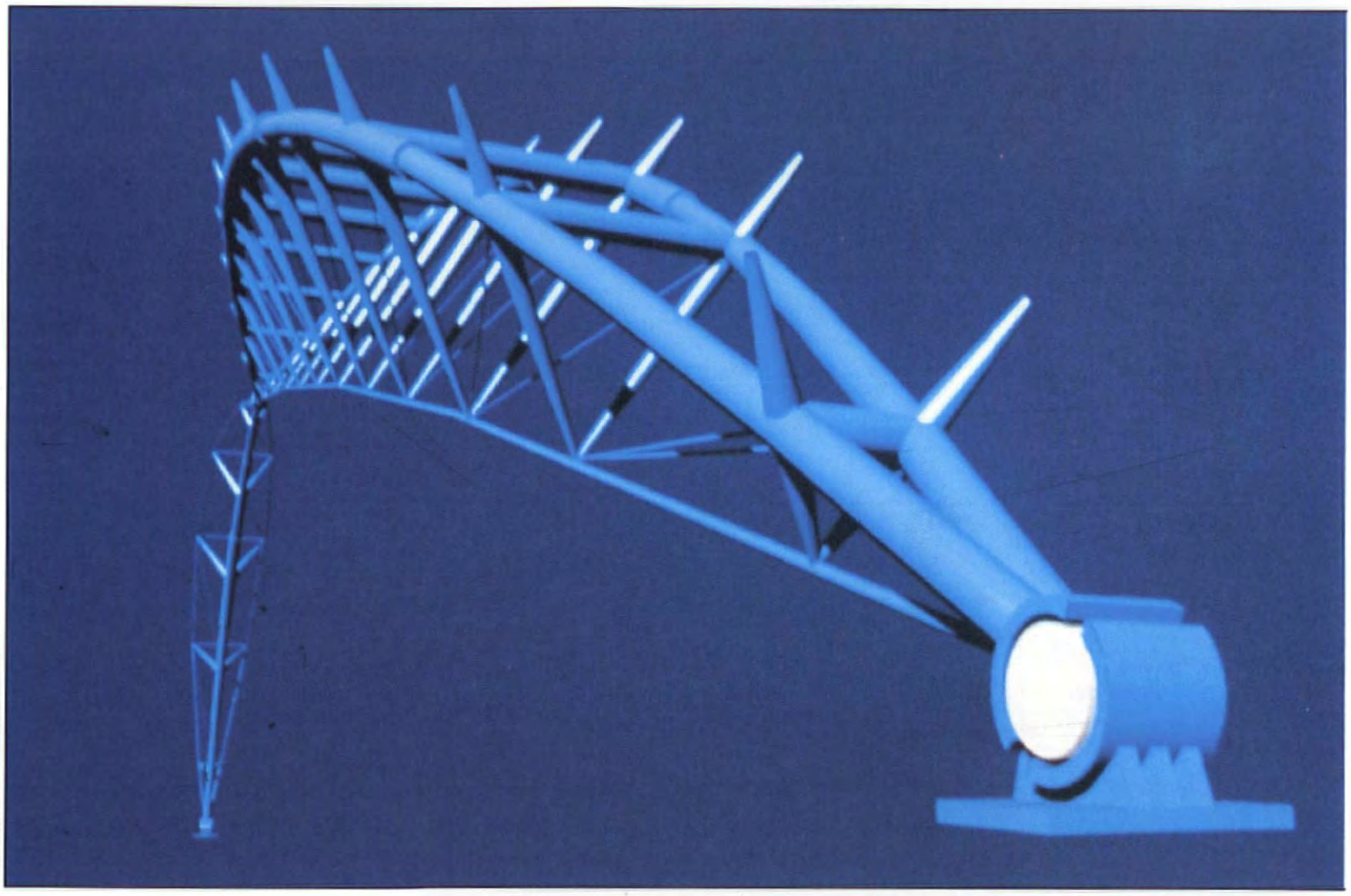

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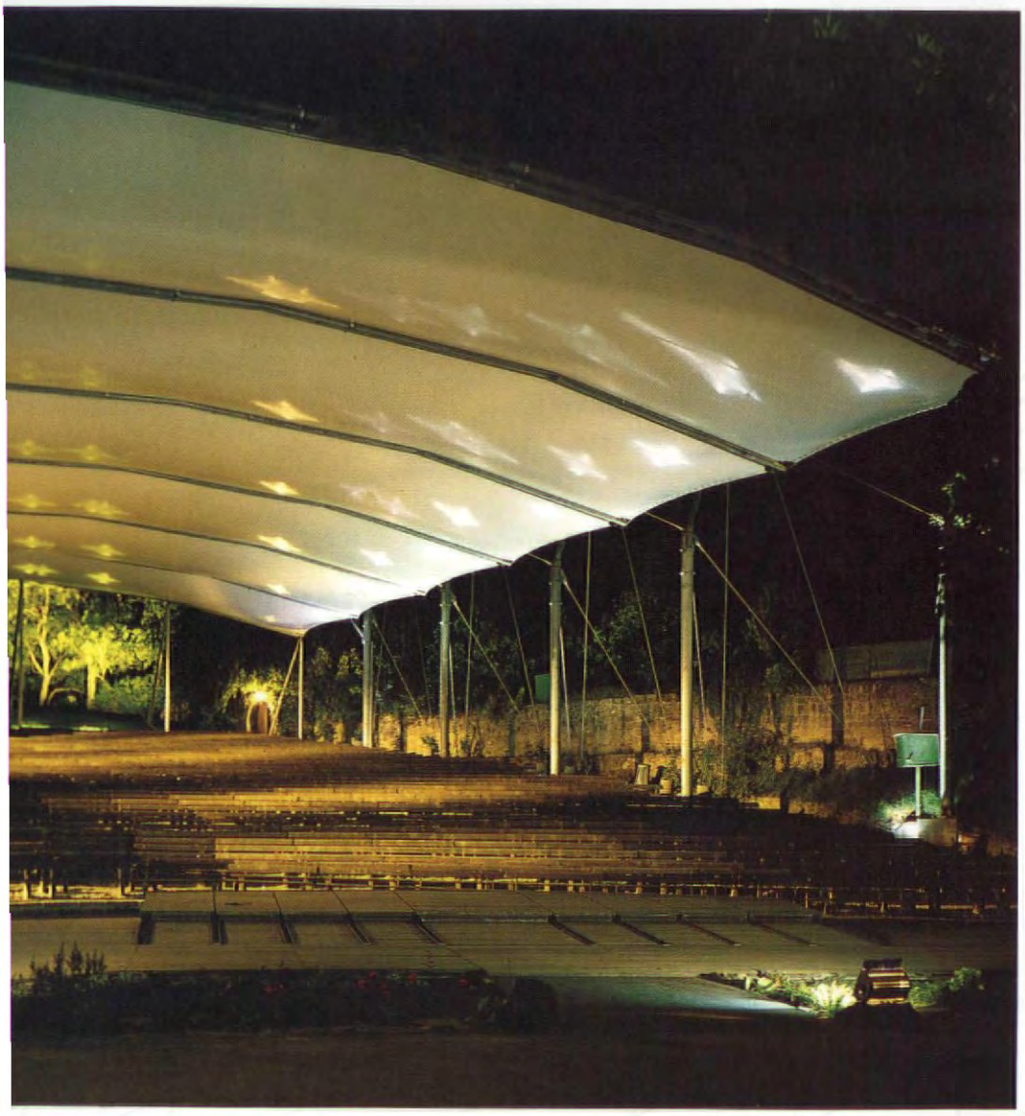

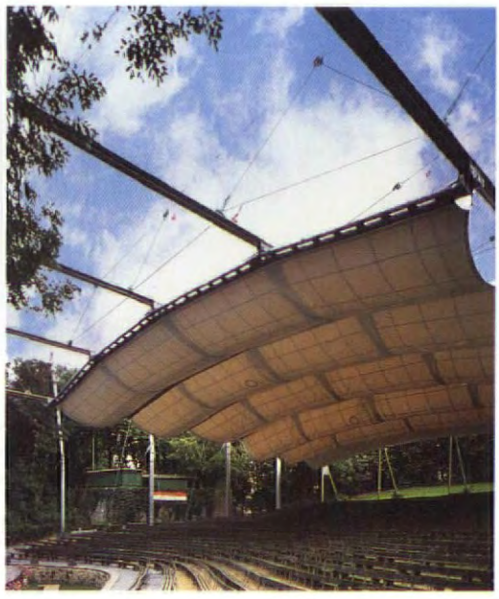

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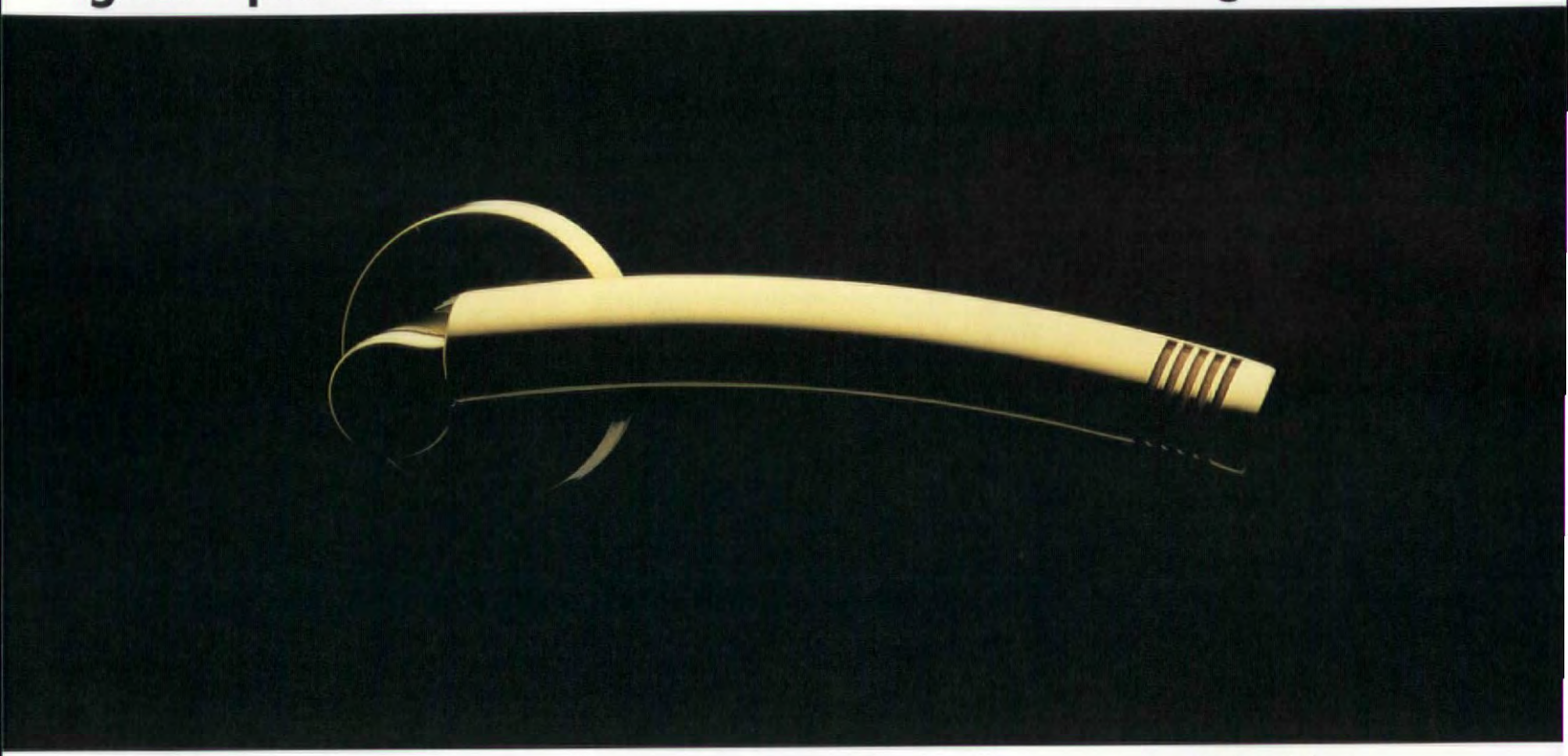

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WORLD ARCHITECTURE

A Future Without Cities


Guthrie Photography

Springburn Park, Glasgow. Grant Partnership

Once upon a time all cities were megastructures. That is to say, complex assemblies of spaces making the maximum use of shared structural walls, roofs and floors. The Medieval city was like this, resembling a nest of termites more than the neo-classical grand parade of objects in space, with its elements separated into isolated objects of contemplation by long boulevards, great parks and squares. In the Medieval city there was virtually no public space. Several ancient cities survived into the twentieth century in precisely this condition: Venice, Teheran, Tokyo, to name but three. Some small towns like Gallipoli in Southern Italy, or Bonifacio in Corsica remain like it today. More importantly, a few metropolitan places, like Hong Kong, part of New York and Berlin, were forced by the course of history to grow like megastructures because they had no outer space to expand into.

At the end of the twentieth century cities like these are special cases. Invariably only injections of politics, luck and money enabled them to continue to grow without soil, like hydroponic flowers. But still they can teach us something. As we toddle, as if pygmies, across the vast and pointless open spaces bequeathed to us by the great urban planners of the eighteenth and nineteenth centuries, we can reflect on the majestic lack of miniaturisation that has created such sprawling, unmanageable behemoths as greater Los Angeles, London or Paris. Had these cities been walled in by politics for half a century – like West Berlin or Hong Kong – they might have developed or, more correctly, re-developed, into compact, high-rise megastructures according to the architectural visions of the 1960s. Their gridlocked boulevards and padlocked squares might have disappeared beneath three-dimensional space-enclosing structures like giant airliners or nuclear submarines, with controlled climates, efficient communications, manageable distances, and the electronic wizardry of virtual space – instead of the unmaintainable misery of mean streets and endless suburbs.

Even without electronics, cities without suburbs and without public open space are invariably wealthy. High intensity of land use, especially of artificially created land, means that proportionally more investment is directed at less space, so wealth increases. Servicing great vistas and sprawling suburbs, on the other hand, invariably leads to demands upon the public purse, so that maintenance alone becomes a burden, attenuating wealth and reducing the impact of the same volume of investment.

Architects have a special responsibility for this dichotomy. The last 30 years has seen their field of activities shrink from the visualisation of vast megastructures for the future, to the necrophiliac embrace of tiny cottages from the past. And, by a perfect irony, it is precisely these wretched cottages that, cancerously multiplied a million fold, have become the building blocks of the uncontrollable suburb-city of today. Today Olympian town planning at one level, and low-horizon architectural cowardice at another, has broken the egg of the city and spilled its contents over the landscape in a seamless mess of low density development. The investment consumed in this glutinous encapsulation of the landscape will be difficult to retrieve when we need it to realise the three-dimensional visions of 30 years ago.

Martin Pawley

NEVER DISCUSS ARCHITECTURE WITH CLIENTS

Not many people know that there is a small restaurant on the top floor of the exotically expensive Brown's clothing store in London's South Molton Street, but Ken Yeang does. Perhaps the only Malaysian architect who is well known outside the Far East – although he is quick to point out that his 62-man practice, founded in 1976 and incorporated in 1983, is by no means a large one – Ken Yeang, of T.R. Hamzah & Yeang, spends a great deal of time travelling, and has been known to fly to London for the weekend. It was there that he was interviewed by World Architecture *in December 1993.*

The staff of T.R. Hamzah & Yeang. Ken Yeang centre right

A youthful looking 45 dressed in casual clothes, Ken Yeang is clearly well known in the Brown's canteen. After a cursory glance at the menu and a chat with the lady chef he orders sausages, onions and mash with a bottle of mineral water and starts to talk about architecture in the Far East.

"Right now we have a lot of work and we are benefiting from recession in the West," he remarks surprisingly. "You see in Malaysia we can build for one third of the construction cost of a country like the UK and still afford to employ Western-trained architects. We have hired a large number, and the same is true throughout the region except in Japan.

In Yeang's practice today there is a mixture of Asian, European and American architects. Does that present problems?

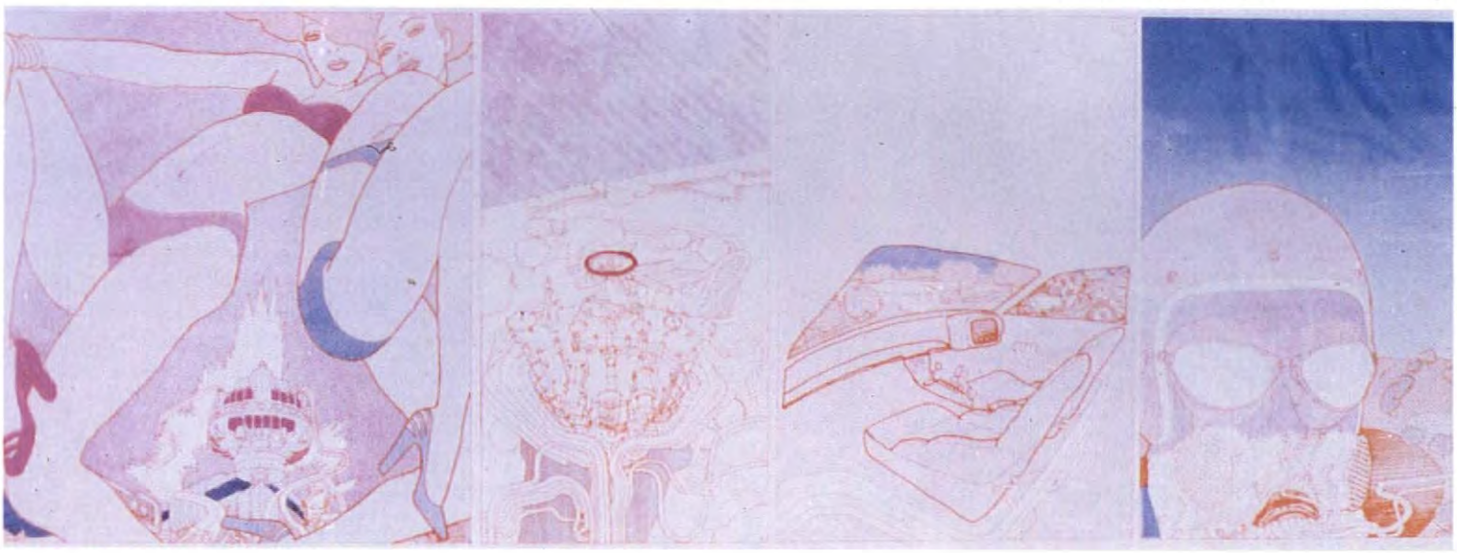
"Not at all. The leadership style has to be different, and we pay the assistants in two currencies, that is all. In my experience European assistants work best when they are allowed to pursue their own line. If they are given that freedom they work hard and put in enormous amounts of overtime. Asian architects on the other hand will work standard office hours. But they do not always want to do things their own way. They are prepared to be directed and don't mind being reprimanded if things go wrong."

And what about the Americans? Yeang smiles behind his glasses.

"All Americans are individualists. You cannot generalise about them."

Until very recently, virtually all Yeang's work was in Malaysia. There the composition and temper of the public sector is a major influence on the state of the construction market. The cycle of private sector commissions rises and falls with this

A Ken Yeang drawing from his student days



political barometer. In the run-up to an election Yeang's practice can go through as much as three months without a single new client approach: after the election he may field ten inquiries in the first week. Since he set up in practice there have been two building booms in Malaysia. The first practice nearly folded. Three months behind on salaries, he had to sell his car to keep going over the worst patch. Towards the end of the 1980s business picked up again. This time Yeang had learned his lesson. Architecture had not prepared him for business, so he prepared himself for it by attending evening classes in marketing, management and cost control.

"You have to treat architecture as a business as well as a craft", he insists, and to ram the point home he unnervingly sketches out the overheads involved in running a large office. It adds up to a lot.

"And you have to make 15 per cent on top of that to stay in business."

Trained at the AA in the 1960s, when "Towards the year 2000" avant-garde freethinking was the norm, Yeang's approach to architecture is ruthlessly commercial but it has never shed this legacy of pragmatism. For example, he makes it a rule never to discuss architecture with his clients. His first response after a proposal has been put to him is to carry out a half-day computerised feasibility study. Then he feels able to advise the would-be developer what his proposed building will cost, how long it will take to design and build, and what its economic return will be.

"From that point on, provided the finances work out, I consider that how the building looks is something that is up to me. I never talk architecture to my clients, only cost and time."

Over the years Ken Yeang has become a specialist in tall buildings, even though any building in Malaysia over 24 storeys high requires building permission from the Prime Minister personally. He dismisses conservationist and ecological opposition to building high by citing tall natural structures as challenging prototypes. Anthills, for example, he points out, can rise to 1,000 times the height of an ant, while the tallest human structure is less than 300 times the height of a man.

A zealous convert to the cause of designing out air conditioning, Yeang believes implicitly in the idea of energy efficient tall buildings.

"We have a long way to go with climate-responsive structures", he says.

"Traditional Malaysian peasant buildings used walls as filters for ventilation and air movement. By developing modern versions of those techniques we can learn to control solar gain without glass, and learn to filter air through buildings to cool them by means of environmentally interactive walls, floors and claddings."

Yeang's best known structure to date in the environmentally responsive line is the Mesiniaga ('business machine') tower in Selangor, built for IBM. This circular 15 storey cut away tower has an elaborately profiled exterior providing shading, planting, natural ventilation and considerable scope for day lighting right into the central core. Although originally intended to have a rooftop photo voltaic installation, the building was completed without it, although Yeang believes it will be fitted later.

In the personality of Ken Yeang, despite his almost Californian devotion to environmentalism, it is possible to detect an underlying shrewdness that can only come from many years of practising the art of the possible. He has many themes, and many projects – a fair number of them translated into impressive buildings – but not all his themes are represented in the buildings he has completed to date. Yeang understands the business of architecture so well that he feels he has time to wait for his clients to catch up with his themes which, undoubtedly, in due course they will do.

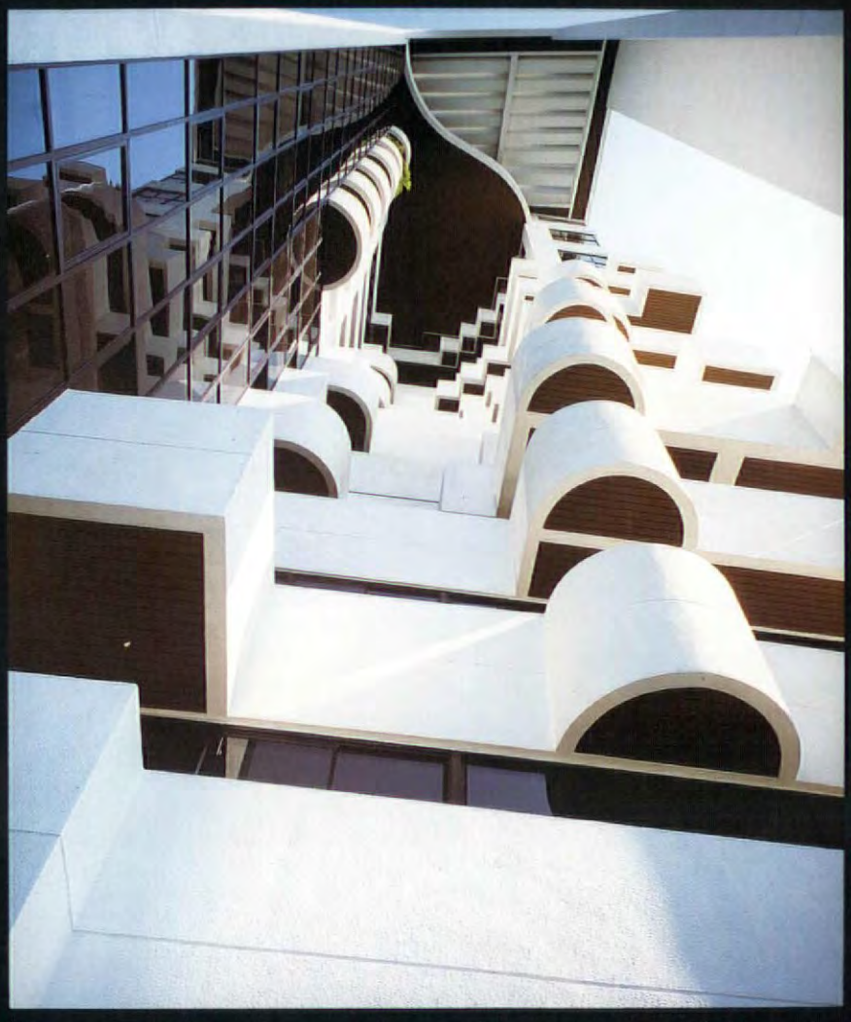
His balancing act in this respect is not dissimilar to that of a practitioner of Fung-Shui, the powerful occult Chinese art of space planning. Just as Fung-Shui can be seen as a normal administrative hurdle for an architect, like fire regulations or suddenly bankrupt clients, so can it be seen as a paradigm for the ingenious solution to the intractable problem.

As Ken Yeang points out, "Asia is one town, but each street is different: in all the streets where Chinese people live there are clients of Fung-Shui."

In his view Fung-Shui is a kind of ancient occult ecology, its precepts based on sound environmental common sense, like avoiding low-lying land, preventing poor ventilation and so on. But beyond the practical, Ken Yeang acknowledges that practitioners of the art have yet another role. They are seldom at a loss, even when confronted by the most unpropitious problem.

Smilingly he offers the story of the prescription offered by one Fung-Shui man who was called in by the owner of a shop on one side of a street that was inexplicably selling fewer goods than an otherwise identical shop on the other side. After much thought the Fung-Shui man proposed a large mirror for the entrance to the unsuccessful shop – one that would offer a reflection of the entrance to the successful shop to every customer who came in. □

THEORY IN PRACTICE



What is good for architecture is good for engineering, and the work by Dr Ken Yeang over the last 25 years has developed from an in depth study of architectural and ecological issues in the rapidly changing society of Malaysia. Yeang still maintains an intense level of research through his work with John and Julia Frazer at the Architectural Association, in London, as well as running an ecological workshop between international universities. The work of Ken Yeang has played and will continue to play an important role in shaping environmentally responsive architecture far beyond Malaysia, as Guy Battle and Christopher McCarthy describe.

Ken Yeang's PhD thesis *Design with Nature: the Ecological Basis for Design* was written in 1972 while he was a student at Cambridge University. For such an early document it shows a unique and at that time, visionary approach to establishing a mandate for Ecological Architecture.

"What is immediately apparent... is that there is at present no central theory nor commonly acceptable concept as to what is ecological architecture. If we consider the already extensive and sometimes devastating influences that... our urbanisation process has on our natural environment... it becomes apparent that such a theory must be developed not only to ensure the conservation of what is left... but also ensure the long term survival of the biosphere as a whole".

Yeang goes on to develop a philosophy of ecological design, as being that which blurs the distinction that exists between ecologists and building professionals where ecological design is recognised as a holistic process in which the designer takes into account the adverse effects that the whole building process has upon the earth's ecosystems and resources and simultaneously gives priority to the elimination and minimisation of those adverse effects. In this way an ecological approach to architecture is expanded to include the local and global implications of its construction, its use and its disposal. Later in the thesis he goes on the establish a method of design that is a combination of an open and closed circuit approach; the closed circuit being an ideal closed loop cycle which is essentially self sustaining and self sufficient. This of course disobeys one of the fundamental laws of thermodynamics and hence the combination of the open circuit theory which determines and then makes full use of the natural resilience of the environment as a sink of resource and for residue but done within the limits of the ecosystem.

What is essential to this philosophy is the recognition that building design is only a small part of a larger cycle where one intervention must create a series of ecological waves, and that true ecological architecture cannot be governed by aesthetic dogmas alone but should be inspired by its response to climate, geography, politics and culture.

After completing his PhD at Cambridge, Yeang returned to Malaysia and established a practice with fellow AA student, Tengku Robert Hamzah, known for his work on tropical architecture. The practice has now grown to be one of the most influential in the Far East and provides a fertile ground for the exchange of knowledge, research and practice on a global scale.

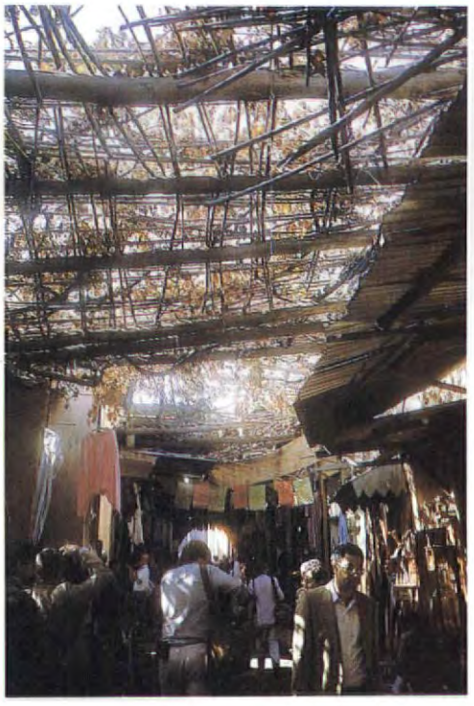
But where for many architects paying lip ser-

vice to such a philosophy is enough (thus placing them as part of the "green fashion" that presently preoccupies the Western World), Yeang has taken this original idealogy and added yet another layer to this increasingly intricate ecological cake - that of Regionalism, which seeks to create a design that not only meets ecological requirements but is also relevant to place and country.

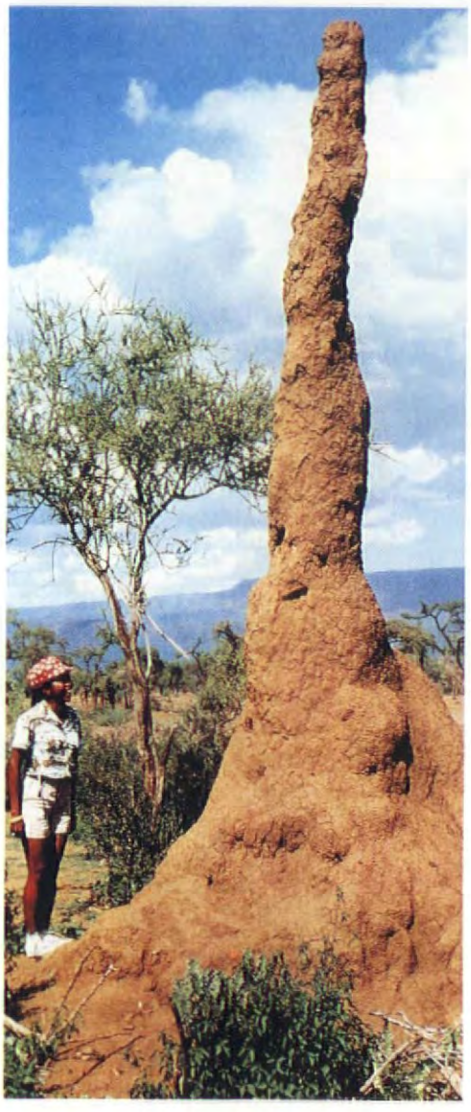
Ken Yeang believes that the designer's task lies in being able to uncover and identify that collective heritage of ideas dealing with architectural issues such as climate, use of local materials, and forms of assembly, geography and ecology, spacial organisation and culture. Thus he defines regionalism as an approach that can be applied anywhere in the world within any culture, climate or potential landscape, and the work of his practice cannot be held as a style appropriate to only one climate or culture, but should be seen as an approach to building that is a response to climate, geography, politics and culture.

All too often, cities have been scarred with buildings that masquerade under the illusion of an "Internationalism" wholly inappropriate to both climate and the culture. Nowhere is this more evident than in Kuala Lumpur where such buildings litter the skyline; a legacy for generations to come of gas guzzling highly serviced buildings whose only cultural references are an Asian overhang or a hint of Feng Shui. All are standardised environments in standardised buildings - air conditioned (22 + 1°C) artificially lit (500 Lux) minimum fresh air (8.33 l/s/person), with a deep plan and tinted glazing, all cut off from the world outside. Worse still, Malaysia has embarked on a huge scale of office development, most of it designed to satisfy international briefs which invariably includes a major investment in air conditioning and energy requirement. The office of Hamzah & Yeang has chosen to sail against this rising tide of commercial prejudice and have successfully completed a number of high rise buildings that challenge all preconcieved notions of tropical design. In this struggle they have been aided by what can only be called the Malaysian factor.

In Malaysia there is no shortage of qualified Engineers, but they are underfunded compared to their European counterparts. In addition the local research and development facilities are limited. The speed of projects is often too rapid to incorporate experimentation or research and development. There are no "low-energy" design or construction grants available at present, although there are a number of tax incentives for low energy R&D programmes. The local construction industry



The inspirational elements of Ken Yeang's architecture clockwise from the top. A Morrocan souk, louvred floors in Malaysia, the louvred walls of a rubber smoke kiln, a venetian blind, a louvred dress, and louvred sunglasses



The mystique of the skyscraper. Top left, King Kong. Top right, the Kuala Lumpur skyline. An anthill (left), in an arid zone and (below) in a Monsoon zone

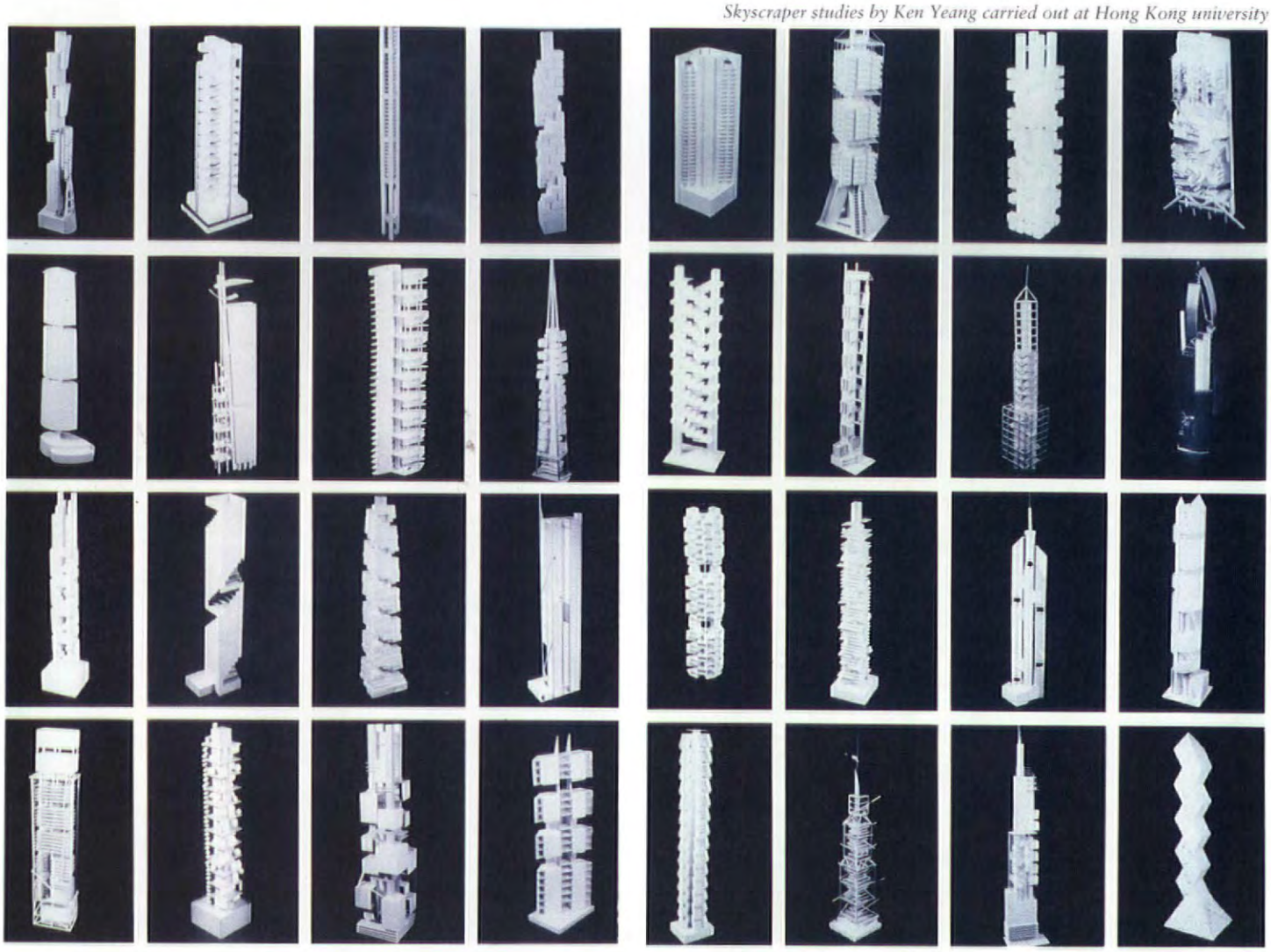
is under immense commercial pressure, and relies heavily on cheap non skilled imported labour to keep construction costs at about one-third the European level. In this context refinement of design offers no advantage. Furthermore high performance materials and building systems attract a high import levy, and most commercial buildings are speculative, very few corporate headquarters buildings being commissioned from within or outside Malaysia.

The climate is typified by its high temperatures (av. 30°C) in combination with high humidities (+/- 70%). There is little variation in either annual or daily temperatures (+/-5°C). In addition wind velocities are typically low with frequent calm periods (almost 40% of the year) and there is no prevailing wind direction.

For these reasons alone, (quick profit, extreme climate and poor resources) it is perhaps remarkable that Hamzah & Yeang have achieved what they have. There are few other architects who could rival their understanding of climate and materials or who could better their ability to manipulate the few resources to which they have access in order to produce such a fascinating portfolio of work.

Ken Yeang's own Roof-Roof house, built in 1984, was the first of his ecological buildings. In it the architect created a climatically responsive modern residential building. A single span solar filter acting like a solar umbrella stretches across the building. This roof acts as an environmental filter or sieve keeping out the worst of the intense solar radiation whilst allowing a minimum amount of penetration during cooler periods of the day. The planning of the room layouts is loose permitting

Skyscraper studies by Ken Yeang carried out at Hong Kong university



good heat dissipation and good air circulation through the building providing welcome cooling. Thus, the building design is such that it substantially obviates the need for mechanical cooling, and the shade acts as an environmental filter that regulates the harsh effects of the climate whilst capitalising on its benefits, filtering the intense light of the Malaysian sky to provide a soft cooler light to the rooms and swimming pool below.

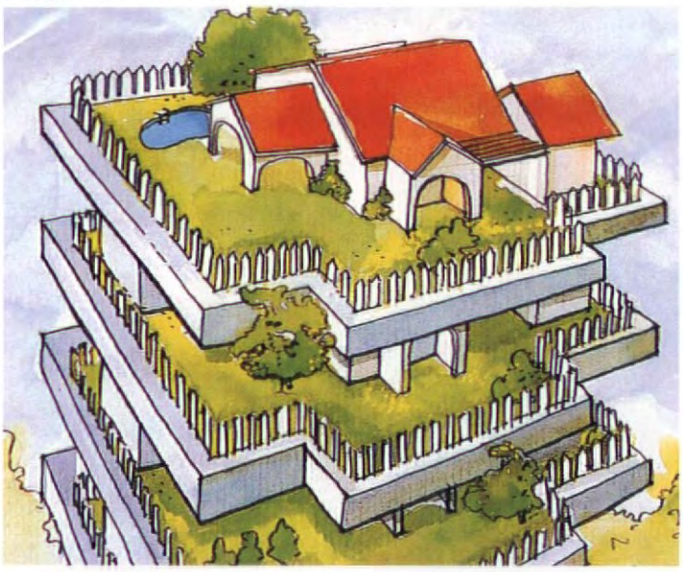
The idea of the building as an environmental filter is developed further in the IBM Plaza, where the building facades are developed not as 2-dimensional layers of wallpaper 250mm thick, with glazing and precast slabs, but as a multi layer filter - giving the building a sense of depth and texture more in tune with vernacular tropical architecture.

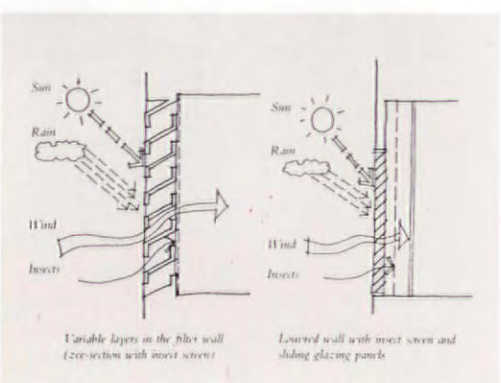
In the Menara Boustead building, the architect turned his attention to developing a building envelope that not only filters, regulates, and dissipates the climate but also forms a zone for occupants to interact with the external environment. Many architects choose to design out the environment finding it easier to place the occupants within a deep plan, a thin skinned air conditioned box - buildings that are environment rejecting rather than allowing climatic interaction. However, detailed research is now showing that people throughout the world are reacting to these air conditioned boxes - building sickness syndrome is a commonly occuring sickness suffered by building occupants who have little or no contact with the outside world. In a temperate climate there is little excuse to provide full air conditioning for all seasons of the year, and certainly no real reason either to have tinted glazing, or to deny people good access to daylight and views. However, in a hot humid climate such as Malaysia, in many cases there is little alternative. But this does not negate the need to provide "environmental contact" zones where the structure and orientation of building form can be used to filter light, heat, sound and encourage air movement thus creating a comfortable buffer zone for the occupants to interact with the climate.

Thus Yeang has incorporated "sky courts" into his design of the Menara Building. These sky courts are semi-internal spaces - naturally conditioned by the structure and building form which allow occupants the relief of being in contact with the environment whilst being substantially protected from its worst effects. In addition the cladding uses a system of heat sink shields to reduce the heat to the building which in effect form a double wall, thus enabling the heat to be dissipated before it can be transmitted to the structure.

All of Ken Yeang's theories about ecological architecture are brought together in his latest contribution to the urban landscape - the Menara Mesiniaga building in Kuala Lumpur. It goes full circle, from his early thesis work to his most recent

The idealised image of gardens in the sky (below), and their commercial realization (below right). A detail of the Roof-Roof house (below middle), and a diagram of a "filter wall", (bottom)

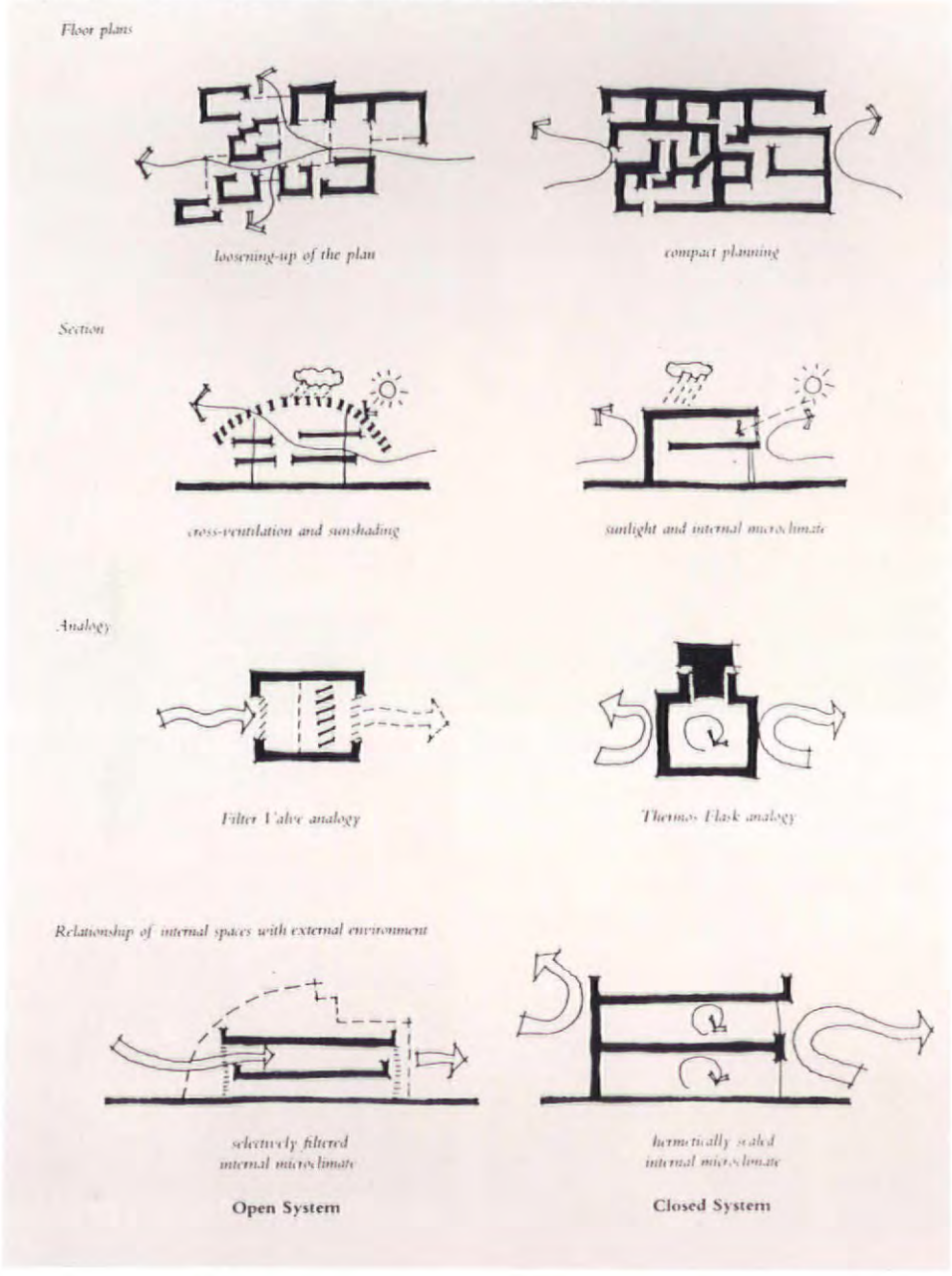




Variable layers in the filter wall (cross-section with insect screen)

Louvred wall with insect screen and sliding glazing panels

Ken Yeang's diagram of open and closed thermal building design 1987



investigations - where the building and landscape are seen as part of an ecological cycle. During the design process attention was paid, not only to creating a high quality internal environment but also to ensuring that the impact of the building on the external environment was minimised. Thus the site is landscaped and designed to encourage the residence of wildlife and fauna, the materials used are non-cfc, replenishable and recyclable where possible; the building is low-energy.

Fundamental to this low-energy design is the building's shape. Its orientation and form of building structure are used to moderate the external climate where possible, and the internal planning of the building is such that it produces areas that can be beneficially naturally ventilated, intrinsically reducing the need for air conditioning or, where it is still needed, reducing its capacity. The facades respond directly to their respective orientations. In the west, the tower minimises the impact of the sun with aluminium screens and shaded sky courts. The north and south, which can be easily shaded with external overhangs, utilise the maximum amount glazing to allow good but filtered daylight penetration. The east which, like the west facade, suffers from low angled (therefore difficult to control) sun is primarily made up of the service cores. Internally the plan responds to the prevailing climatic conditions and desire to minimise air conditioned zones, with naturally ventilated and daylit toilets, stairways and lift lobbies. All offices are buffered by some form of transitional space to allow the occupants to naturally adapt as they move from external to transitional to air conditioned space (if this is too great it can cause headaches, colds and coughs etc from the sudden and uncomfortable shock). The sky courts and sun shaded roof form a essential component of the Environmental contact zones - where people can escape and relax in a moderated yet comfortable external climate - a social condenser in the sky.

The strength of Ken Yeang's work in Malaysia lies in the fact that it recognises and responds to the cultural, political and climatic influences of the place. His work shows a recognition of the importance of confronting the serious global issues raised by the coming ecological crisis, and shows how a truly contemporary and ecological architecture can be developed even in such a commercially competitive climate as Malaysia. Perhaps his most important discovery has been that low energy air conditioning alone is not the total answer to either global problems or the Malaysian climate. Such an approach would logically lead to minimising external perimeter areas, relying on controllable artificial lighting, and lead to deep plan buildings - as has been so well exemplified by most of the new construction going on at present in Kuala Lumpur. This not only ignores a 1,000 years of climatic and cultural evolution (lightweight, well ventilated, external shading, variable skin, buffer zones) but also more importantly fails to recognise the fundamental human need to be in contact with the external environment, the evidence of which is now all around us in the West, where most office users as a matter of principle demand opening windows.

T.R. Hamzah & Yeang have developed an architectural vocabulary that is a response to climate and orientation and have created a series of buildings that incorporate multi-layered climatic moderators, sky courts, environmental filters, and transitional zones. They have shown a unique understanding of the total ecological cycle that architecture is a part of.

One can only wonder what, if he can achieve so much under such great pressures and with access to so few skills and resources, what Ken Yeang could achieve if he were to receive a commission for a major corporate Headquarters Building in Europe. □

Roof-Roof House, Kuala Lumpur 1983

Designed as the architect's own house this 350 m² two-storey dwelling is a life-size working prototype of the architect's bioclimatic design ideas. Buildings seen conceptually as "enclosure systems that operate as environmental filters within the landscape".

The north-south orientation of the house protects the major spaces from the tropical sun. The ground floor living-spaces face the East and the spaces open out to the pool-side which takes advantage of the prevailing SE to NW wind to modify the micro-climate. This prevailing wind is cooled as it traverses over the pool water before entering the living spaces whereupon four "moveable-layers" of parts (i.e. sliding grilles and glass panels, solid panels and adjustable blinds) are provided to control the micro-climate of the living spaces.

The planning of the internal spaces follow a radial configuration along an East-West axis and in this way integrates the spaces between the building and the site boundary walls as mini-courtyards.

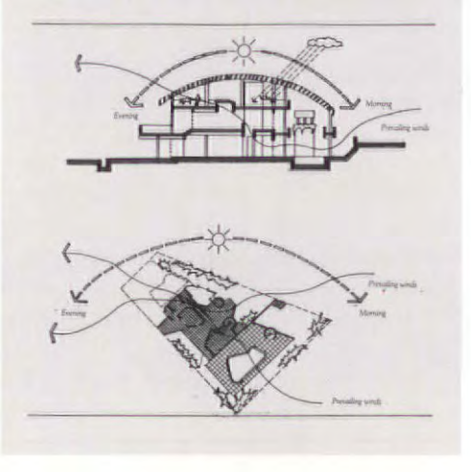
Like an open umbrella frame and working like a pair of louvred sun-glasses, the house has a "baffle" roof that sweeps not only over the actual flat-roof of the first floor but also over the pool-terrace area below. This secondary roof shades the roof-terrace immediately underneath the pool enhancing the cooling breezes into the lower floors. The sectional design of the "baffle" roof is angled or shaped over the building to reduce the insolation over the west and noon-day sun while letting in the morning sun. This filtering device might in other building contexts extend to the wall on the building. In addition to this filter, there is a system of sliding grilles, glass-panels, solid panels and adjustable blinds which are the working components of the valve analogy. Their adjustments by the building's users permits levels of environmental articulation such as for privacy, ventilation and comfort.

The theoretical proposition is the view of the building enclosures as a "valve" that filters out undesired climatic elements (in this instance, solar radiation) but filters in that which is desirable (eg. ventilation). By comparison to other vernacular architectual approaches that respond to the local climate, the Roof-Roof house differs in that it is intentionally designed not as a passive structure but to function as a system of working parts (and hence its valve analogy).

As an experimental design, it translates such design considerations as insolation, wind-direction and rainfall into a tropical functionalism.

The house's intention is to provide a prototype that can be extended to larger scale urban high-rise situations.

The Roof-Roof house combines an almost Corbusian formalism with the first use of solar and wind shading. Exterior, interior, night-shot and diagram are self-explanatory



The IBM Plaza in effect places the Roof-Roof house on top of an office building. Heavy planting and natural ventilation are diagrammed below

IBM Plaza, Kuala Lumpur 1981

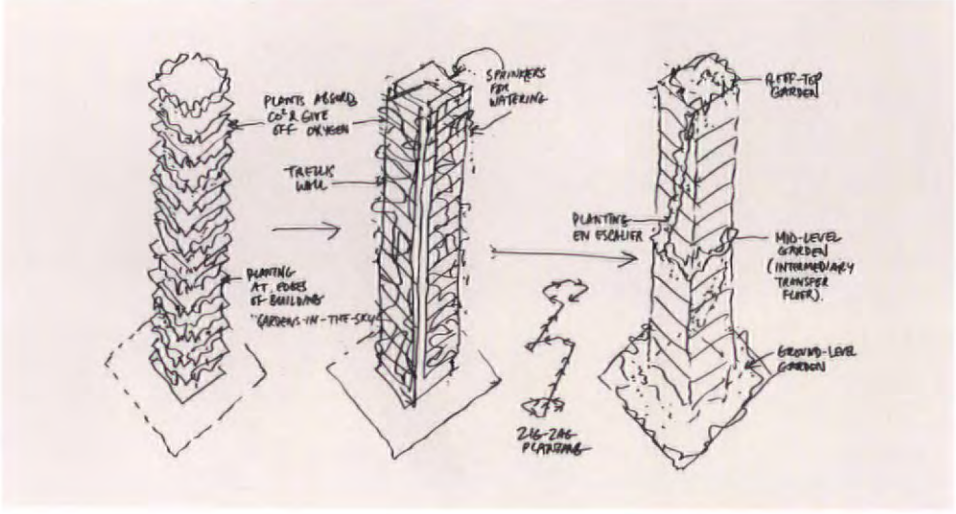
This 28,000 m², 24-storey office tower is linked by a curvilinear bridge to a 2-storey restaurant/food-court lower-block. The two forms are juxtaposed in a plaza in which the surrounding roads are pedestrianized and paved to meet the adjoining shophouses.

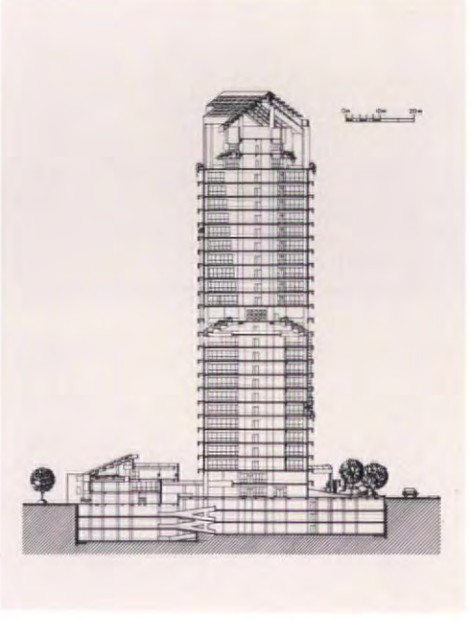
Two geometries are recognised: one of the path of the sun, and the other of the site in relation to the neighbouring road network. The typical floor is orientated aligning North and South in relation to the sun's path and geometry. The services-cores, containing lifts, stairs, and toilets are on the hot sides of the tower (i.e. the East side and the West side) and follow the geometry of the site. By this configuration the layout of the built-forms responds to the local hot-humid tropical climate in its planning and disposition.

The top of the tower has a pitched roof in the tradition of the vernacular house form. Indigenous landscaping and planting are introduced uniquely into this tall building in an innovative vertical escalating-system of planter boxes. These rise diagonally up on face of the building. Then at mid-level, the planters traverse across the floors and escalate diagonally again up the other face of the building to the roof terraces.

The ground-floor entrance lift-lobby that leads to the plaza is open to the exterior and is natually ventilated.

The upper floors are extended in an asymmetrical pattern resulting in a wedge-shaped projection. This generates an overall form which is irregular in shape and thereby deviates from the conventional Modernist slab type of tower.





Plaza Atrium Tower, Kuala Lumpur 1981

This 11,000 m², 24-storey tower stands on a restricted site in Kuala Lumpur.

The dominant feature of the building is the large semi-enclosed atrium to which all the office floors face with cascading terraces. This space is located not within the building envelope (as would be in common instances of atriums) but is located in a transitional space that lay between the inside of the building and the outside i.e. in the "in-between" space with the outside.

The atrium is topped by a louvred-roof with "Z" shaped profile louvres that filters out the rain, permits accumulated hot-air within the atrium to flow through and allows diffused sun into the spaces below.

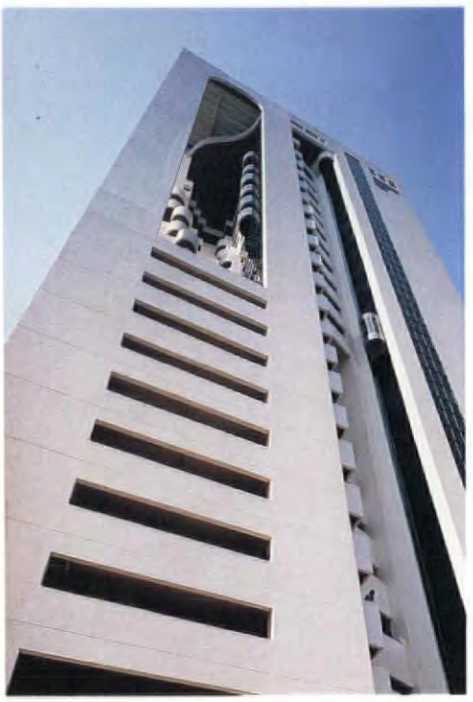
The entire atrium space acts as a giant wind-scoop to capture the air-flow at the upper regions of the tall building directed into the facade. The floors facing the atrium are set-back and are lined with landscaped terraces looking down into the atrium.

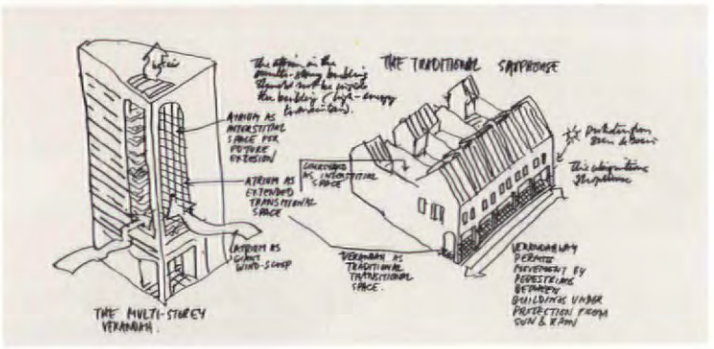
The client's programme is to provide a landmark commercial building for sale and for rental utilising permitted plot ratio to the maximum. The permitted maximum plot ratio of 1:65 is to be utilised. Ground floor and first floor for shoplots or bank use with carparking integrated into the built form and offices above.

Construction is by reinforced concrete frame with piled foundations; "slip-form" concrete construction is used for the elevator shaft. The louvred roof over the atrium is cast in in situ concrete.

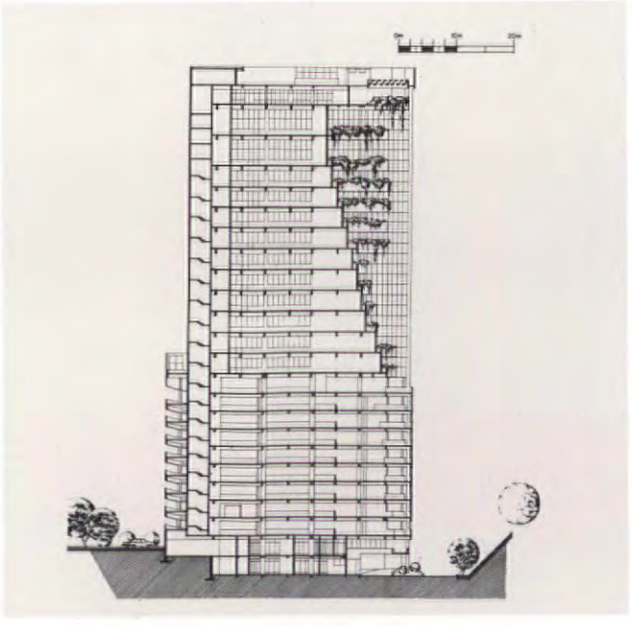
The exterior finish is spray-on resin over plastered masonry walls. There is tinted glazing to all windows with curtain-wall glazing to the windows facing the atrium. Other windows facing the outside are recessed for solar protection. There is a ceramic tile covering to the floors with a granite finish to the lift lobby at ground floor level. The interior areas have a vinyl tile wall surface, as well as suspended acoustical ceilings, concrete screeded floors with carpets, and ceramic tiles to toilet areas.

There is a forced air ventilation system for the carparking floors, and full air-conditioning in the offices. There are three nomal high-speed elevators with a single external glass elevator.





External views (above) show sprayed masonry cladding. Thermal diagram (left) and section (below) show perforated skin with planting (below left)

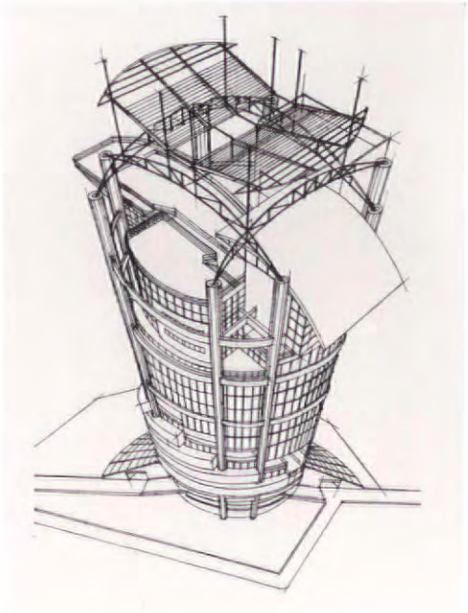


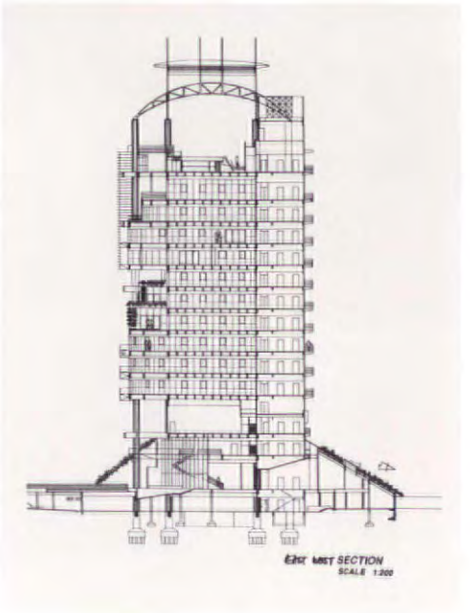
Menara Mesiniaga Building, Kuala Lumpur 1989

This 12,000 m² 15-storey tower brings together the principles of the bioclimatic approach to the design of tall buildings developed over the previous decade by the firm. Located in Selangor, it has "vertical Landscaping" (planting) included in the building facade and at the "skycourts". In this building the planting starts by mounding up from ground level as far up as possible at one side of the building. The planting then "spirals" up the face of the building with the use of recessed terraces (as skycourts). There are also a number of passive low-energy features incorporated: all the window areas facing the hot sides of the building (i.e. east and west sides) have external louvres as solar shading to reduce solar heat gain in the internal spaces. Those sides without direct insolation (i.e. the north and south sides) have curtain-walled glazing for good views and to give opportunities for natural ventilation.

The lift lobbies at all floors are naturally ventilated and are sun-lit with views to the outside. These do not require fire-protection pressurisation of the lobbies (ie. low-energy lobby). All stairways and toilet areas are also naturally ventilated and have natural sunlight.

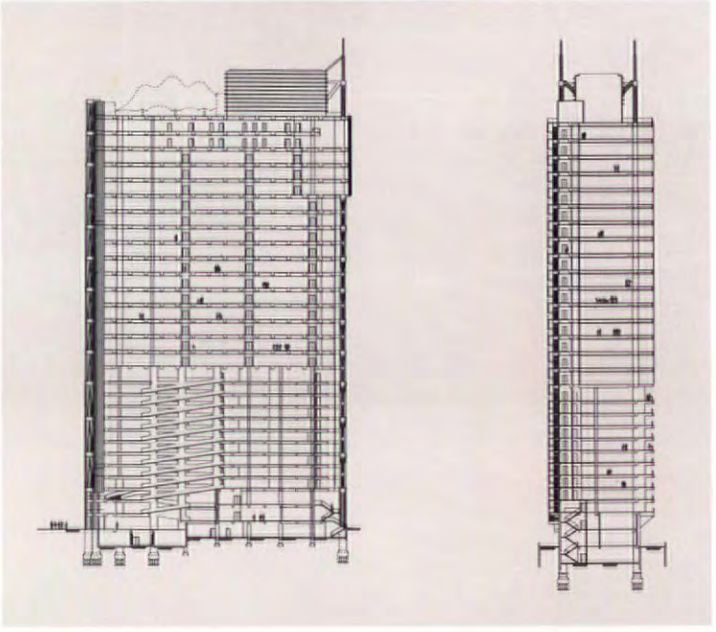
The sunroof provides panel space for the possible future placing of solar-cells to provide background sources of energy. BAS (Building Automation Systems) and other Intelligent Building features are used to reduce energy consumption in equipment and in the air-conditioning system.





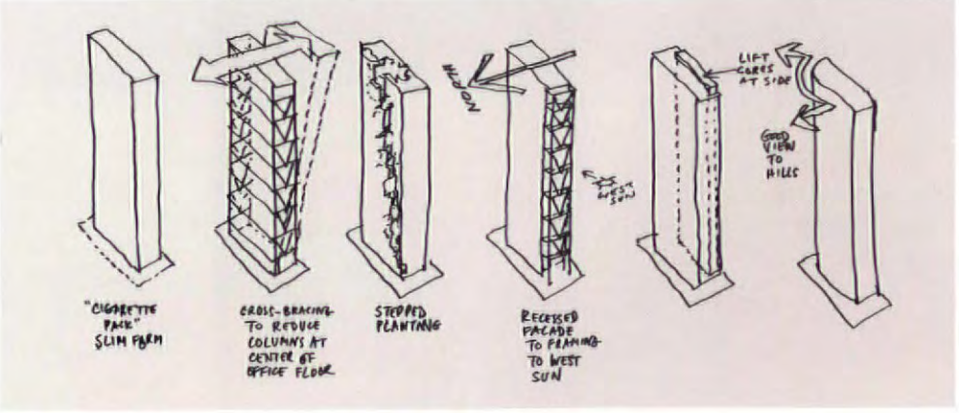
The completed tower (above) with an early drawing and section (below)

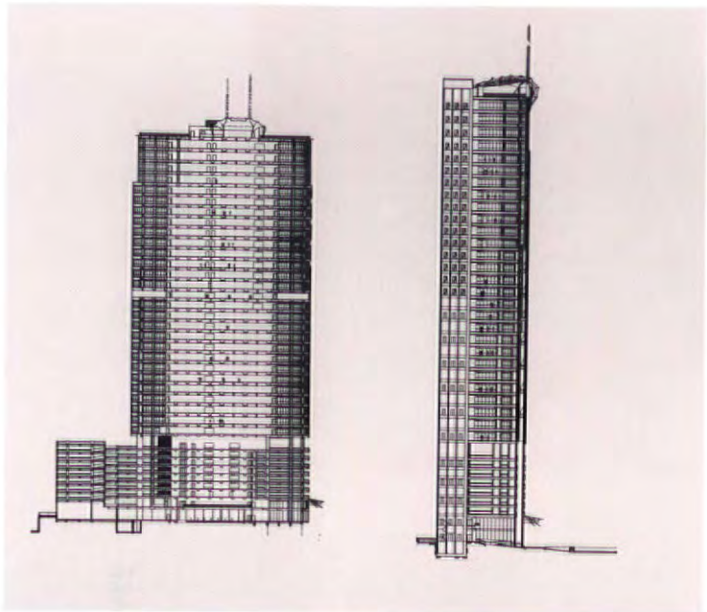
Model photographs show extraordinary openness of building with pronounced lateral structure. Sections (below) and thermal sketch show underlying thinking



Central Plaza, Kuala Lumpur 1991

This 35-storey, 30,000 m² "wafer-thin" tall building is column-free (as a marketing requirement of the client). To enable this to be achieved, structural cross-bracing is provided at the end columns of the east and west facades. There are vertical planting steps up the North sides of the building that reach diagonally to the pool-side atrium at the top floor. There is a complex system of louvres and balconies located on the two hot facades (west and east). The lift-core lobby, stairways and toilets have natural ventilation and natural sunlight. Facing the north is a curved fully-glazed curtain-wall that gives a view of the distant hills of Ampang. This is possible because this facade does not receive direct solar radiation.





Budaya Office Tower, Kuala Lumpur 1992

This 37-storey 44,000 m² office complex is orientated diagonally north-south which is not an ideal orientation along the tropics. The site conditions here are such that the geometry of the site and the geometry of the sun-path do not coincide.

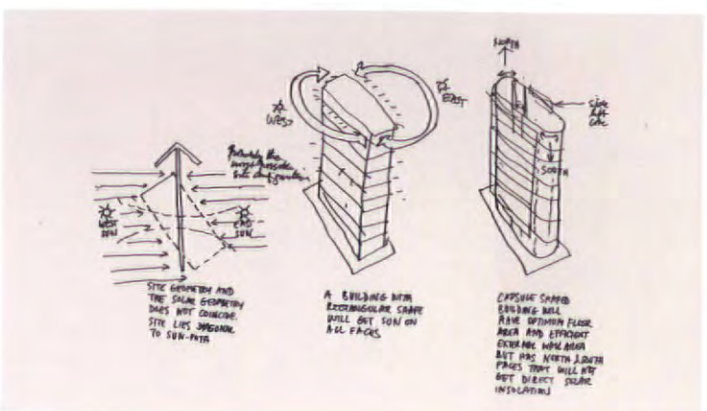
The "environmentally interactive" external skin is glazed (full-height) on the diagonal north and south corners (since there is least insolation on these surfaces at the tropics). The other corner faces have a louvred sun-shade system but open out to a transitional space facing the south-west as an atrium.

The lift lobbies are naturally ventilated and located on the east side of the slab. Off the atrium are "landscaped skycourts" at various levels up the building.

The typical internal office floors are column-free.

Toilets and stairwalls are naturally ventilated and are located on the building's hot sides.

Squat, fat tower profile betrays presence of atrium within. Sky courts permit diagonal ventilation



Ho Chi Minh City Tower, Vietnam 1994

This 20,000 m², 26-storey tower is located at the end of a boulevard in Ho Chi Minh City, Vietnam, a former French-colonial city. The tower emulates the tree-lined avenues of this city through open skycourts, trellised planting surrounding the glass-lifts and a planted-penthouse.

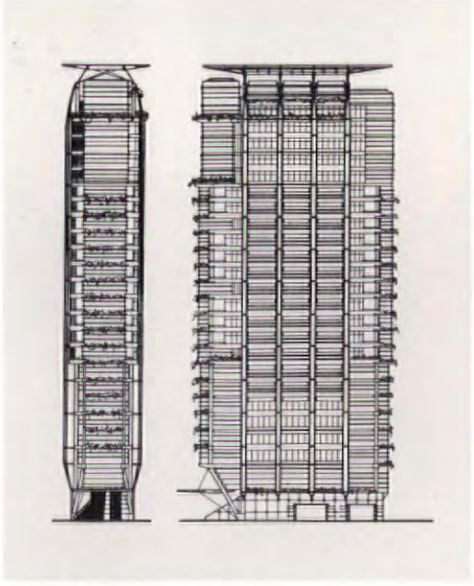
The lift-lobbies, stairways and toilets are naturally ventilated with natural skylight.

Occasional bridges off the lift lobbies give external access from the lift-lobby to the skycourts.

The curved facade at the west of the building has a double-layered environmentally-interactive wall.

The building is placed to one corner of the site to create a small plaza to link to the mosque at the rear of the site. Facing this plaza is a restaurant.

Site model (left) shows contrast between tower and surrounding structure. Drawings (below) illustrate concept and appearance



Elevators and concept model show tower in place

Autumnland Tower project, Kuala Lumpur, 1993

The long sides of this 24-storey 15,000 m² Kuala Lumpur office building face east and west, which is not a satisfactory situation. To reduce the heat load on these facades, a system of moveable-louvres and glass panels as an "environmentally interactive" skin is designed for the east and west sides.

The north and south faces of the building do not get full insolation in the tropics and have curtain-wall glazing. In this way, by looking at the building, one is aware of the north and south elevations and have a greater awareness of the geography of the place.

The lift-lobbies are located on the east side (i.e. the hot side) facing an adjoining building (ie. no view) and are naturally ventilated as are the stairways and toilets.

The structure of the building is transferred to the external columns to give a column-free internal space.

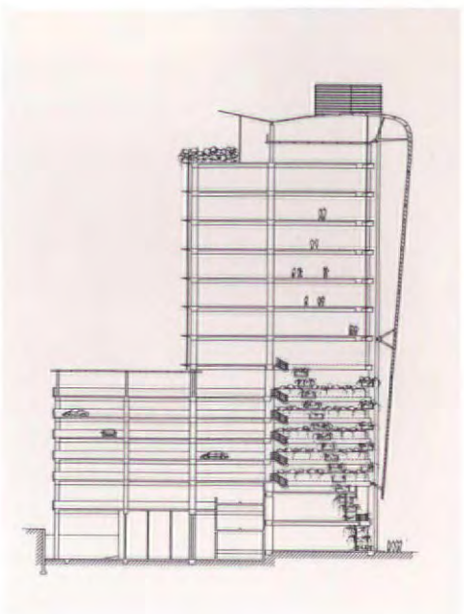
Striking profile of BP tower (above and right) shows curves and diagonals in elevation and section (below)

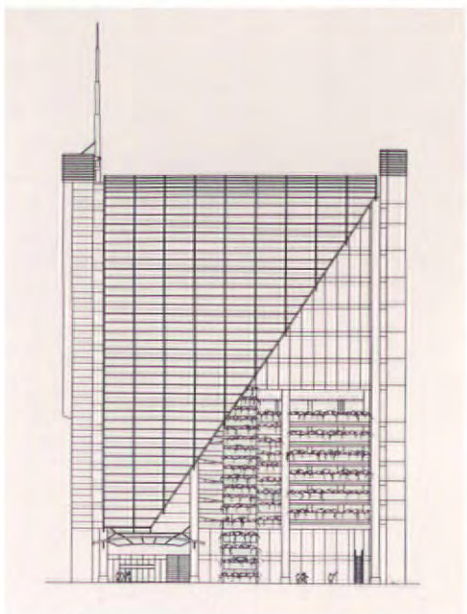
BP Tower, Kuala Lumpur 1990

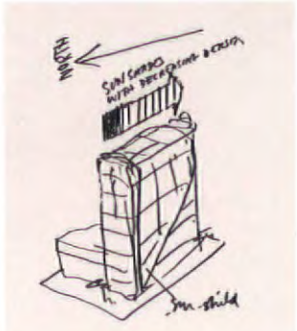
This 15 storey Kuala Lumpur office project has a grass area of 12,000 m². It is located on the edge of Kuala Lumpur city as a relocation project to shift the offices from the central business district to the suburb.

Vertical continuous planting, which is at the front face of the building, steps upwards on the facade into a court at the top of the car-park floors. The planting, besides contributing to the greening of the building also serves to soften the car-park floors facing the highway.

The site has its main elevation located diagonal to the sun-path. Consequently at this orientation, it receives part of the east early morning sun at certain times of the year and then none at the other parts of the year as the sun moves south-eastwards. In seeking a more articulated response to the sun-path in the design of the external wall, the main facade is slightly curved so that its profile is designed to have greater denseness in sun-shading devices along the east profile which then decreases as the facade curves towards the north-east orientation. The external wall becomes clear of shading devices at its north facing aspect and becomes unitised concealed-frame butt-jointed glazing. Throughout the building as a whole there are naturally ventilated and sunlit lift-lobbies, stairwells and toilets, and there is a filter sun-roof over the uppermost floor to let diffused light into the penthouse floors. The structure is reinforced-concrete frame with prestressed beams. The concrete piles are extended upward as columns and the flooring system consists of pre-cast concrete planks. Some walls are of masonry with aluminium sun-shading and glazing. VAV Air-conditioning is used in certain key areas.







Pingiran Apartment Towers project, Kuala Lumpur 1993

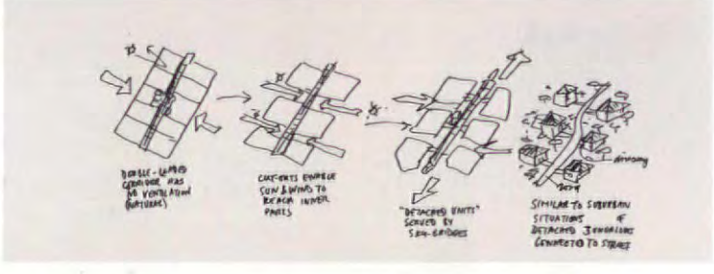
This 28-storey twin-tower, 320 unit reinforced concrete frame apartment project for Kuala Lumpur explores the use of the high-speed winds at the upper parts of the tall building for ventilation of the tower's passageways and inner parts of the apartment units. No air conditioning is used.

The residential units are designed to have maximum external wall surfaces to increase cross-ventilation and passive cooling. The typical floor plan places each apartment unit as an individual unit with minimum party-walls that are connected by sky-bridges. The residential units are accessible on each floor from the lift-lobby by an aerial walkway-spine and bridges.

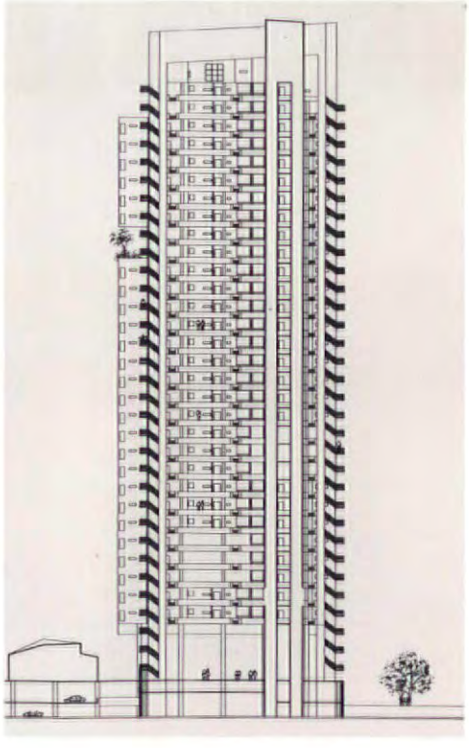
Large atriums as "sky-courts" are cut out from the facades to give communal green spaces-in-the-air and also to increase sunlight penetration and ventilation to the internal bridges and walkways.

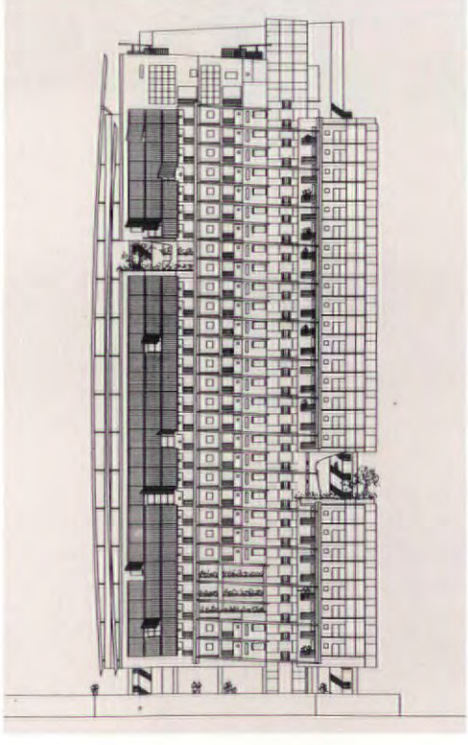
External wall treatments vary depending on orientation of external wall facades in relation to sun (e.g. use of louvred screens, sunshades, etc.).

Site Planning addresses the boulevard with resident's carparking located at lower basement levels. Recreational and communal facilities are placed on a "deck" as main datum level and as a common communal space as "place-making" for the development.



"Sky Courts" are clearly visible in the model photographs; ventilation diagram and elevations explain scheme





Tokyo-Nara Tower Project, Japan 1992

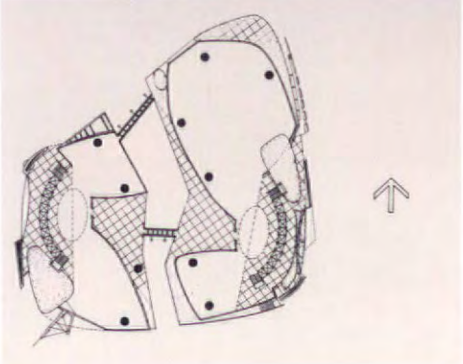
This 4.8 million m² 80 storey skyscraper is a conceptual project, prepared for the World Architecture Exposition in Nara, Japan, to exemplify the ideas for the climatically-responsive skyscraper.

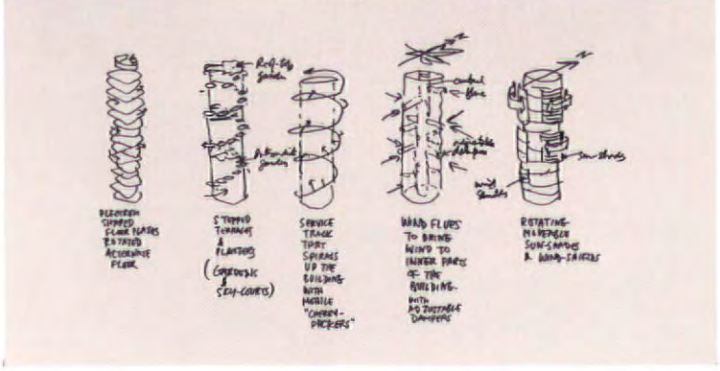
The tower physically realises many of the theoretical ideas expounded by the firm, and represents a significant stage in their ongoing research into the nature and evolution of tall buildings.

The principal idea behind its conception is vertical landscaping – spiralling around, through and within the built form. This element performs many important functions. First the verdant foliage acts to cool the building, both by way of shading and by chemical photo-cooling. Next the fringing of floors and atrium spaces allows careful planting to control air movements within the built structure. The mass of planting relative to the built structure is favourable, thereby ensuring that biosystems are acting symbiotically with mechanical systems to provide a balanced built environment.

The maintenance of the vertical landscaping, as well as the upkeep of external fixtures, glazing and cladding panels, is ensured by specialised mechanical devices. These devices, constructed in the form of multi-purpose "robot-arms" or "cherry-pickers" on moveable trellises that travel along an external track that spirals and circles the tower. Furthermore the radial spiral movement of floor planes creates a particular built form which allows the floors to shade themselves as they spiral upward, and the displaced pattern to more efficiently exploit the benefits of hanging gardens, inter-floor bracing and ventilation/cooling systems with their constantly changing atrial space, articulated by terraces, internal courts and private gardens.

Located at regular intervals, the skycourt oases provide the occupants of the building with environmentally sound "breaks" in the structure. These green parks, suspended high above the city, benefit from fresh air, and are constantly maintained regardless of expense.





Striking image of Nara tower (above) derives from advanced technology natural ventilation, solar and servicing systems shown in diagram (right)

Selangor Turf Club, Kuala Lumpur 1992

The site for the Selangor Turf Club in Kuala Lumpur was originally a disused tin-mining site.

The first priority was the design of the Track Layout. Based on common practices for good track layout, the track must have a north-south orientation in order to minimise glare and afternoon sun falling on jockeys and spectators. The configuration of the track (taking into account client's requirements, site constraints, earth-fill levels, and easements from the boundary line), resembles a "paper-clip" shape with extended ends, is currently the largest race-horse track in either Malaysia or Singapore.

The second priority was in locating the Grandstand, and this was determined by the sight-lines to the Start and Finish line of the track.

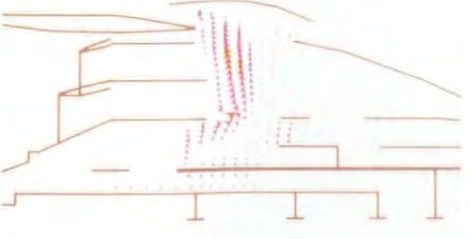
The remainder of the facilities generally fall into place within site constraints. The Visitor-Horse Stables are located on the south-end of the site, nearer the parade ring. The Resident-Horse Stables are located at the north-end of the site.

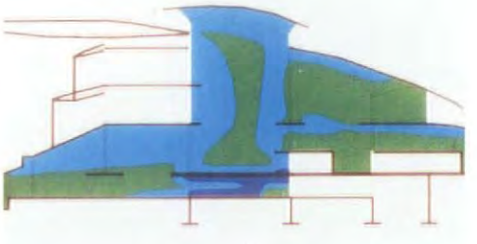
A parade ring is located in front of the Grandstand. The internal logic of the horse movement patterns determine the flow. Prior to the start of a race, horses would travel from their stable stalls to holding/saddling stalls, which are located at the south-end of the Grandstand. Here, these horses are saddled before they enter the Parade Ring where the "jockeys-mount" takes place in full view of the spectators. From there, the horses and jockeys proceed through the track barriers to the start positions. After the race, the horses return to the same location. The first four horses enter the Winner's enclosure in the middle of the Parade Ring, while the others return to the saddling stalls. Here, the jockeys dismount and enter the weigh-room and change-room complex. The horses then return to the stables.

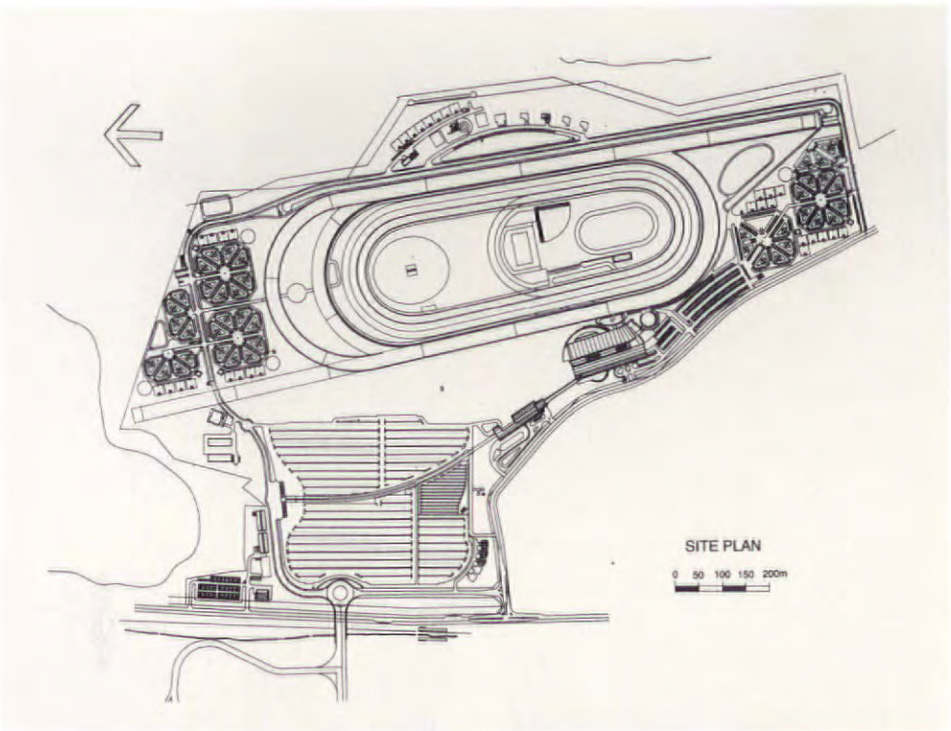
The horse training facilities provided for are a straight training track, lunging yards, exercise enclosures, and an equine pool. Two turf tracks and one dirt track are provided in the infield.

The infield is designed for multi-recreational use. The current provision is for a football field, athletic track, cricket pitch, show-jumping and riding.

Condition of former tin mine site is evident from aerial shots (above). CAD windflow simulation and temperature simulation below







Selangor Turf Club site (top). With camera towers (above) and elevations (right)

High Camera Towers, Selangor Turf Club, Kuala Lumpur 1993

These Camera Towers are located around the new racing track and facilities at Sungei Besi (also by the same architect). The orientation of the towers are not determined bioclimatically but by the best viewing angle to the race-track.

Sun-shading and rain-protection are provided for the uppermost platform which is used for the use of race-recording video-cameras. A canopy is also provided for the intermediary platform about half-way up the tower) which is used by the judges. These platforms are not enclosed but are naturally ventilated.

The tripodal steel structure also supports the staircase which provides access for the cameramen and for recording equipment. The camera is hoisted to the uppermost platform and then hooked on to a bar. After the races, the camera is removed for storage elsewhere.

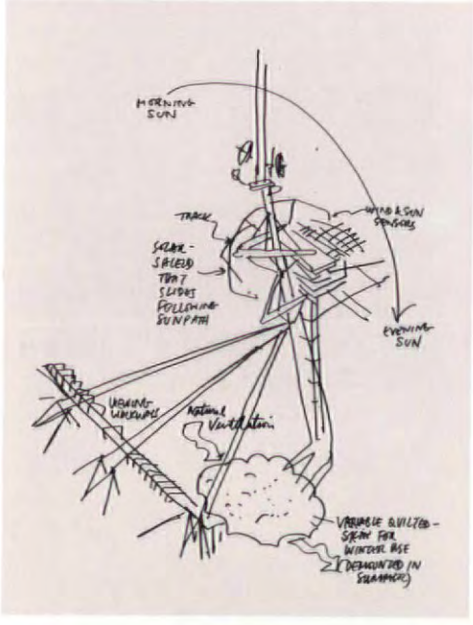
These towers range from 12m to 16m in height and are equivalent to 4 to 6 storey buildings.

In the context of our discourse on bioclimatic towers, these camera towers are iconic structural armatures containing independent internal staircases upon which habitable spaces might be clipped, serving as "yet to be colonised" bioclimatic towers.

Glasgow Eurotower project, Scotland 1992

This project for an 100 m tower responds to considerations from a global situation as well as an immediate cityscape. The structure is intended to create an urban icon that moves Glasgow into the twenty-first century by building on the historic past of the city.

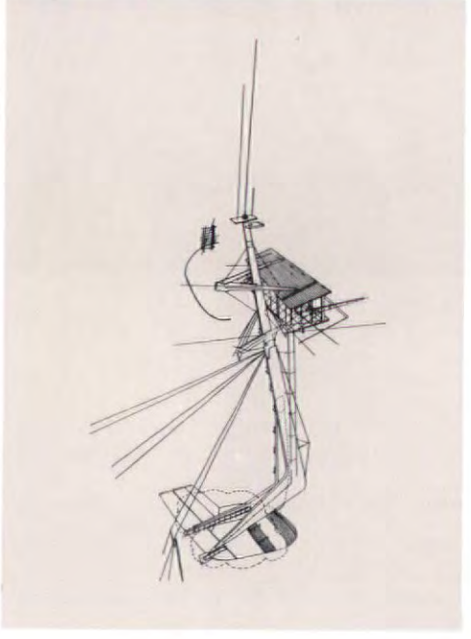
The brief set out certain constraints on the actual location of the vertical element. The manipulation of the tower, whilst complying with the constraints, creates an enclosure to be used as a public meeting space and an access to the underground station. The



main structural element of the tower, the mast, cantilevers to create a sense of directional motion thus emphasising the progressive nature of the city. It also frees the ground area to be utilised as a public space. Such planning results in minimal interference with the existing services running through the site.

A secondary cantilevered structure is suspended from the mast to complete the tower. Within this is housed a viewing platform and restaurant.

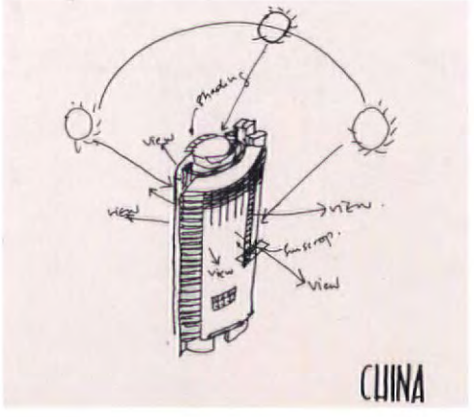
Model photograph and sketch (left) explain scheme. Drawings (below) show daring engineering design and elements of Archigram thinking

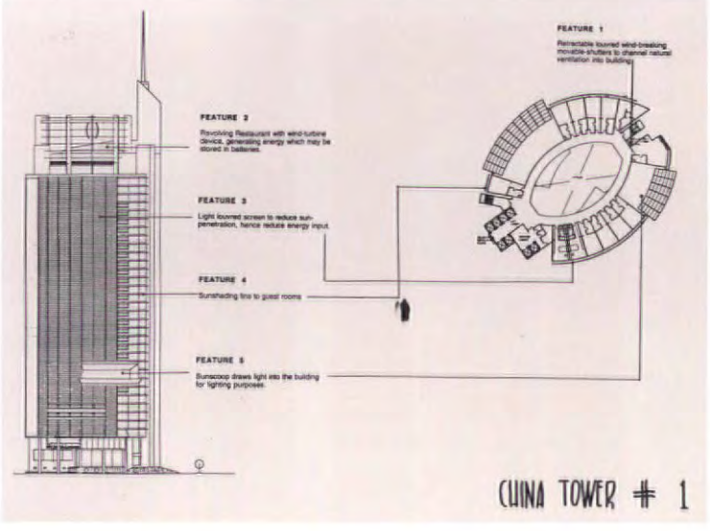


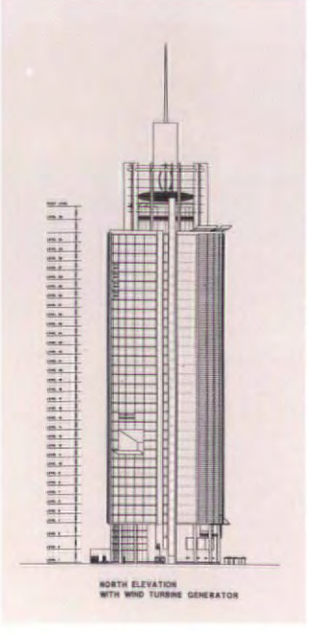
China Tower #1 Hotel Project, Haikou, China 1993

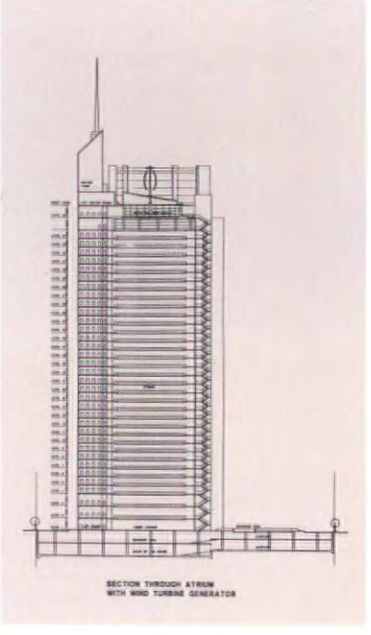
The first element of a large assembly of buildings scheduled for completion in 1996, this 35-storey reinforced concrete hotel has a grass area of 43,000 m². The dominant features of the project include its central atrium with side skylight; its aerodynamic shape – the top of the oval roof points in the direction of the prevailing wind to take advantage of the natural velocity of the wind to cool inner parts of the building through ducts leading to a ceiling plenum - and the wind-generator at top of building which is used to generate electrical energy for storage in batteries for hot water heating, escape stair lighting and emergency lights. There are sun-scoops at intermittent intervals on the sides of the building that are designed to bring sunlight into the atrium and into the naturally-ventilated lift-lobby and escape stair.

Model photographs show envelope perforations and provision for wind energy complex on roof. Drawings (below) show structure and solar equipment



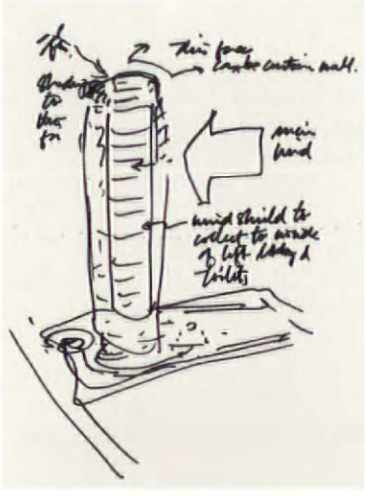


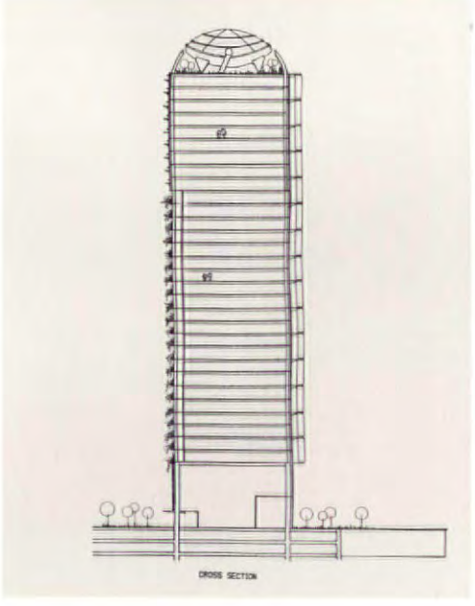




China Tower #2 Office Project, Haikou, China 1993

Projected for Haikou in the People's Republic of China this 36-storey speculative office building will have a gross area of 50,000 m². Its projected design features will include naturally-ventilated lift-lobbies, staircases and toilets. The elliptical floor plates of the building will be orientated to receive the prevailing wind, which is channelled to naturally ventilate the whole building using a number of specially designed technological devices which are linked to the unique solar-responsive external-wall design.





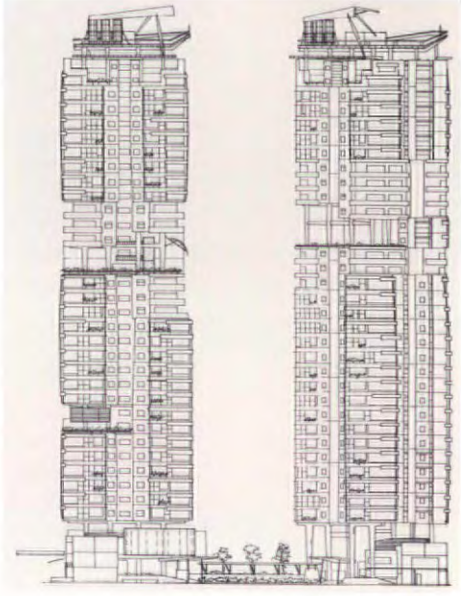
Taller and slimmer than the Kuala Lumpur towers, the streamlined roof cowling powering the ventilation system is a prominent feature. Drawing below shows conventional office floorspace within

Tall sky courts break up profile of twin towers. Drawing (below) shows articulation of structure to accommodate "super storeys"

China Tower #3 Apartment Project, Haikou, China 1993

Projected for the same site in Haikou, People's Republic of China this twin 36-storey apartment complex has a grass area of 46,000 m². When completed in 1996 it will have the following ecologically architectural climatic features.

All apartment units will have external walls on 3 sides. All lift lobbies and staircases will be naturally ventilated. No rooms will be mechanically ventilated. There will be large skycourts at intermittent parts of the building to act as communal spaces. All the apartment units will have large balconies and fitted typhoon shutters. There will be individual sun-roof decks and power generation by wind-generator on the uppermost floors. In addition there will be split-unit air-conditioning systems for each apartment.



Ken Yeang: A Biography

Born in Penang in Malaysia in 1948, Ken Yeang had his early education at Cheltenham College and studied architecture at the Architectural Association. This was followed by a brief period of landscape planning studies at the University of Pennsylvania under Professor Ian McHarg, and research work for a Doctorate at Wolfson College Cambridge.

Ken Yeang has been in practice in Malaysia since 1975 when he formed a partnership with Tengku Robert Hamzah of the Kelantan Royal Family, who had also studied at the AA. For some years Ken Yeang has taught at the Universiti Teknologi Malaysia, and at the Institut Teknologi Mara in Kuala Lumpur. Chairman of ARCASIA (Architects Regional Council Asia), 1986-1988, he is a past president of the Malaysian Institute of Architects and past vice-president of the Commonwealth Association of Architects.

Selected projects

1976	Ulysses House, Kuala Lumpur
1981	Plaza Atrium Tower, Kuala Lumpur
1981	Plaza, Kuala Lumpur
1983	Roof-Roof House, Kuala Lumpur
1989	Menera Mesiniaga building, Kuala Lumpur
1990	BP Tower, Kuala Lumpur
1991	Central Plaza, Kuala Lumpur
1992	Budaya Office Tower, Kuala Lumpur
1992	Tokyo-Nara project, Japan
1992	Selangor Turf Club grandstand, Kuala Lumpur
1992	Glasgow Eurotower project, Scotland
1993	Pingiran Apartment building, Kuala Lumpur
1994	Ho Chi Minh City tower, Vietnam

GLOBAL REVIEW

BAUHAUS FOR SALE

LEBANON RISING

BILIOUS PARIS

WATCH IRELAND

AMERICAN TECH

BEIRUT CASHES IN

There were rumours in Lebanon, when the first ambitious plans to rebuild central Beirut after 17 years of war were dropped, that there was not enough foreign investment available. Not so. The first rebuilding plans – which would have made the city look like anywhere on earth, forests of towers everywhere – have been replaced by a rather saner and perhaps more pragmatic plan, but not for lack of cash. It aims to re-create some of the past – all the shelling exposed some interesting archaeology, apparently – and make some civilised public gardens instead of jamming every available corner with trade centres.

That the money is there, is certain. $650 million of shares in the state-backed reconstruction company, Solidere, were put on sale last autumn. The offer was oversubscribed by around 40 per cent despite opposition from the pro-Iranian Hezbollah movement (seemingly on the grounds that some compulsory purchase of property in the city centre was anti-Islamic).

A key part of the new city plan – which has been adopted after massive opposition from many architects in Lebanon to the *tabula rasa* approach – is not to kick over the tottering Ottoman Empire facades surviving from the war, but to re-use many of them instead.

Rebuilding the centre is an astonishingly difficult job. Although it has been commercially valued at $1.7 billion, every single building there has at some time been the scene of desperate fighting. Mines are everywhere.

What partly swung the Lebanese government towards a more humane rebuilding programme was the tourist potential of Beirut, particularly now that UNESCO-funded archaeologists are taking the opportunity to scrape back right through successive empires, past Roman Berytus, to prehistoric times. Beirut was always a popular if somewhat louche resort as well as a trading and banking centre: with a lot of trade diverted to other eastern Mediterranean ports during the war, it was clearly foolish to choke off the potential tourist trade. Cruise ships bring revenue.

MORE FROM MALAYSIA

You always knew, instinctively, that theme parks were in some way evil. You suspected that they were addling your brain and you knew that they either subverted or trivialised the national character of whatever country they happened to be plonked down in. Occasionally, but perhaps not often enough, the parent body rejects the implant. But not until now, in Malaysia, has a theme park been proven to be actively environmentally damaging.

If it was just a question of hacking down a few trees in the rainforest, well, we could live with that. But the SamaWorld theme park, a US$200 million venture in Malaysia's Genting Highlands, 70 km from Kuala Lumpur, threatened at one stage to turn into a full-blown ecological disaster.

This is Monsoon country and the trees hold the land together, stopping it from washing away. Even the underlying granite becomes quickly friable in the tropical conditions. As quickly became clear when the less-than-wholly-responsible contractors moved in, casually bulldozing everything away. Suddenly, the land they were meant to be building on started to disappear.

The Malaysian Department of Environment got shirty and insisted on a rescue engineering

Bauhaus magic on the market

package, coupled with strict limits on further development at the site. The construction managers, Bovis Malaysia, found that the matter of drainage had been completely overlooked. Drainage berms, sediment traps and the like were laid to stop the hills completely disappearing while they were stabilised, soil brought back, and the land replanted. The environmental consultants involved are Angkasa GHD.

The work's been done now, and the landscape saved from further erosion, but the theme park is still going ahead. You can't deny a booming south-east Asian economy its leisure activities.

BAUHAUS DISCOVERY

No account of former East Germany is complete without a note on the "rediscovery" and sale of an intact Bauhaus period house in Leipzig. Dating from 1930 – and in the same ownership since then – the three-storey cube house was one of the last buildings in Germany by the architect Adolf Rading before he joined the exodus of Germany intellectuals, in his case to Palestine. The interior was by Oscar Schlemmer, head of theatrical design at the Dessau Bauhaus.

Few houses of this period and style, in any country, are in such good and original condition. It reflects the rising value or certain properties in the eastern states that the house was deemed worthy of auctioning by Sotheby's in Berlin, with an expected price of DM 2.5 million. It also reflects a certain over confidence: in fact, we learn that the house remained unsold at auction, but was subsequently picked up privately by a German client for the reduced price of DM 1.8 million.

OUTLOOK

1994, according to those who study entrails at the OECD in Paris, is a year when anyone looking for reviving economies should steer clear of Finland and Iceland. Everywhere else will start to come round after the protracted swoon of the recession.

Bad news though this forecast must be for Finnish architects and their clients (one is never quite sure how much of a construction market there is in Iceland anyway), it is in fact not so very good for most of the participating OECD countries. Germany will see very slight growth, picking up more strongly in 1995. France will do very slightly better than Germany, Japan slightly worse. Most nations are in this far-from-satisfactory position, with the exceptions of:

- The USA, an economy growing at just over three per cent in 1994;
- Norway, likewise;
- Ireland, likewise, WA27's tip for growth;
- The United Kingdom, just under three per cent;
- Portugal, a little behind the UK this year but overtaking it in growth terms next;
- Denmark, doing OK on 2.5 per cent this year.

There is always one country that bucks all the trends, and this time it's:

- Turkey. While everyone else has been in recession, Turkey has been booming and is now starting to slow down, from seven per cent growth in 1993 to five per cent growth this year. And while all the other OECD countries show low or reducing inflation, the inflation rate in Turkey will hit 70 per cent this year. Even Greece, the old enemy, will soon get its inflation into single figures.

What a shame, one ponders as

one casts these runes, that figures for China or Russia are not available, these not being OECD members. They would make Turkey seem positively stable. Please note, however, that Turkish companies are investing heavily in the former Soviet Union. The development consortium Mensel JV – set up specifically to exploit opportunities in what is now the CIS – will soon start building a 200-bed hotel in Ashkhabad, capital of Turkmenistan. It's already building houses near St. Petersburg, two other hotels in Alma Ata, capital of Kazakhstan, and shopping centres in Tashkent and Kazan. What seems to make this kind of activity possible is "oft" (that is, low-interest) loans from the Turkish Credit Bank. It's a different world.

ATHENS ART

Following the favourable critical reception of Ieoh Ming Pei's radical revamp of the Richelieu Wing of the Louvre in Paris – former home of the French Finance Ministry, due north of the famous Pei pyramid, and never previously an art gallery – Pei has received a commission to design a museum of modern art in Athens.

The Goulandres family – Greek bankers who as wealthy art collectors rival Britain's Anglo-Iraqi Saatchi brothers – visited the 22,000 square metre Louvre wing, opened by President Mitterrand in November 1993. The legend has already sprung up that the Goulandres clan took one look at the ingenious fixed light deflecting ceiling blades at the Louvre – A design collaboration between Pei and engineers Ove Arup which allows visitors a view of the sky while excluding direct sunlight from the paintings – and asked for a gallery exactly the same.

As light conditions in Athens are rather different from those in Paris, certain adjustments will need to be made. However, the same architectural/engineering team from the Louvre has now decamped to Athens to study the sunny but smogbound climate. Missing from the team, however, is Arup's legendary engineer Peter Rice, who instigated the Louvre daylighting studies (and helped design the already famous inverted glass pyramid that hangs seemingly impossibly in the "Carrousel" underground shopping centre at the Louvre) but who died, far too young, last year.

ALL OVER IN PARIS

Popular though the new Louvre is, it is the last of Mitterrand's *Grands Projets* to reap wholesale public approval in France. Indeed, French public opinion appears rather to be turning against the notion of the superstar architect, to judge by the reception that greeted the opening of Jean Nouvel's Lyons Opera House last year (the architect was allegedly booed on stage).

There has been, of course, the matter of the Très Grand Bibliothèque, or TGB, the structural skeleton of which now stands on the Left Bank a mile or so upstream of Nouvel's Institut du Monde Arabe. Rather as with its equivalent in Britain, this has become an *affaire* that has little to do with its architect, Dominique Perrault, and everything to do with politics. There are some in Paris who yearn for the Jan Kaplicky design that came second to Perrault's upturned table in the competition, but most of the criticism is to do with (as in Britain) whether the library is necessary or desirable at all.

Mitterrand is now isolated in the Elysée Palace, with no politically sympathetic culture minister to support him as Jack Lang did. The current row is over maintenance of earlier *Grands Projets*, be they the Panthéon or the Pompidou Centre, the Grand Palais or Garnier's Opera. There is a big maintenance and repair backlog on most of them. As one official at the Louvre put it: "There is no culture of maintenance in Paris." It is for this reason, he explained, that the new daylighting systems at the Louvre are entirely passive: no moving parts to go wrong.

Carlos Ott's new Bastille Opera is still too new to trouble the public purse further, though it is constantly castigated in the French Press for what are seen as its technical failings and unnecessary nature (though it will come in handy when the old Garnier Opéra closes for repairs for 18 months later in 1994). There is as yet no sign of the Maison du Japon, the Japanese equivalent of Nouvel's Arab Institute, the competition for which was won by Britain's Armstrong Associates. And away from the political arena, the economic climate is (at the time of writing) still not benign enough to allow work to begin on Nouvel's Tour sans Fins (Endless Tower) at La Défense.

Whoever succeeds Mitterrand as president will almost certainly be unable to justify any more Grands Projets: but will he or she see much fun in being remembered, as the Gaullist Culture Minister Jacques Toubon already is, as the President of State Repairs?

DRESDEN REBUILDS

And now the good Eastern European conservation news. Dresden, a city with a psychological need to renew itself as far as possible as it was before the firestorm of World War II, is getting there. Many of the key buildings of the city centre, including Pöppelmann's Zwinger pleasure palace, Semper's opera and the cathedral, have already been rebuilt – though much blackened stonework remains to be reinstated and re-restoration of work hastily done in the immediate aftermath of the war has been under way since unification. Now the baroque Frauenkirche, which has remained a ruin since 1945, is to be tackled: work has just begun under the direction of architect Dieter Rosenkranz.

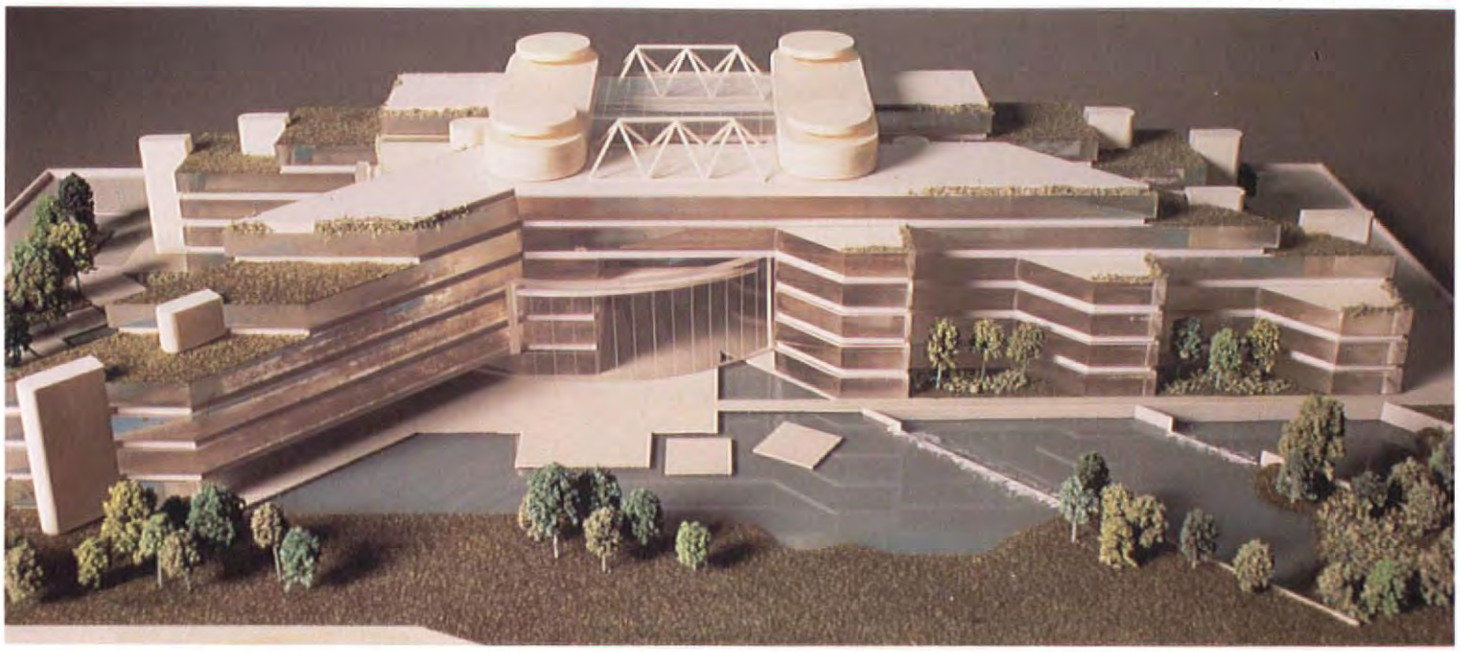
They call it "archaeological reconstruction" a term which implies not just the extent of the destruction but also the exactness of the restoration. There are a few mixed feelings about the work: originally the Frauenkirche was deliberately left as rubble as a permanent reminder of the Anglo-American bombing raid which destroyed the city. But the rebuilding is seen widely as a metaphor for the rebuilding of Germany itself after the Cold War. Restoration is understandably endemic: the city's Jugendstil main railway station, which escaped serious damage in the war, is now being restored with cash from the European Community's cultural fund simply because it is decaying with age.

In Dresden too, however, there are new commercial pressures, with the restoration lobby matched by others calling for swathes of new buildings and roads as part of the economic, rather than architectural, regeneration of the city. The prime minister of Saxony is reported to have thundered: "I want to see cranes in this city!"

SAVE SOVIET HERITAGE!

Just as everyone feared, the opening up of the former Soviet bloc to largely Western-financed developers is having a dire effect on previously relatively unsullied cities. With a few exceptions, fid-

New Opel HQ by BDP and Rohling



dly refurbishments of old buildings do not hold the attention of the development community. They want towers, and they want 'em big. Good architecture? In a pig's arse, friend, as Philip Larkin famously wrote apropos of something else.

However, one sneakily finds oneself wanting to cheer the developers on, once one learns that the luvvies of the British conservation movement – arguably the most advanced, so to speak, of its kind in the world – are beginning to get frightfully concerned about this. Prague is already high on the agenda – never mind Vaclav Havel, Prince Charles has put his oar in on that one – and now it's the turn of St. Petersburg. The city largely escaped the five-year-plan ethos of the Communist years, and is now, with grim inevitability, about to receive its first major tower block, one of those produced by the kind of international consortium, comprising members you've never heard of, that seem to spring to the fore in such circumstances. The luvvies have been out there in force and come back shaking their little fists.

It seems that the idea of the "Peter the Great" tower goes back 20 years, has planning permission in broad outline, so now that money is likely to become available, it's just a question of coming up with a design for the facades. Not quite how Peter the Great would have done it, but there we are.

The conservation brigade has now targetted St. Petersburg as a test case. Defenders of the 35-40 storey tower suggest that it will be invisible from the city centre. This seems to cut no ice. Meanwhile towers of equally startling dimensions elsewhere, such as the FIM tower now being built in Warsaw, or some of the dire commercial stuff going up in Budapest, goes practically unnoticed.

AMERICAN TECH SAVES WORLD

The building cladding of the very near future, one can conclude from an examination of an interesting new factory in California, will consist almost entirely of photovoltaic panels. PV panels, as they are known, are the same refined technology as the solar cells used on man-made satellites since the early 1960s and which currently power the Hubble Space Telescope. Sunlight stimulates molecules of light-sensitive silicon within the panels, generating electrical current.

So what? So PV panels are now getting to be big business on earth. A PV panel-clad building could generate much of its own power requirements. New York architects Kiss Cathcart Anders designed the factory for Advanced Photovoltaic Systems in Fairfield, California. Engineers were Ove Arup's California office. The building is not bad as big sheds go – it has an amusing random pattern of punched windows – but its main significance is that the skin and exterior awning of its control building, a simple cube, generates enough electricity to power its own air-conditioning. The skin is comprised entirely of the standard 5 foot by 2.5 foot PV panels that the factory itself produces.

If you consider that in just one small temperate-climate industrialised country – Britain – the Government is actively considering banning conventional air-conditioning in order to contain the build-up of carbon dioxide emissions, then it is clear that PV panels, once cheap and efficient enough, will be greeted by the world's building industry rather as a chronically sick patient greets a new wonder drug.

IT'S AN OPEL

Anglo-German architectural collaborations, a subject touched upon in WA26's Global Review, appear to be yielding results at the commercial end of the market. The new Opel headquarters at Rüsselheim is to be designed by the British practice BDP with its regular German partner Planungsbüro Rohling and the Frankfurt practice NHT.

The "non-monumental" campus HQ for Adam Opel AG, the German division of General Motors that everyone tends to forget about, was won after an eight-way international competition. An Opel museum, to be part of the complex, may help to establish a stronger identity for a marque that is constantly overshadowed by its more famous brethren such as Volkswagen, Audi, Mercedes and BMW. It will take some doing. □

WADE ZIMMERMAN

A native of New York City, his environment has had a strong impact on his work as has his admiration for the work of Edward Hopper and Charles Sheeler.

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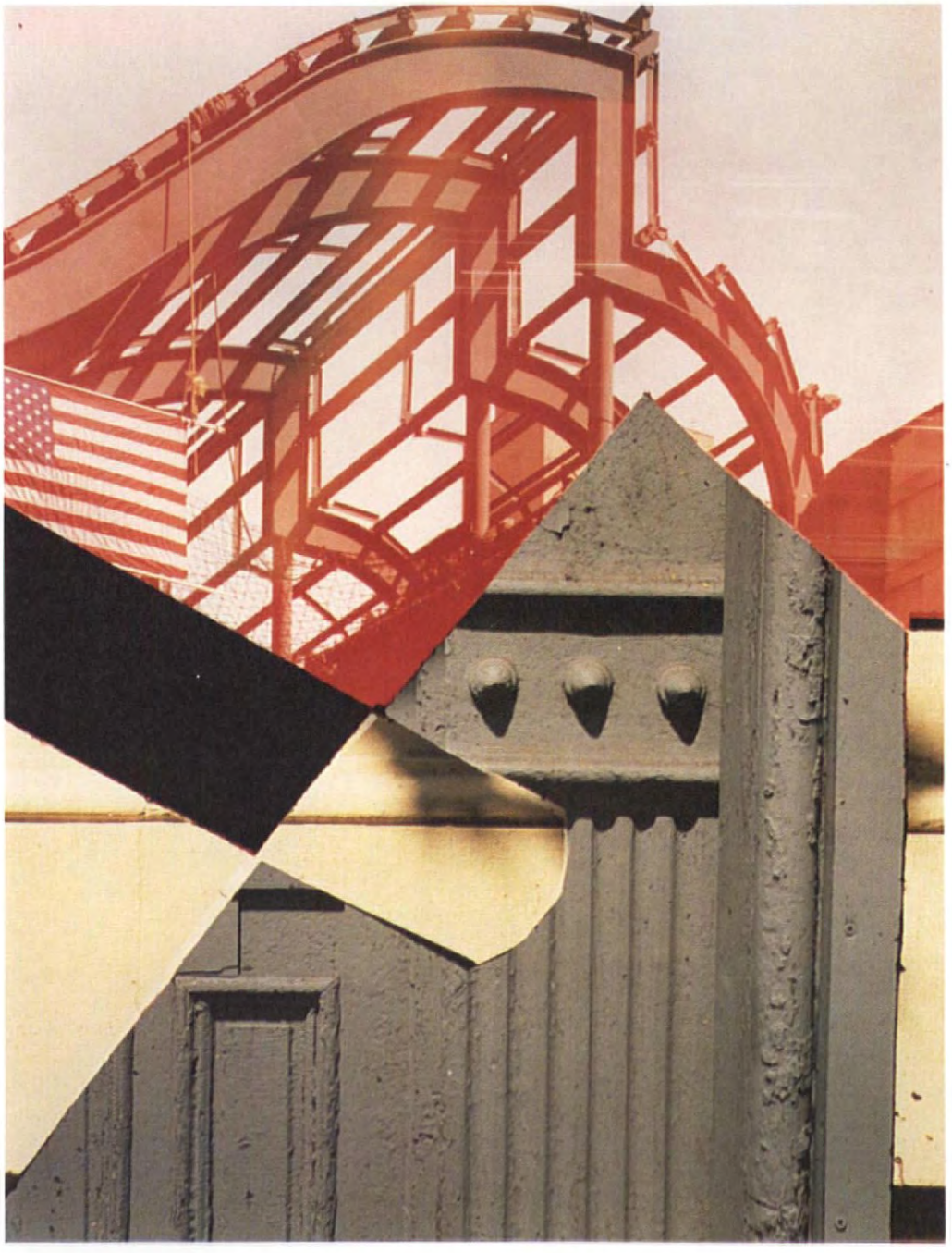
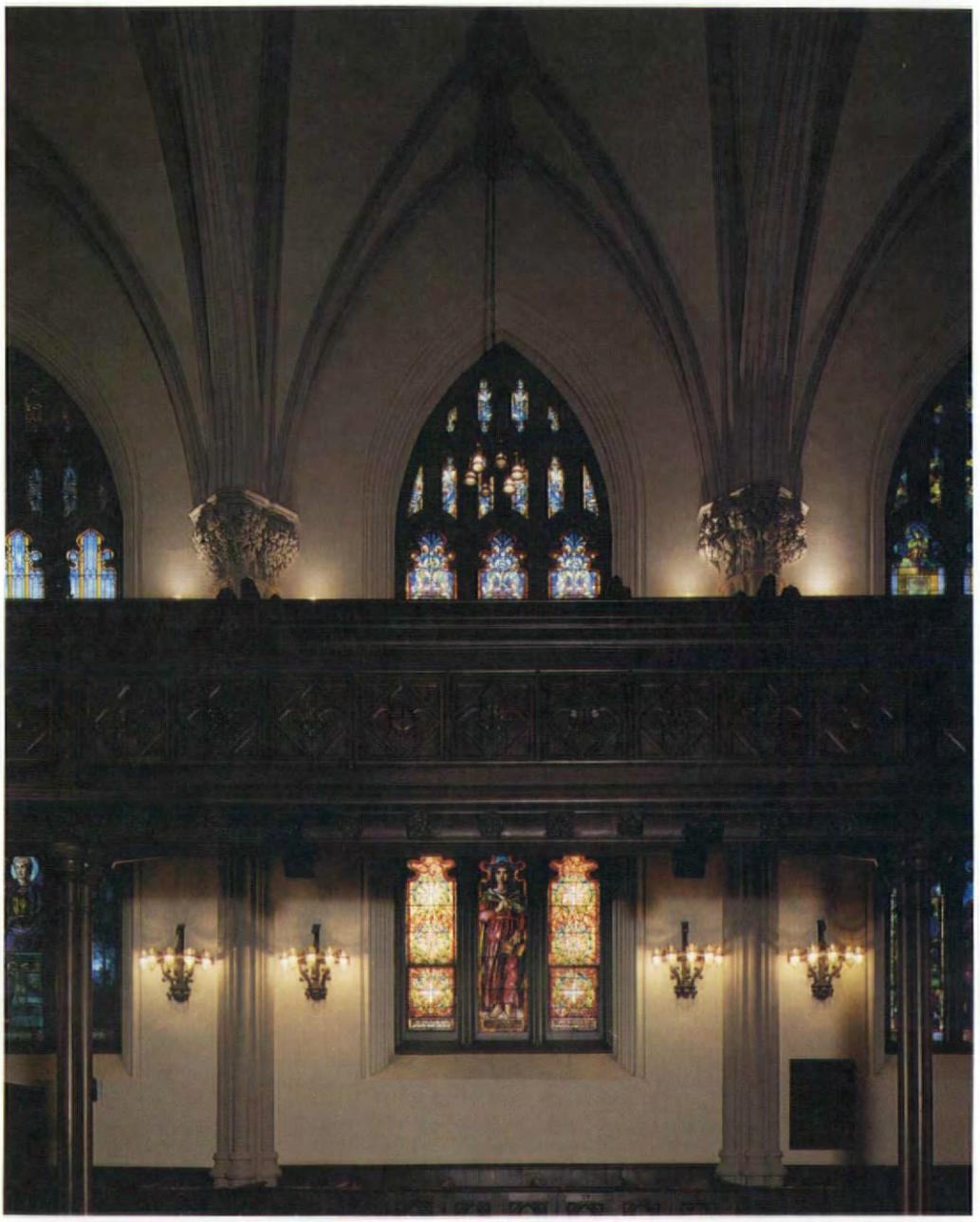
300 SE

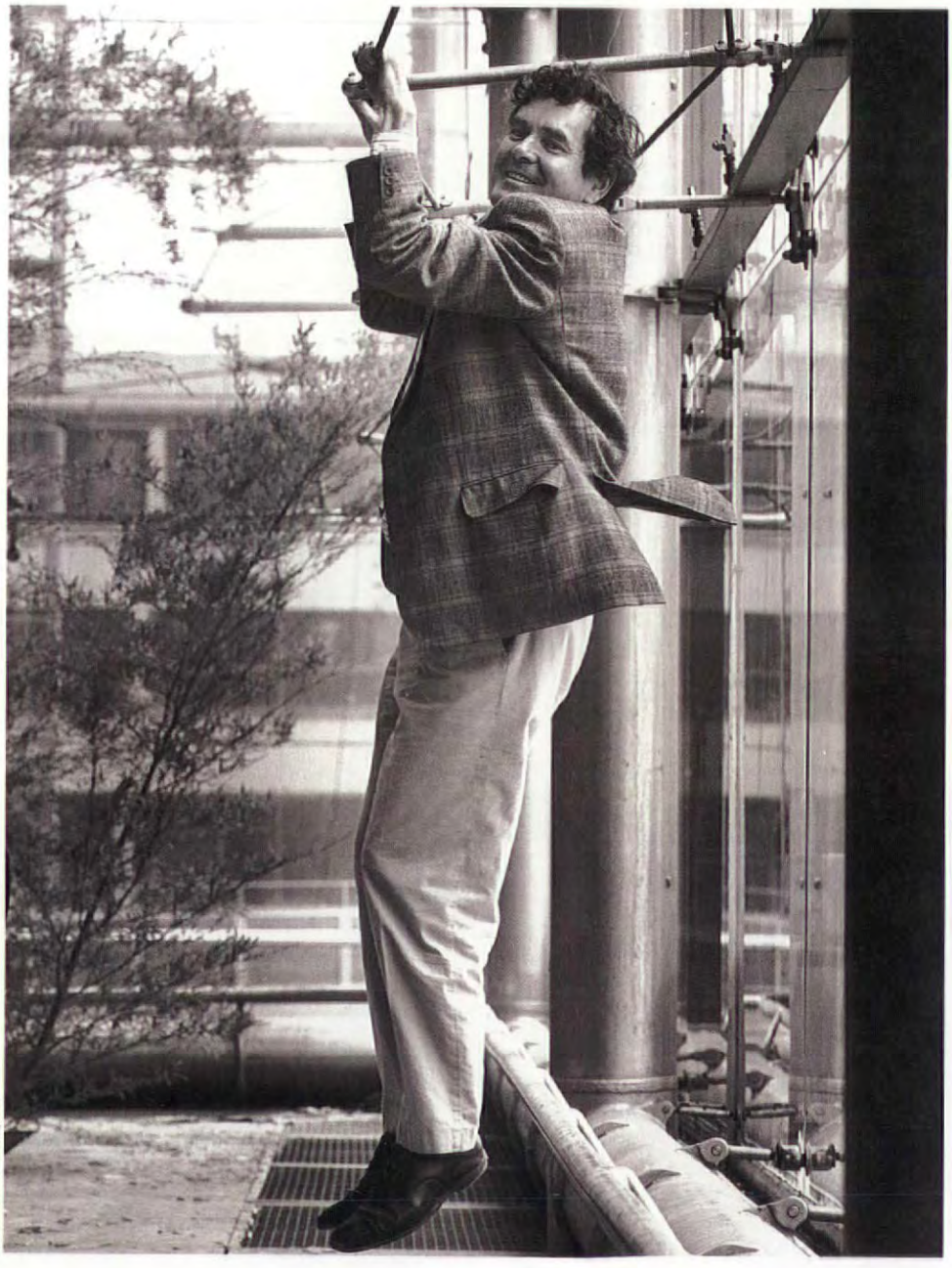





WINING
OF LONDON

RICE ON PHOTOGRAPHY

*March 1994 marks the publication of the autobiography of the great engineer Peter Rice, who died last year (*An Engineer Imagines, *Artemis £34.94). This extract is of particular relevance to* World Architecture *as it deals with what Rice saw as the malign influence of architectural photography upon the design and evolution of buildings. An influence that makes the explanation of the engineers' role doubly difficult.*



Michael Denance / Archipress

As an engineer working with architects, I am constantly amazed at the degree to which photographs of architecture dominate what the public – and indeed many architects – see and perceive. The photograph is at best a subtle and effective interpretation of a building by a skilled photographer. The building itself, in all its three-dimensional glory and context, will be something much more subtle, something much more complex than any photograph can or should be able to show. The photograph is a kind of tyranny which often obliges an architect or designer to characterise a building by some specially taken shot, which may produce a memorable image, but which almost certainly undervalues the building and its various plays of light and shade.

Photographs also discriminate against those elements which an engineer can bring to architecture. I also feel that the same kind of simplification can exist in the need to find an epigrammatic appreciation of a piece of architecture. But the real constraints comes from the photograph, which, no matter how good it is, cannot record anything other than what is seen.

For some time I have pondered on the role that the photograph plays in architecture. For an engineer this is particularly significant. Much of what we do, and the special quality that thoughtful engineering can bring to a project, is not photographable. The photograph records an image, a two-dimensional image, one where the three-dimensional nature and the hierarchy of structural or other engineering elements is difficult to convey.

Because the photograph of a building is often the first image and usually the definitive image people have, it is difficult to get people to see those more variable and subtle factors which light and the texture of materials can bring. The public – even the professional public – will have formed their opinion of the work by studying the images in architectural magazines.

This simplification of the real complexity of a piece of architecture has had a profound effect on the development of current architectural trends. Architects have got to be aware, from an early stage in the development of a design, of how a building will photograph. Unless a firm image can be established which identifies and formulates

what the salient features of a building are, it will often get ignored by the public at large. To introduce into this background concepts such as texture and the essence of the material can be very difficult and almost counterproductive.

A photograph requires mass surface to photograph. This was brought home to me when we first built a tension roof, such as the roof of the Fleetguard factory in Quimper, France. When you go to see the factory in real life, your eye picks out a detail such as a node at the end of a compression member and sees the rest of the structure within the perspective of that detail. The difference in visual weight given by the eye and the uniform pattern of nodes and members given by the photograph create different perspectives.

It is quite simply impossible to understand and judge a building, like the Fleetguard factory, by looking at photographs. The true three-dimensional nature of the building is inevitably lost in the photograph. The photograph picks up surfaces, it cannot pick up and register the air between elements and the relative relationship which the pieces have one with another.

Centre Pompidou is another building which has suffered greatly from being impossible to photograph. The building seen from the piazza is a series of planes defined by the structural frame and by the presence of people on the facade. What the photographer does instead is to pick a characteristic detail and elevate it to the image of the building. This leads to people no longer trying to understand the total interrelationship of the pieces, how they are composed and relate one to another.

Because of this, it becomes almost impossible to illustrate a building, particularly a building with a powerful image such as Centre Pompidou, with an element of surprise. That vital characteristic, which can make perusal such a rewarding feature of visiting a building, becomes distorted as one searches for the definitive image.

That other critical characteristic which we have as engineers, and certainly something that lies at what I believe to be at the centre of my own contribution, is materiality. Texture is wholly impossible to register in a photograph. To understand materiality in a piece of architecture, one has to be able to experience the nature of the building itself and the way in which the materials are used.

In times past the role of the photograph was played by the formal drawing of a facade or building element. But, with the formal drawing, one could distort both the colour and perspective of what was being drawn to highlight or make evident a particular effect. Even formal drawing has been diminished by the photograph and is often nowadays reduced to a photograph of the model.

At all levels therefore the photograph has had a detrimental effect on the development of architecture and its appreciation by the public. The photograph is such an ubiquitous element of modern life that many people presented with something, particularly something of a certain size, instinctively compose the photograph in their minds rather than examine its reality.

The photograph is a feature and factor in modern life which is not going to change. And photography, as an art form and as a means of exploring the nature of things, obviously has its own validity. What concerns me is how it has taken over and distorted the actual appreciation of architecture. There is a belief that everything can be photographed, that it is just a question of getting the right angle. The drama of certain solutions which may depend on an appreciation of stability and of the way that stability is achieved are clearly impossible to convey easily by a photograph.

The way a structure is put together or detailed may be used to enhance a particular effect. An example would be the way that the detailing of the Patscenter project in Princeton, New Jersey, by using flat plates for the joint at the top of the A-frame draws attention to the planar non-braced nature of the frame and enhances the perception of the planar quality both in photographs and in reality.

It is true, though, that the architectural concept for the Patscenter project was ordered in a way to make it possible to photograph easily. It is a series of planar structures, repeated at intervals along the length of the building, giving a modular structure which can allow the building to be extended if required.

Another building, the Seville Pavilion of the Future, which used the same structural principle, where the structure is braced through the geometry of the column support system, was not so easy to capture in a photograph. That building, which was lighter and more daring, has to be visited to be comprehended and, even when visited, has to be examined from a number of angles before its full impact can be appreciated.

Issues like this, and the way that photographs precondition one to a particular view and arrangement of a building and its elements, mean that the photograph is a tyrant which is very difficult for architects or others working on the design of a building to escape. Indeed I often wonder whether the photograph does not force architecture into a straitjacket, the straitjacket of being photogenic, or at least comprehensible through photographs.

Take, for instance, the post-Modern style. Can we say that the strong comprehensible facade images which characterise this style are not influenced by the fact that most people eventually see a building through its photograph?

I have a memory of a building designed by an eminent post-Modern architect in Houston where it is impossible to see the full impact of the facade and its composition because of another smaller rectangular building which has been built in front of it. In Houston there is no planning control. All the people who had come to see it manoeuvred until we had an unencumbered view of the majestic composition. The building was 30 storeys tall. This habit, especially prevalent in America, of making a building into a separate entity makes it very difficult for the engineer to contribute much outside the "make the building stand up" syndrome. The features which matter are purely photogenic and superficial and therefore bear no relationship to the engineering qualities.

To summarise what is a tricky argument, I feel that the use of photography in popularising and explaining architecture has made it very difficult for the work of engineers concerned with the use of materials, structure and the character of a building's functions to be understood and explained.

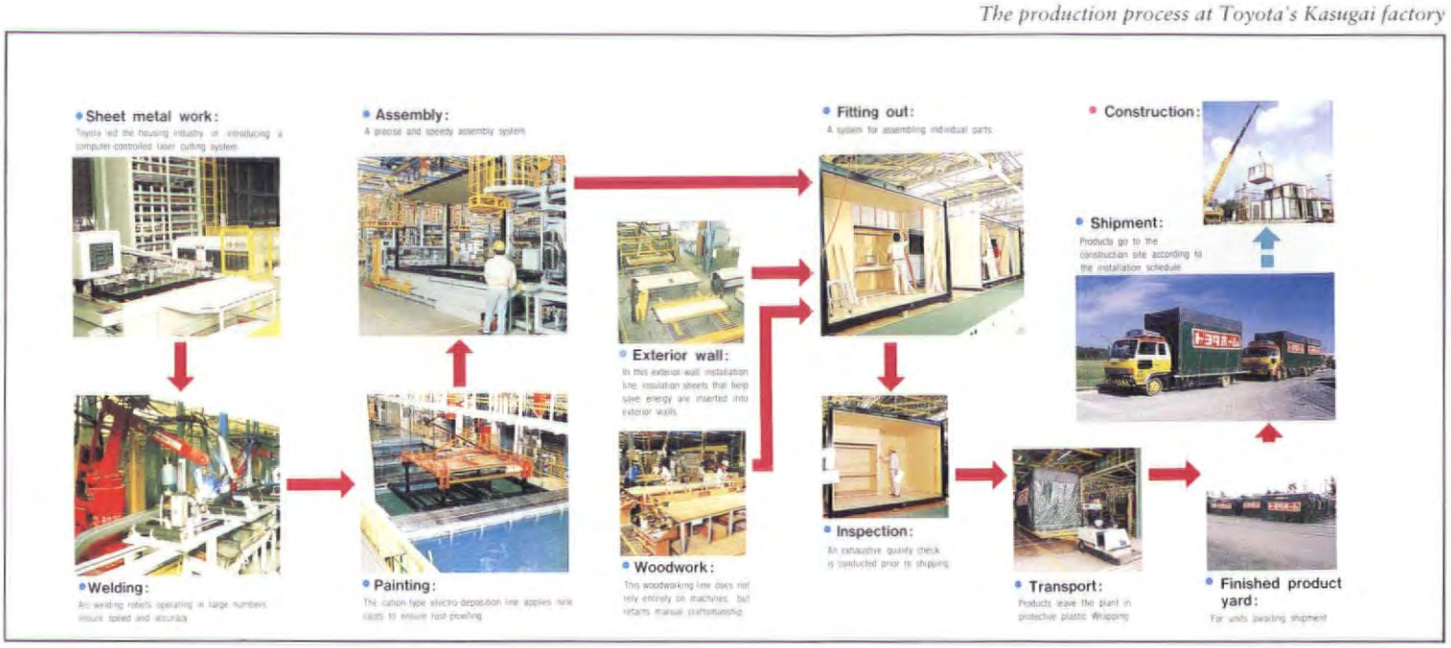
I believe concentration on these issues by those who explain architecture to the public could be very productive, not just because it would help me in what I do but because it would enable people to see the reality of building more clearly. □

TOYOTAS WITHOUT WHEELS

The Japanese house has long been a subject for rhapsody in the West. Viewed in its traditional form as the perfect prototype dwelling for the spartan and ascetic lifestyle so many architects aspire to, it proves on closer acquaintance to be on a converging course with suburban development the world over. Peter Wislocki reports on the prefabricated palazzos – and heat pump air conditioning systems – of Toyota Homes

Toyota Homes design "Oak Forest"

The production process at Toyota's Kasugai factory



Japan has been aptly described as a "both/and" society: simultaneously technologically progressive and culturally traditionalist. Japan's economic ascendancy, following the almost complete wartime destruction of the country's infrastructure, is explained by an enthusiasm for innovation, a readiness to study competitors' approaches, first copying and subsequently surpassing their products. Belonging to the *uchi* ("inside") – whether in familial or occupational circumstances – promotes an enviable, if sometimes inhibiting, sense of common purpose and teamwork.

A *gaijin's* (foreigner's) expectation of innovation in Japanese housing might be fulfilled by the TRON house. The brainchild not of architects, but of Professor Ken Sakamura, an information scientist at Tokyo University, the TRON (The Realtime Operating System Nucleus) house seeks to integrate a plethora of electrical and electronic devices, concerned with every aspect of the occupants' comfort and lifestyle, in an "organic" manner. Having completed the first stage of this pilot project in 1990, Sakamura and his industrialist collaborators and sponsors believe that they have only scratched the surface of the potential for technology to invisibly manipulate our habitats.

Whilst Japanese consumer products become simultaneously more potent and less visible (a theme developed by, amongst others, Kisho Kurokawa), the quality of most Japanese housing bears little comparison to the sophistication of Sony Discmans and Panasonic camcorders. Throughout all of Japan's overcrowded cities, millions live in low-tech, low-rise houses, which would scarcely meet the expectations of the majority of Europeans or Americans. In Britain, a typical nuclear family might occupy five or six habitable rooms, three of which are bedrooms. In Japan, a family of the same size would expect to live in roughly half the area; and traditionally, no permanent distinction is made between living and sleeping quarters. Love hotels provide occasional privacy for married couples escaping their overcrowded homes, as much as their promiscuous offspring.

Given Japan's celebrated wealth, it is at first surprising that technology has only gradually been harnessed in the cause of improving such a fundamental component of living standards. Since the Second World War, a number of attempts have been made in the West to apply wartime technological advances to housing; using prefabricated systems to make homes that are functional products, not capital investments. Carl Koch's "Acorn House" and Craig Ellwood's Case Study Homes, amongst other such projects, demonstrated that irrespective of technological competence, consumers (and mortgage lenders) preferred "traditional" buildings.

As in other industrial sectors, Japan's development of prefabricated steel housing systems initially lagged somewhat behind that of the West. Toyota – Japan's largest automobile manufacturer – launched a housing system in 1975. Each Toyota Home is composed of around a dozen modular units, selected from a limited range, whose size is determined by that of the trucks which deliver them to site. The technology employed is well proven: 100mm x 100mm galvanised steel studs, with bolted connections, supporting external cladding of 12mm slag cement panels and internal plasterboard. Computer controlled laser sheet metal cutters and robot arc welders ensure consistent quality. But, as with the world's most prestigious cars, much of the interior is finished by unremarkably traditional craftsmen.

As a prospective purchaser of a Toyota Home, you will explore the possible combinations of standard units on TACT (Total Architectural CAD of Toyota). One machine will display plans, elevations and perspectives, calculate approximate construction costs, and check stock availability of every component. Your showroom hosts will then direct you to TIPS (Toyota Interior Presentation Service); whose in-house interior design consultant will help you coordinate every aspect of your home. Needless to say, the sales staff will take care of building control and legal exigencies. This is truly a one-stop service. An entire house is always assembled within a single working day; and even including the pouring of the concrete foundations, and the equally conventional internal finishes, the entire construction process takes little more than a month.

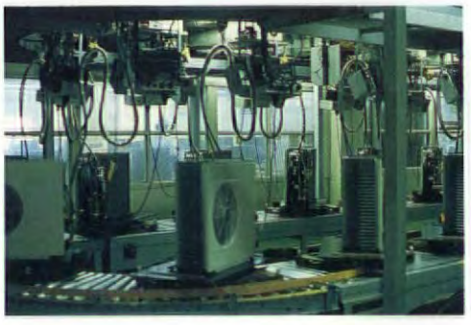
In contrast to the experience of Europe and the United States, the expanding

Three traditional models, top to bottom, the "Kodachi", the "Oak", and the "Serrata". Heat pump production for Japanese housing (top right)

Japanese population has become increasingly concentrated in the small proportion of their islands which is not mountainous – a primary cause of the extraordinary land values in most Japanese settlements. Furthermore, Japan's elegant timber buildings have consistently – throughout recorded history – been subject to recurring earthquakes, tidal waves, typhoons and wartime destruction. Not unnaturally, Japanese culture has developed a somewhat different attitude to architecture than that of its Western counterpart; a culture which has, over the last 1300 years, celebrated the ritualistic demolition and rebuilding of the Ise Shrine on a twenty-year cycle. In a land where the cost of building is a fraction of the value of land, and where even the most venerated religious shrines have never been seen as permanent structures, Toyota's 10-year guarantee (and claimed lifespan of 50 years) makes these houses a very sound investment – as sound, in fact, as a Toyota motor car.

Three factories produce a total of 6,000 units each year – a very significant figure compared with nearest equivalents in the building industry, if not in comparison with automobile production. The product's marketing stresses the reliability of Toyota's engineering, offered at between a half and a third of alternative construction costs. The combination of quality, low price and construction speed should guarantee continued commercial success. Indeed, as traditional craft skills continue to be lost – a phenomenon as lamented in the Japanese building industry as in the European – the marketable advantages of the prefabricated home may be enhanced still further.

Yet is has not always been so. Just as Americans rejected the Case Study Homes because, as even the steel industry admitted, "these modern homes just don't look homely", Japanese consumers were slow to purchase Toyota's earlier housing designs, which made no effort to conceal their mode of fabrication. The ever more numerous homes produced by Toyota since the late 1980s have generic names like Larch, Oak, Elm and Cedar. There is nothing industrial about their appearance: the slag cement cladding is carefully moulded and coloured to give the houses every semblance of a somewhat Europeanised Japanese pseudo-vernacular building "tradition".



Miracle Machines

Whilst the technology of most house building remains relatively primitive, the Japanese home is well serviced. The manufacturers of televisions and video players also supply ubiquitous room air conditioner units, nearly all of which employ heat pumps. Heat pumps – devices which extract heat energy from one source making it available as heat energy at a higher temperature – are the most widely used source of both summer cooling and winter heating.

In cooling mode, a heat pump functions much as a domestic refrigerator: heat from the interior is extracted and pumped to the exterior of the dwelling. In heating mode, heat energy from an external source, usually the atmosphere, but sometimes the soil or bodies of water, is made available internally at a higher temperature. Manufacturers' data suggests that typical units can maintain 20 degrees centigrade inside a room when the outside temperature is 7 degrees; and that at these temperatures, the heat pump is consuming only one third of the energy which it delivers in heat to the room.

Japanese consumers have evidently come to appreciate the benefits of these seemingly miraculous gadgets: 70% of the country's dwellings are serviced primarily with heat pump technology. But there are limitations. In northern areas – whose climate approximates most closely to that of northern Europe – heat pumps have not yet claimed 20% of the potential domestic market. This is mainly because, whilst a number of manufacturers have already marketed units which can heat a room when external temperatures are as low as -10 degrees centigrade, the efficiency of these machines dwindles under such conditions. Icing of major components initially reduces efficiency, and can subsequently cause permanent damage.

The steady increase in Japanese heat

The Toyota Kasugai factory (left) with modular assembly unit (above)

pump sales over the last ten years (8.4% up over the year 1988-89 alone) has been due more to their summer cooling capacity than their winter heating efficiency. According to the Heat Pump Technology Center of Japan, the typical winter temperature minima for Tokyo are approximately -5 degrees centigrade; the lowest recorded temperature being -13 degrees. In winter, most Japanese households supplement heat pumps with kerosene heaters or, where these are prohibited by safety regulations (in buildings of more than 14 storeys), with auxiliary electrical heating. Whilst the heating needs of Tokyo appear comparable to London's, summer temperature and humidity levels are far higher than in northern Europe, making cooling a much higher priority.

Nevertheless, the recession (more than the still debatable ecological benefits of using such remarkably efficient heating systems) has revived interest in developing heat pumps for colder climates. Anxious to maintain and increase current levels of production, manufacturers are improving the efficiency of compressors, invertor power sources and frost resistant components in an effort to break into new markets. Trials in Aomori, Niigata, Akita and Iwate prefectures suggest that domestic units can produce over 4kW of heat output – three times their power consumption – when outdoor temperatures fall to -10 degrees. Dr Moriyoshi Sakamoto, Professor of Mechanical Engineering at Tokyo Metropolitan University, endorses the industry's assertions that commercially viable systems will be commonly available within the next 5-6 years. Such an advance will, of course, extend the potential market for heat pumps beyond Japan and the USA, where they have been widely used since the 1960s, to Europe and beyond.

The evident differences in levels of consumer acceptance of innovation in housing technology between Japan and the West can, of course, be attributed to specific cultural and climatic factors. As Kurokawa argues in his *Intercultural Architecture: The Philosophy of Symbiosis*, Japanese attitudes to building – and existence generally – have traditionally been coloured by a rejection of all that is permanent or absolute which is at the heart of Buddhism and Confucianism. As was mentioned at the outset, Japan is "both/and" society: both intensely materialistic and transcendentally spiritual. Unlike Westerners, who continue to crave for permanence in their dwellings as a manifestation of cultural continuity and stable self-identity, the Japanese more readily accept an evolutionary view of their homes, favouring an unsentimental appropriation of every technological advance and continuing renewal. Yet even in Japan, Toyota are forced to apply a veneer of "tradition" to a technologically advanced product.

The acceptance of the house as a product, as opposed to an investment, is liberating and progressive; and the development of already versatile and reliable heat pump technology to something approaching its amazing theoretical potential promises great eventual economic and environmental benefits. Yet, seen in terms of immediate global ecological concerns, many aspects of Japanese housing technology appear problematic. The use of a prefabricated steel housing system – even if many components were to be recycled – is questionable given the existence of timber alternatives; and, for the time being at least, the environmental advantages of heat pumps over other forms of heating remain disputed. Such conflicts and paradoxes – typical of a nation which is continuously striving to reconcile an industrial miracle with the environmental nightmare of incessant growth – should hardly surprise the *gaijin*. □

CONTROLLING THE VERTICAL MARKET

The invention of mechanical vertical movement systems for buildings is what made skyscrapers possible. More than two hundred years after the first manual chair lifts, buildings exist which operate close to the limit of what is possible using cable systems. In part one of a two part investigation into the past and future of the vertical movement business, Tim Ostler explores the world of the lift as we know it today.

A lift journey is a form of voluntary imprisonment we are prepared to endure as a means to an end. Most people will tolerate it for about a minute and a half.

While we are there, the social rituals we feel bound to observe are the stuff of everyday humour and urban myth. The moment the lift doors close upon us, conservation dies as if by magic, to be replaced by fake insouciant whistling or throat-clearing. We all look at the door. Every time a new passenger gets on he is greeted with a momentary glance, then totally ignored for the rest of the trip (a phenomenon known to psychologists as "civil inattention").

This is what the lift means to most people. But to architects, the lift has a heroic pedigree. We all know that without the "safety elevator" the skyscraper would never have existed. The lift, in other words, is responsible for the most exciting building type of the century.

Odd, then, how low-key is the image of the lift itself. "Scenic" lifts may be spectacular, but the "prime mover" lift, deprived of the evocative and faintly sinister pantograph steel gates of the original, has become a paragon for blandness, and the average lift car no more than a metal box, with or without period trimmings.

For all its apparent modernity, the basic idea behind the lift is simple enough and has been around since Roman times, when people were hauled up in baskets on pulleys. For the next few centuries there were few advances until the problem aroused the interest (inevitably) of Leonardo da Vinci, who proposed the use of gear trains made up of endless screws, as in a car lifting jack.

This idea met with as little follow-up as most of Leonardo's other ideas, and by the seventeenth century the state of the art had still not got beyond the "flying chair" – in effect a chair tied to a rope and counterweighted by a lead block. It was used by members of several European royal families: the earliest was installed in the Palace of Versailles in 1743, and connected the private apartment of Louis XV with that of his mistress Madame de Châteauroux. In a sense it was the first "wall-climber", as it ran down

The RCA building, New York (left) showing setbacks corresponding to lift services. Car interiors left to right above: Otis 2000, Schindler, Thyssen, show exploitation of limited design possibilities

the outside of the building. It was operated by servants pulling a rope: counterweights ran inside the chimneys. But the perils of this form of transport were brought home later in the eighteenth century when Louis XVI's daughter was involved in a serious accident.

By the early nineteenth century, steam-powered elevators were widely used for hauling freight in factories and ore in mines. In the 1830s a hydraulic catafalque lift was installed in Kensal Green cemetery. This lowered coffins from the main body of the chapel into an extensive network of catacombs. It was not a safety lift – but then this hardly mattered, as the passenger was already dead.

It was not until 1852 that Elisha Otis invented the "safety elevator" for the transport of bedsteads from one floor of a factory to another. It was powered by steam and moved by a system that used a belt-driven winding drum; safety was provided by means of a system of spring-operated cams that engaged guide rails in the elevator shaft when the cable broke.

Otis' innovation finally removed the danger of lethal accidents. Today the threat posed by the lift is almost entirely psychological: there are ten times as many accidents on stairs as in lifts.

The skyscraper had to wait until the introduction of electric lifts later in the century. In any case it was not sheer height that the lift made possible but the opportunity to charge as high a rent for upper as for lower storeys – even before Otis' invention the average height of buildings in financial centres had almost doubled since the eighteenth century.

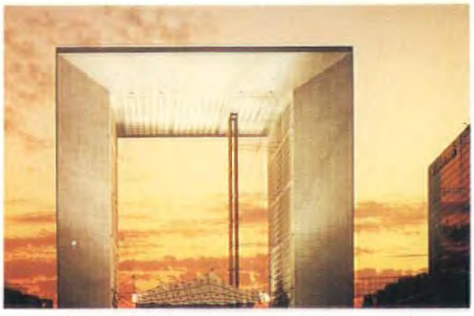
But the lift gave rise to a change in the status of upper versus lower floors. Previously the upper floors had been the domain of servants, slaves and lowly clerks. Once financiers and industrialists were freed from the need to puff up the stairs, the special benefits of being on the upper floors could be appreciated. It became possible to conceive of the top floor as a kind of Mount Olympus from which captains of industry could gaze down at the common herd and indulge fantasies of benign omnipotence.

In 1857 the Haughwout department store on Broadway managed a coup with the first commercial installation of a passenger lift. Two years later there was another in a Fifth Avenue hotel. Both were steam-powered. The first office building to build safety elevators in from new was the Equitable Building of 1871, a feat that led the author Winston Weisman to describe it as the first skyscraper, even though it was only three storeys high and in the Napoleon III style. Buildings more worthy of the title were to follow: DH Burnham's Fuller Building of 1902 used lifts to serve 20 floors, while in the Broad Exchange Building of the same year, 18 lifts served 13,000 passengers a day.

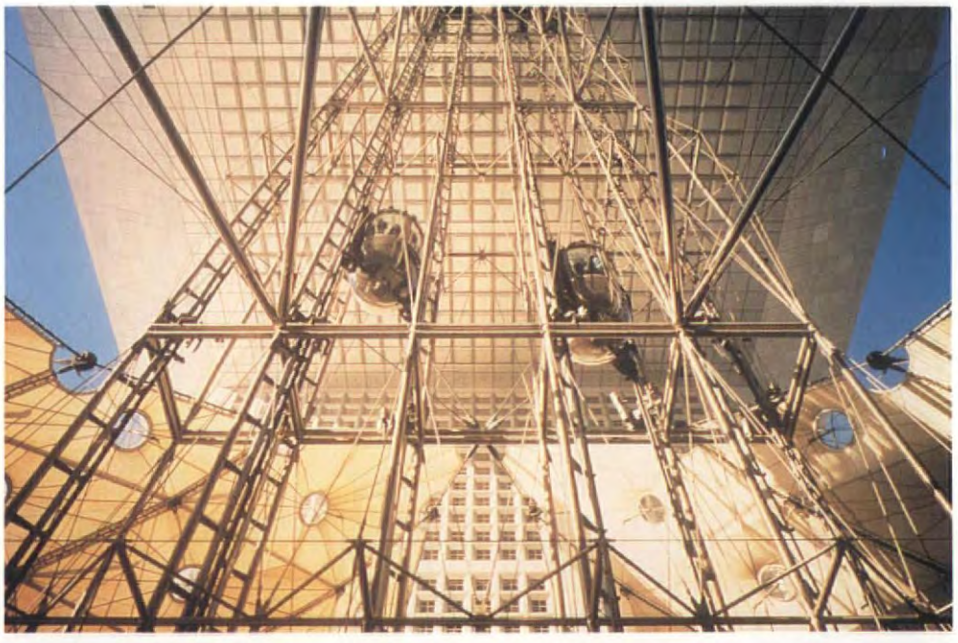
Lifts at that time were not boring necessities to be hidden in a concrete shaft, but triumphs of imagination and engineering. The impression of modernity and comfort was enhanced by elaborate floral-style cages, screening mechanisms without concealing them from view. By the twenties the lift was often fully enclosed and a wonder of Art Deco craftsmanship.

The relationship between setbacks in skyscrapers and the number of lift shafts was sometimes quite marked. In the RCA building, for instance, the vertical "layers" of the building fall away with height as the number of lifts reduces. A variation of this principle also occurs in the Sears Building in Chicago. The challenge of accommodating lifts in very tall skyscrapers without taking up too much of the plan area led in the 1960s to "sky lobbies", major lift terminals at various points in the building, accessible by express lift and a starting point for slower commuter lifts that stopped at every floor. The double-decker or tandem lift, where each car serves alternate floors, was another technique developed to maximise use of scarce lift-shaft space. This method was used recently in Hong Kong when the Sun Hung Kai Centre was extended upwards by six floors, thus producing a greater demand for vertical transport.

Today after nearly a century and a half of



The celebrated Otis panoramic elevators at the Grand Arche, Paris



development and refinement, the lift industry is irredeemably "mature". A small number of major players – internationally, Otis, Schindler and KONE – dominate the market, with a number of smaller companies and local specialists fighting for the scraps. Largest with 23% of the market is Otis, now part of United Technologies Corporation, a $22 billion combine that also includes Pratt & Whitney jet engines, Sikorsky helicopters and Carrier air conditioning.

The revolutionary technological leaps forward are now in the past. Lift manufacturers face an uphill struggle in distinguishing their products from those of their competitors, and much energy is being devoted to refining various parts of the ordering and installation process.

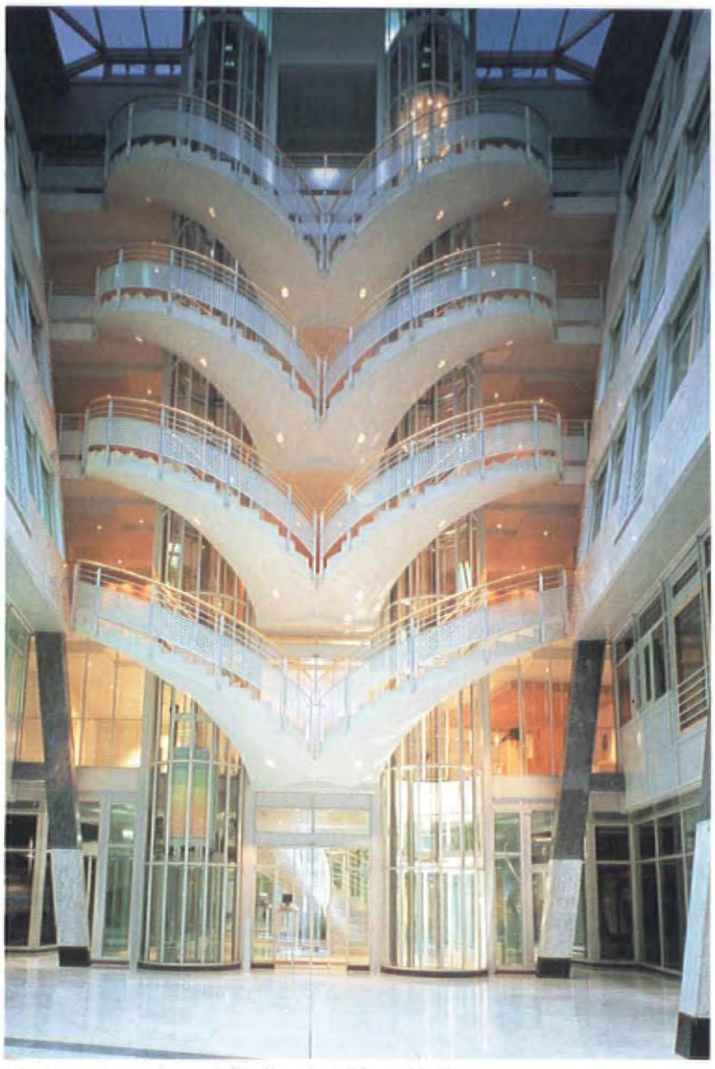
On a fast track contract the lift package is often amongst the first to be placed, to enable the detailed requirements of different manufacturers to be incorporated into structural design. As a result the lifts may have to be tendered for a year before their logical place in the sequence, resulting in their being designed at the same time as piling and substructure. This may be partly because, as one marketing man candidly informed me, lift manufacturers have a reputation for being late.

In response several manufacturers – notably Schindler – have developed prefabricated lift shafts, which can be installed at a relatively late stage after the basic structure is complete. Otis has developed a platform rig that allows the lift system to be constructed within the shaft without scaffolding and with minimal contractor involvement. KONE for their part are trying to integrate their procedures with those of the designer early in the specification process, sending drawings to consultants, for instance, by electronic mail. This is all good stuff, certainly, but hardly earth-shaking. Such are the problems of operating in a market where the product has reached close to optimal development.

Most performance gains in the last few years have arisen from refinements in control systems, which can be retrofitted to existing installations. Modernisation can be very effective, with performance gains of 20-25% achievable for modest measures and 30-50% for more through-going treatment.

Speed is no longer a primary goal: although lifts could easily be designed to travel much faster than they do, the limiting factor is people's capacity to bear fast vertical acceleration and deceleration.

Nevertheless, Mitsubishi last year proudly announced the installation of the world's fastest passenger lift, in Yokohama's Land-



Clockwise from above, Schindler glass lifts at Hoffmann-la-Roche, Basel. At a business centre near Zurich airport, and at Fatigoni Electronics, Cagliari

mark Tower. It has a top speed of 28 mph – or four floors a second – and has a speedometer in the cab. Not to be outdone, Hitachi is planning an even faster model of over 30 mph.

Those not competing in the race point out that it takes so long for the Mitsubishi lift to accelerate and decelerate that it only runs at its maximum speed for five seconds. A developer can expect to pay $3-4 million to enjoy this brief moment of glory.

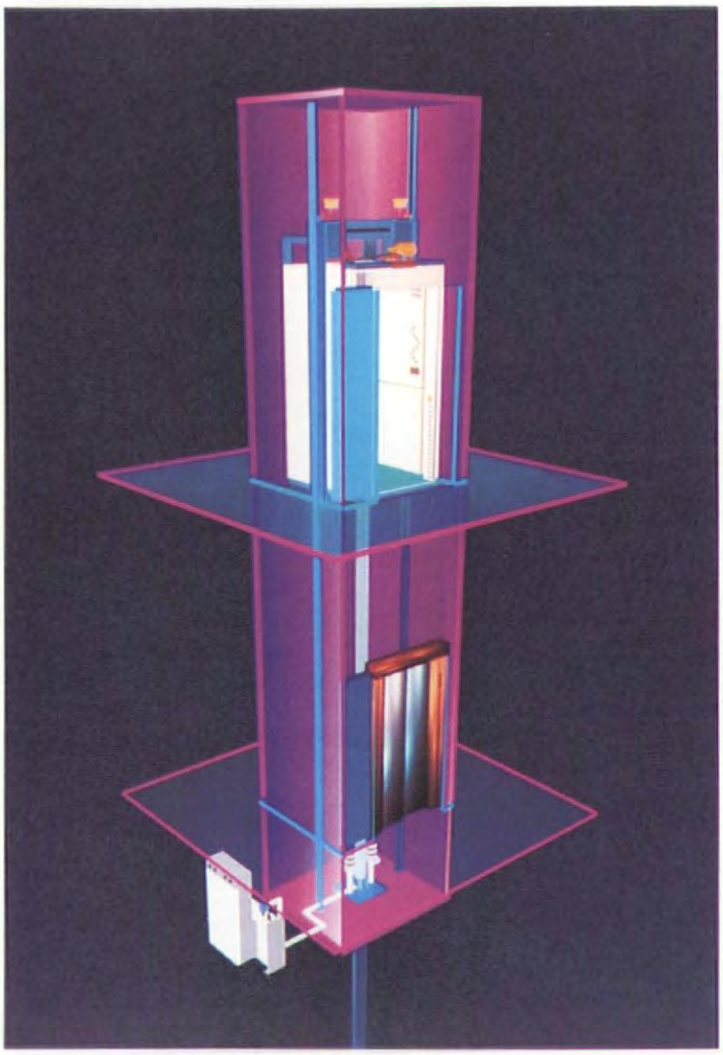
Ironically, the Japanese are noted for their lack of interest in speed per se. While Americans like to get the experience over with as soon as possible and, to this end, are happy to tolerate mechanical noise and marginal "motion discomfort", the Japanese seem prepared to endure a longer trip providing that, by careful attention to quietness and comfort, they can be persuaded that the lift journey is not actually happening.

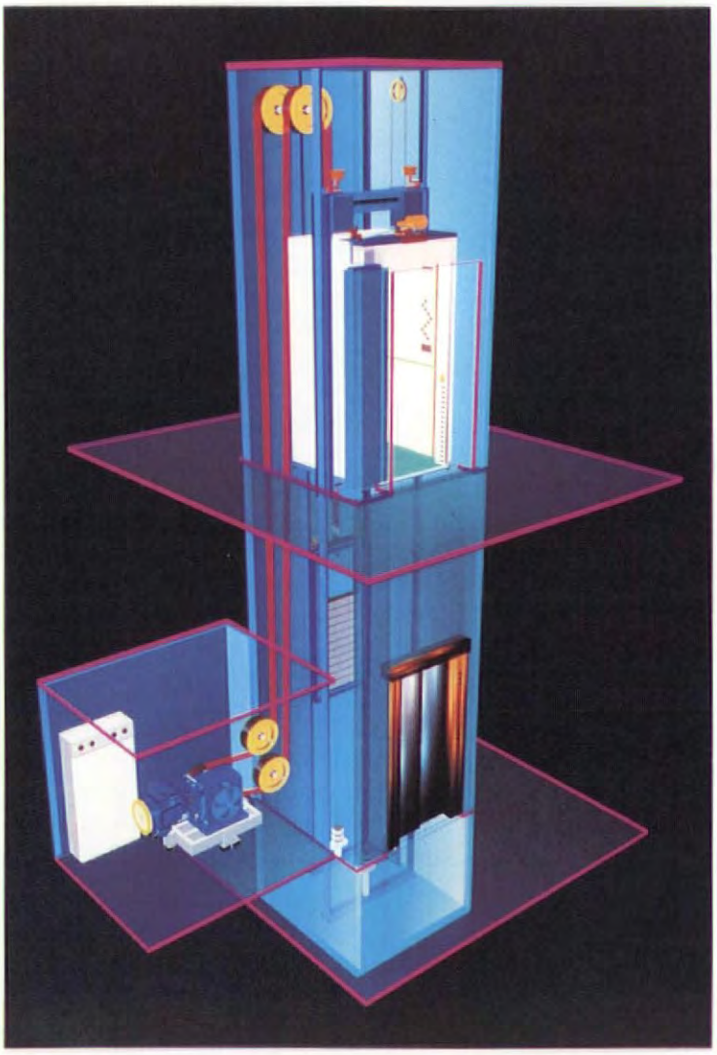
Otis remain unimpressed by the quest for speed. But they are not averse to participating in projects that are bizarre in the extreme. Douglas Trumbel's pyramidal new Luxor pleasure centre in Las Vegas, which opened in October, contains four lifts running up each of its four corners. They are inclined at an angle of 39° to the horizontal. The door-opening mechanism had to allow for the fact that each lift approaches the landing in a diagonal, not a vertical direction.

Passengers and luggage trolleys are asked to face forwards, as otherwise they are pitched backwards as the lifts start moving.

Such excesses aside, lift design consultants everywhere profess comfort and low "flight" time as primary goals. The ideal lift is one which we could use spontaneously, parking it in the morning when we arrive for work and

Computer generated images of bottom motor and hydraulic lift systems by Thyssen





driving it off in the evening when we leave. Short of providing as many lifts as there are users of a building, this is of course impossible. Lifts are by definition a form of public – or at least semi-public – transport, albeit the only kind that is regularly used by captains of industry (even here, VIP options allow key-holders to take priority over other traffic).

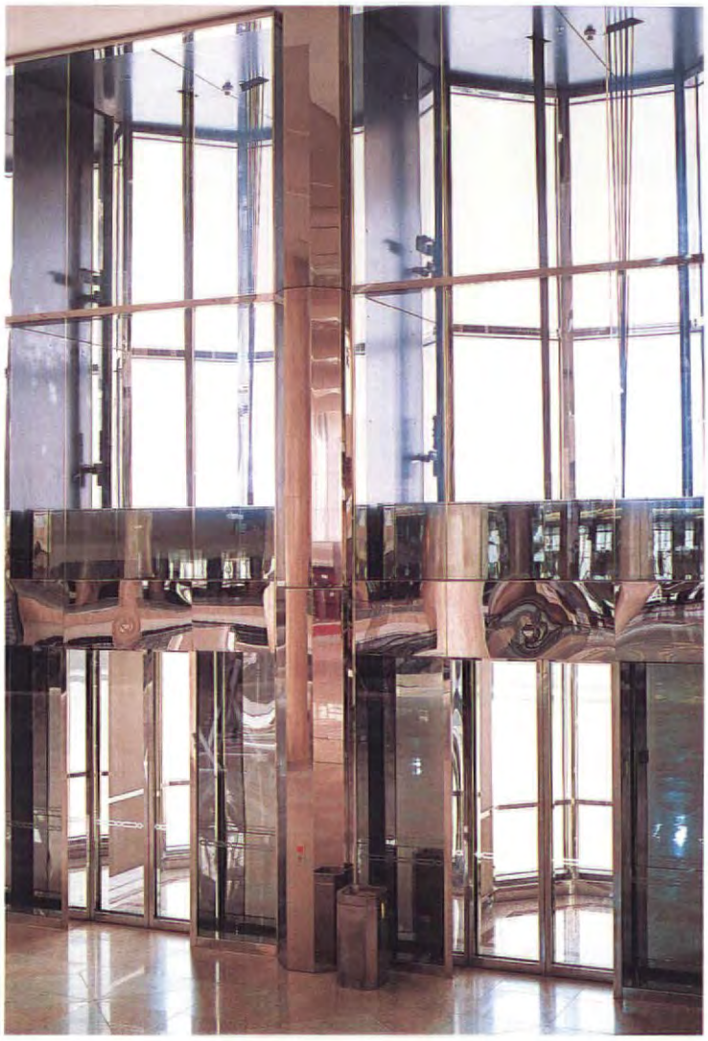
An alternative solution would be as described by Douglas Adams in *The Restaurant at the End of the Universe*. His Sirius Cybernetics Corporation Vertical People Transporter operates on the principle of "defocused temporal perception", which means that it has the ability to see dimly into the immediate future. "As a result," he explains, "it can be on the right floor to pick you up even before you knew you wanted it, thus eliminating all the tedious chatting, relaxing and making friends that people were previously forced to do while waiting for elevators."

In effect this is not that far off what current development effort in control systems is aiming at. Although the basic lift mechanism has not changed that much, as a closed system, lift traffic is peculiarly well adapted to computer analysis, enabling plausible predictions of future activity to be made.

Thus artificial intelligence systems such as KONE's Self Learning Historical Analysis monitor activity over a period of perhaps two weeks and adjust despatching accordingly, so that the greatest number of lifts are near to where they are likely to be needed at any given time. For instance, if office workers on one floor go to lunch at 12.45 pm every day, the system can learn to park elevators there at 12.40 pm. It can also be programmed to check its own performance and learn from its past mistakes.

Fuzzy logic systems, like the Elevonic 411 Otis recently installed in the Hyatt Regency hotel in Osaka or KONE's 9000 system, use button pushes, the number of passengers being carried and sometimes crowd scanners at each level to make decisions about the most efficient way to get people between floors. If a lift is called from the sixth floor and two cars are near – one on the ninth floor with three passengers heading for the ground floor and another empty one on the eleventh floor – conventional systems would send the closest, even though it meant interrupting the existing passengers' journey. A fuzzy logic system would send the empty one – but probably not if it were on the sixty-ninth floor.

Otis and others are also refining systems of "active suspension", in which magnets pull the car in one direction or another in response to irregularities in the guide rails. A further step is to build in a memory that learns where the bumps are so that the system can anticipate them the next time it encounters them.



Left, Kone elevators at King Fahd airport, Saudi Arabia. Above, glass passenger lifts at Minden

These are the issues that are of concern to the manufacturers, as they produce a quantifiable result that can be cited as a reason to buy one lift rather than another. Users are probably more interested in aspects that are less easily measured.

Consumer research shows that 30-40% of people confess to nervousness about lifts. "Elevator phobia" is recognised by psychologists, and can be so incapacitating as to blight a career. One case presenting to The Maudsley Hospital concerned a man who rejected further promotion because every time it had happened in the past he had had to take a lift to a higher floor.

For most people, the greatest fear is of being trapped. According to Otis the danger of this is minuscule, but the leading manufacturers now offer a service (REM from Otis, Servitel from Schindler) where lift systems are kept automatically in touch with control centres off-site. This means that if you are stuck in the lift the lift manufacturer will know before the caretaker does.

Nevertheless, considering the psychological significance of lift car behaviour it is surprising that more use is not made of psychologists in helping to design lifts. Otis UK's standard procedure is to call an interior designer instead – in the case of their 2000 range, recently launched, it was John Misick of McColl Associates. It seems Misick conceived the car operating panel as an "electronic travelling companion", rather fancifully suggesting that it recalls the traditional lift car attendant.

Schindler's competing system, the 300 series, takes the modular concept to the internal cladding, providing a range of options including part glazing that are arguably crisper and less gimmicky than the Otis range.

In a sense, the role of the lift supplier has always been ahead of its time in being a major specialist subcontractor at a time when a far smaller share of the average building was accounted for in this way. Today specialist subcontractors can be responsible for half of the total contract cost of a building, and the trend is towards greater detail design by the manufacturer. As buildings, like cars, come to be assembled from a hierarchy of smaller sub-assemblies, the position of the lift manufacturer is at least secure.

As one Otis executive puts it, "There are two main features of a building that can be used to differentiate it in the marketplace, to let it better. One of them is air-conditioning, the other is the lift system".

Note that he did not mention Architecture. As the role of the architect and of "Architecture" continues to recede, buildings are increasingly valued on strictly quantifiable terms, and the lift system becomes one of the key measures of that performance. □

MIGHTY OFFICE OF TOWERS

Murphy/Jahn is an architectural practice that has had a tremendous influence upon the world of building design, notably in the field of high rise architecture. The firm's president and chef executive officer, Helmut Jahn, is regularly ranked among the top ten American architects and almost certainly qualifies for a similar position amongst the leading architects of the whole world. At present the practice has a professional staff in excess of 150 and offices in Chicago, Munich and Frankfurt. Characteristically the Frankfurt office is in one of Jahn's largest and most controversial high rise buildings, the Messeturm, the tallest occupied building in Europe.

Founded in 1937, C.F. Murphy Associates, the predecessor of Murphy/Jahn, became a leading force in Chicago architecture after World War Two, completing numerous prestigious commissions including O'Hare International Airport, Chicago Civic Center and McCormick Place On-the-Lake.

In 1967 the firm was joined by Helmut Jahn, a young German architect who had trained at the Technische Hochschule, Munich, and completed his postgraduate studies at the Illinois Institute of Technology under Mies ven der Rohe. In 1973 Jahn became executive vice president and director of planning and design at C.F.Murphy Associates and in 1975 became a member of the American Institute of Architects with registration in several states. During this period he was responsible for the design of the John Marshall Courts Building in Richmond, Virginia, and the Xerox Centre in Chicago. In 1981 he was made principal at the newly formed practice of Murphy/Jahn and in 1983 became president and chief executive officer. Since then the firm has earned an unparalleled reputation at the cutting edge of advanced technology commercial architecture.

His buildings, including the famous Frankfurt Messeturm tower and exhibition hall, and Caltex House, Singapore, have had a staggering influence on the course of world architecture, according to John Zukowsky, Curator of Architecture at the Art Institute of Chicago. This impact can be seen in such diverse buildings as the State of Illinois Center and O'Hare subway station and United Airlines Terminal in Chicago, both ranked among the top ten buildings of the 1980s in the United States. In addition to prestige urban structures, the practice of Murphy /Jahn covers an enormous spread of building types including offices, hotels, schools, transportation facilities, government and institutional buildings. The following pages show a series of recent and current projects carried out by the firm in the United States and Europe.

Helmut Jahn and his 251m tower (opposite page), the centrepiece of the Frankfurt complex. Exhibition hall (above and right) is a lower structure

Messeturm, Frankfurt am Main, Germany

The management of the Messe Frankfurt wanted to build on the site a new Exhibition Hall with 20,000 m² of net exhibition space, the entry building 'city' of the Messe, a rentable office building of 85,000 m² and 900 parking spaces for this office building in accordance with city requirements. A maximum amount of space for outdoor exhibitions should be kept.

The office building was placed freestanding and designed like a campanile among the composition of low buildings. This tower is raised high above the ground to create a symbolic gate to the Messe.

With a height of 251 metres (825 feet) the Messeturm is the tallest building in Europe. This height, however, was neither a goal nor an ambition but the result of several factors. German workplace guidelines require that an office worker has to be in the immediate vicinity of a window, a requirement which obviously reduces the size of the floor space which surrounds the core of the building. The "gate" which the tower forms at the street level and the pyramid top which is occupied by the cooling towers also add to the height. The total floor area in the tower is 85,000 m2 (915,000 ft²).

Architecturally the tower is derived from the great American skyscrapers of the 'twenties and 'thirties rather than the ones of later years which compose the Frankfurt skyline today. The tower sets a signal as towers have traditionally done before they became anonymous containers. It may become a symbol for the strength of the commerce in Frankfurt.

The rigorous geometry which govern its shape begins in plan with a square of 41.8 metres (137 feet), granite clad. This square is inscribed around a circle which is clad in glass. This circle, a cylinder in volume, is visible above the "gate", at the notched corners and near the top, where the granite clad square recedes. The glass cylinder steps back twice below the top pyramid and is articulated there by rhythmically alternating window recesses. Over the top rises a pyramid stepping three times. The corners of the pyramid are centred on the sides of the tower where triangular bay windows rise from the apex of the gate to the top.

The entrance lobby is itself a cylinder with clear glass and surrounded by powerful columns supporting the core. The entrance lobby merely contains six shuttle elevators in an open frame leading to the sky lobby from which 12 elevators bring the occupants to their respective floors.

Jay Wolke

The curved glass cladding and finned barrel roof of the 40-storey tower (above and right)

Savings of America Tower, Chicago, USA

The building's location on LaSalle Street, one of the city's most highly defined urban spaces, generated its particular forms and spaces.

The inherent asymmetry of the narrow, mid-block site led to a structure that is asymmetrical in plan and elevation. All fixed elements are contained in a compact side-core with adjacent unobstructed office space of maximum flexibility. Projecting bays, afford great views down LaSalle Street and to the river.

The asymmetry of the elevation is reinforced by the juxtaposition of the solid stone wall and the curved glass bay. At the corners, deeply recessed windows further the sense of a stone structure and make a transition to the gridded north and south walls. A projecting trellis extends through Court Place and to the entrances at LaSalle and Wells streets. The trellis turns into a "ladder", which in turn transforms into a wall, which together with the quarter vault establishes the skyline profile and identity.

The building derives much of its character and strength through the deliberate juxtaposition of opposites: solid with open, stone with glass, light with dark, and the grid and sharp edge with the curve. The subtle banding of the stone walls and the elaboration with slightly curved bands at grade give the building more detail and life.

Pronounced sunshading and stepped profile distinguish the insurance building

Mannheimer Life Insurance, Mannheim, Germany

The brief called for 14,000 m² of office space (open plan or single offices) used by the Mannheimer and leased to tenants, a cafeteria, 280 parking spaces, and mechanical and storage spaces.

The design gives maximum presence to the building's corner site, guiding movement down the boulevard with an elegant curving gesture. In conjunction with the old Mannheimer Insurance Company Headquarters Building which stands across the street, the new building forms a gateway to the gracious boulevard leading to the old city. The curved building form reaches its maximum height of 14 storeys, accentuated with a cantilevered steel top, at the corner of the Augusta-Anlage.

Moving along the boulevard to the inner city, the building steps down into a series of two-storey, outdoor terraces to a typical height of four storeys.

The building is clad in blue pearl granite, polished at the base and flamed at the upper stories, and the glazing is a neutral reflective glass with a slight bluish hue held by light blue aluminium mullions.

The 14 m building width can accommodate both individual offices and open office planning which conforms to the German daylighting standards. The ground floor contains the entrance lobby, dining rooms and an employee cafeteria that extends out into the landscaped courtyard in a gently curved form.

Glazed exhibition halls (above) back onto profiled service wall (right)

Munich Order Center, Munich, Germany

Munich Order Center is an 840,000 ft² merchandising mart and exhibition centre devoted entirely to the sports industry. A variety of space is provided ranging from naturally light showroom/offices to large exhibition spaces. Ground level and below grade loading zones service exhibitors and merchandise storage facilities. A 1,700-car garage two storeys below grade provides convenient on-site visitor and business parking.

The project represents a new building topology - one that requires both large expanses of exhibition space and adjacent naturally light offices/showrooms under one roof. The solution is a series of parallel 24 metre wide building wings springing from a technical service wall. Separating the building wings are 24 metre wide entrance courts. One of the entrance courts extends through the building providing a park-like promenade linking two existing green areas. Looking onto the landscaped courts are retail shops, conference facilities, administrative offices and a pronounced cylindrical restaurant adjacent to the promenade.

The service wall is the spine of the building - the clear organizing element. It contains the technical support systems for the office and exhibition space including communication equipment, mechanical, electrical systems, as well as freight elevators, stairs, and toilets.

The 24 metre wide two storey atria are an interior extension of the entry courts and provide internal links for the adjoining office wings. Their roofs are skylit, providing natural light for the adjoining offices.

Courtyard and atrium (above left), from interior, and exterior (left). Interior shows characteristic "petal" roof cladding (above)

Hyatt Regency Hotel, Roissy, France

This building is a 400 room, four-star hotel that includes a variety of business and leisure activities. The project is located northeast of Paris in Roissy, on a prominent site just north of the Paris Nord II Exhibition Park and Parc D'Activities. The site is bordered on the west by the A1 Motorway, the primary roadway link between Paris and Roissy-Charles de Gaulle Airport, located just north of the site.

The major elements of the hotel - rooms and suites, restaurants, boutiques and meeting facilities - are organized around a five storey interior atrium/lobby, the hotel's life centre. The atrium is defined by two offset linear buildings, each 165 metres long that contain the guest rooms on the upper four floors. A light, airy and translucent roof spans from building to building to create the interior "room".

The entry courtyard is a modern variation of a classic Parisian spacial entry progression. Layered enclosure of the courtyard garden and continuity of landscape elements between garden and atrium lobby create a space which seems simultaneously outdoors and indoors. The landscape treatment of the site is like a French vineyard with gridded plots. The building forms and expression take queues from aviation technology, appropriate by virtue of the proximity to Charles de Gaulle Airport.

High level sunshading and faceted glazing identify the building

Caltex House, Raffles Square, Singapore

The organisation of this project is that of a four storey retail podium with an office tower of 29 storeys rising above the base. The tower footprint of 1039 m² respects the geometry of an arcade and resolves the deliberate haphazard relationship of adjacent towers. The rounded end of the tower offers views of Raffles Square, generates the top of the tower, and provides a four storey entry portico separate, but still part of the retail arcade. This portico provides access to the MRT below as well as escalators to the third floor office lobby.

The 9029 m² of retail is organised on four levels as an extension of the retail development of the Hitachi Tower project. The architecture is sympathetic in detail and material providing a unified image for the new Change Alley. Although open at the ends, the arcade space, 22 m in height, is topped with a glass roof offering protection from the elements, but allowing for ample natural light.

The enclosure of the tower is rendered in metal and glass similar to the Hitachi Tower project. The core at the far end is clad in grey metal panels, the tower is treated in glass at the round end and the facade facing Clifford Center. A structural expression of white painted beams and columns ties the tower to its retail base, the blue painted metal bands and medallions become the unifying element in this collage of parts delineating the structure as well as providing the ever important scale elements in a tower of this magnitude.

The decidedly modern architecture in Caltex House harks to the future, respecting Singapore's prominence in the world as a city of the twenty-first century through architecture – from its simple massing to the complex articulation of the retail arcade. We see this proposal as the point of departure for development of Singapore's growing financial district.

More complex shape of Hitachi Tower revolves around metal clad drum

Hitachi Tower, Collyer Quay, Singapore

Located at the historic Change Alley Arcade, the design for this 36,000 m² Tower has a special significance that works on two levels, that of the continuing urban context as well as its identity on the Singapore skyline.

The tower's elements – shaft and podium – are organised in a manner that allows for the reinforcement of the urban condition along Collyer Quay while emphasising the gateway to Raffles Square. The 30-storey tower is rendered as a one-storey frame with a set-back at the 24th Floor. A curving glass bay is juxtaposed with the background frame in order to introduce a scale element and reinforce the orientation to the sea. Due to the small office plates of 800 m² and 1000 m², the core is at the tower's end, allowing for flexibility in office planning as well as an additional architectural statement of a solid volume to play against the tower base elements. The "free" geometry of the Ground Floor reinforces pedestrian movement in and around the site. Small shops line the arcade to further foster movement to Raffles Square. A cool palate of white, grey and blue are utilised as a welcome relief to the tropical atmosphere of Singapore.

Huge over-roof (top) depends upon outrigged structure (right). Buildings beneath are more conventional

Munich 2 Airport Center, Germany 1993

This masterplan established the further development of the Neutral Zone, landside passenger area, between Terminal West and Terminal East. The Neutral Zone is a 500,000 m² development scheme. It includes the MAC (Munich Airport Center), hotel(s), office buildings, exhibition space, commercial space, parking garages, and a railway station for the S-Bahn (rapid transit) and F-Bahn (inter-city railway) and an AGT system (rail connection between the two terminals and satellite terminals).

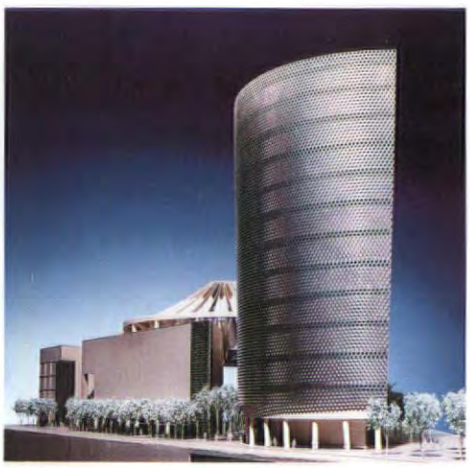
Two axes are created, the major one west/east connects the two terminals, the other north/south, connects the hotels and office buildings. The MAC is located at the intersection of the two axes. It is the true centre of the airport: the train level, the pedestrian leve adn the street level open into its central hall.

The MAC space approximately 490 x 490 ft in plan will be flooded with daylight diffused through the use of fritted glass. The roof crossing the streets forms a canopy. Viewed from the airport access road, this gigantic roof seems to float above the terminals.

The Lower Level is the pedestrian level which connects all existing and new functions. This level is also the main access to the parking garages with an ultimate capacity for 24,000 cars. The pedestrian passages are activated with commercial and service uses. Views are offered to the sky-lit roofed-over spaces above and to the outside where the streets are lower. Moveable sidewalks will be provided where appropriate.

The Upper Level is more "private" because it serves as the main entry level to the various buildings, creating lobbies for hotels, office buildings or serves special functions. Not all spaces are covered by roofs and not all covered spaces are indoors, thus a mix of spaces is provided which allows creation of repose oases. The Neutral Zone is landscaped throughout and extensively planted with trees.

Model photographs of Sony Centre show perforated metal cladding effect



Sony Center, Berlin, Germany

The Sony European Headquarters includes speculative offices, a cinema and cultural complex, retail, hotel, apartments and parking totalling 220,000 m².

The attic floors of the Sony Headquarters frame a giant inward sloping "show-window", overlayed with a monumental order of columns, with views into the Sony-Atrium and Exhibition space. At the Filmhaus a "Screen" projects from its gridded and framed glass-facade, which could be used as marquee. The lager scale elements of "Show Window" and "Screen" respond to the aspect of faster movements along the Entlastungsstrasse and to the solitary buildings of the Kulturforum. The Sony Forum becomes the display of the most technical and advanced building materials, video- and communication- equipment in a natural garden setting. A giant Video-Screen is mounted at the endwall of the hotel facing the room. Live events can be put on the screen, appropriate to the scale of the room. Even when there is no "event", bringing in the outside into the room, can become an event.

The roof is an elliptical umbrella providing shading and protection from the elements. One third of the roof is glazed assuring view to the outside, ecological and economical construction and desired contrast and interesting lighting. The rest is a cable-reinforced fiberglass membrane insuring transparency, lightweight, long life and economy.

Victoria Berlin, Germany

Developed as a 73,000m² infill project to maintain the existing urban fabric, Victoria Berlin extends the amenity and milieu of the Kurfuerstendamm into adjacent blocks. This integration is achieved through the creation of a series of spacial entities with the block and the invigoration of these areas with pedestrian oriented functions.

The Passage is a unique covered pedestrian way and porte-cochère which leads from the Kurfuerstendamm to the entry plaza of the Theatre of the Western north of the site. The entries to the new Victoria offices, the speculative office building, the apartments and the remodelled Victoria building are located off this newly created circulation path.

The Hof is an open, partially roofed area between the retained retail structure and the new offices. With multi-level exposed circulation and a variety of retail uses, this area is an exciting use-specific zone. It is connected to the Passage through a major gate on an axis from the Joachimstaler Strasse.

At the Kurfuerstendamm Street wall, a glass structure encloses an urban park, as if another retail display, at the base and rises as a signature pylon to the height of the building. The glass tower will be created as an object of art visible along the entire street axis.

A massive, faceted shape, clad in white

Blaak Office Tower, Amsterdam, Netherlands

The curving geometry of this scheme accepts difficult site conditions. Urbanistically, the wedge shape which results further emphasises the edge of the canal and minimises the impact of sight lines to the canal. The garden side of the project responds to the daylight requirements of the adjacent apartment building through the use of a stepped liner. Raising the podium above the plaza maintains the visual connection with the Maritime Museum.

Designed as a concrete structure with structural module of 7.2 m the building allows for a 1.8 or 90 cm office module. Typical lease spans are 7.2 m with additional deep space provided for open office layouts. Office floors have a floor to floor height of 3.45 m.

Two banks of three elevators serve the high and low-rise zones of the building. A single freight elevator serves all floors. Individual floor areas range from 1350 m^2 to 740 m^2. Individual fan rooms are proposed on each floor to maximise individual control of HVAC systems. Two parking shuttles connect the car park to the building lobby. One hundred and ninety spaces are provided on three levels.

Pallas Stuttgart-Vaihingen, Germany

Pallas Stuttgart-Vaihingen is a 350,000 ft^2 office building surrounding a landscaped interior courtyard. A 250 seat restaurant adjoins the courtyard at the ground level. Parking for 450 cars is located on two below grade levels.

The building area combined with the height limit results in a project with long horizontal building wings. These wings are best configured around a court, creating the perimeter block massing typical for European cities.

At the southwest corner, the block is cut open, creating a generous entry into the landscaped courtyard. This courtyard provides automobile and pedestrian access to all entries of the building. The opening to the court is articulated with three curving glass wedges framed in black granite walls. These wedges form the main lobbies of the building, entered via arcades leading from the street. To improve accessibility to the building and courtyards, two pedestrian passageways are provided opposite the main courtyard entry. Two minor building cores are accessed from these passageways.

Stuttgart-Vaihingen achieves strong architectural character and responsible urban design without compromising its function as a modern, economical office building.

Kempinski Hotel, Munich, Germany

The 400 room Kempinski Hotel is the first phase in the development of a public service zone at the new Munich airport in Germany.

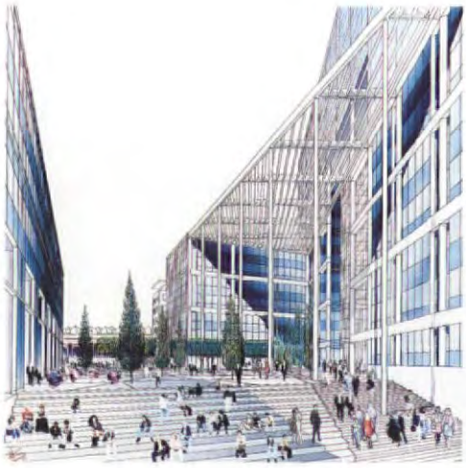
The service zone lies between the existing Terminal West and the planned Terminal East, and will ultimately provide 300,000m² for the Munich Airport Center (MAC), office buildings and hotels, as well as 9,000 parking spaces. The masterplan for this zone evolves from the existing airport structures and circulation routes, emphasising the integration of the landscape into the airport by creating generous gardens, exterior courts and spacious interior atriums.

The structure of the hotel slabs and parking garage is reinforced concrete. All exposed structure including the roof and stair towers is steel. The cladding system is painted aluminium and glass based on the 1 m x 1 m planning module. The glass has a ceramic frit which is very fine in the vision areas, more opaque in the semi-transparent conditions, and fully opaque in the spandrels.

Immense atrium is perforated by angled red panels

The Kempinski Hotel and the MAC were conceived together as part of an overall masterplan with the intention of creating a complete urban environment, linked to the existing airport and flexible enough to accommodate future expansion.

Stralauer Platz 35, Berlin

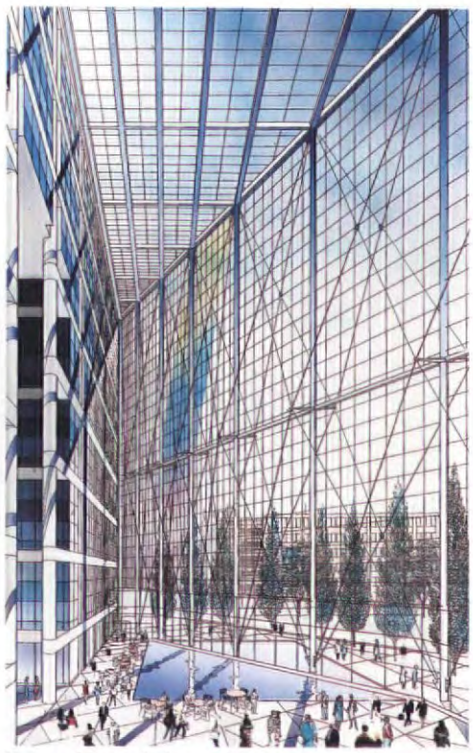


Occupying a site formerly bisected by the Berlin wall, this 40,000 m² office, retail and parking complex should be read as a permeable form in lieu of constructed edges. The passages, internal plazas, and gate motifs reintegrate this section of Berlin with the natural boundaries and focal points which have historically defined the neighbourhood: the river Spree, the rail station, and the Stralauer Platz.

The High Plaza is framed by two new buildings, a five storey structure adjacent to a landmark building and a stepped 15 storey building addressing the park and corner condition to the east. The open plaza is a visual connection to the Spree river from the train station.

The building envelopes are composed of three wall types. Stone panelling defines the perimeter of the block and respects the value of a street wall in framing public spaces. The change of materials where the street wall is broken enforces the reading of this building mass as pedestrian permeable.

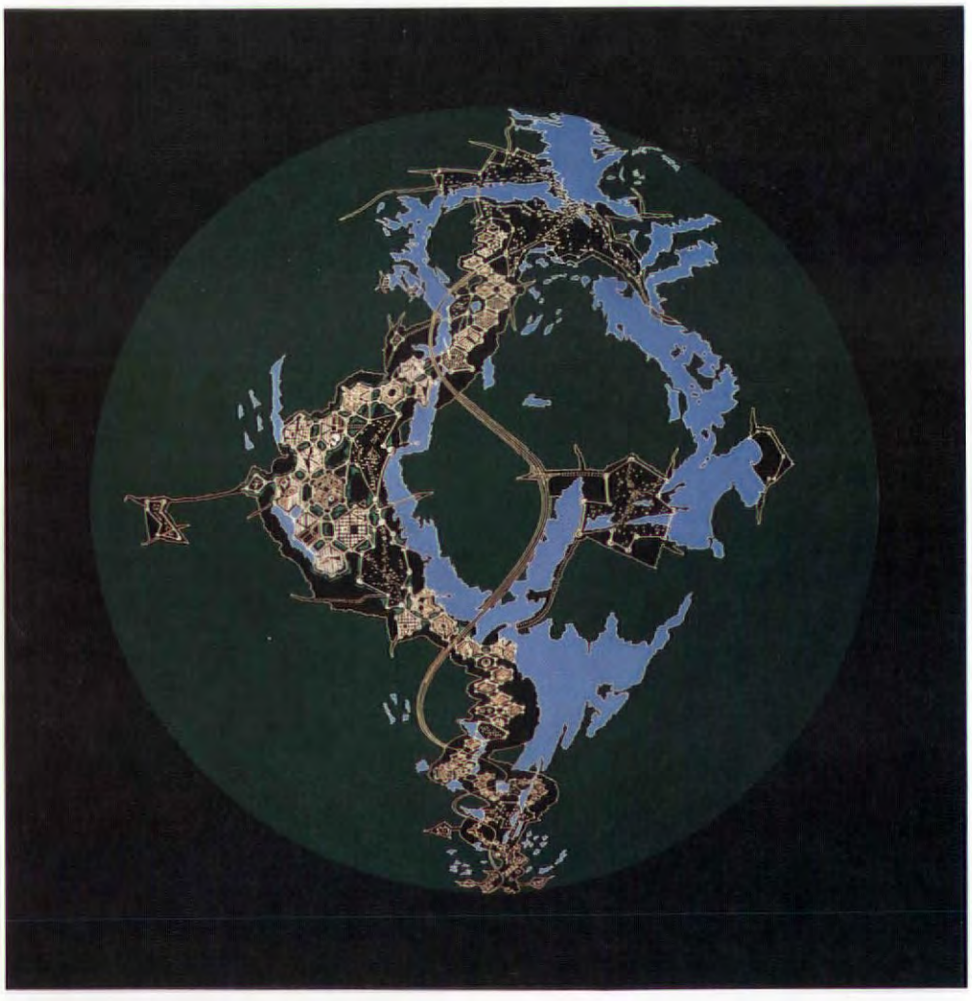
The building consists primarily of 18.6 m wide slabs, configured to avoid expansive grade level walls. The width can function in a flexible manner as either cellular office space with a central service zone or as a "Kombi-Office" system. □



Epic rod-braced glass wall gives view of former no-man's land

THE WHAT IF...? ARCHITECTURE OF BRYAN AVERY

Most people only know Bryan Avery as the architect of the almost completely concealed Museum of the Moving Image on London's South Bank. Others know him as the architect of the forthcoming Waterloo IMAX cinema. But apart from these solid cinematic projects Avery has a rich creative life involving redesigned cars, replanned cities, double-decked shopping streets and advanced technology houses. Graham Vickers reports on London's leading futurist.



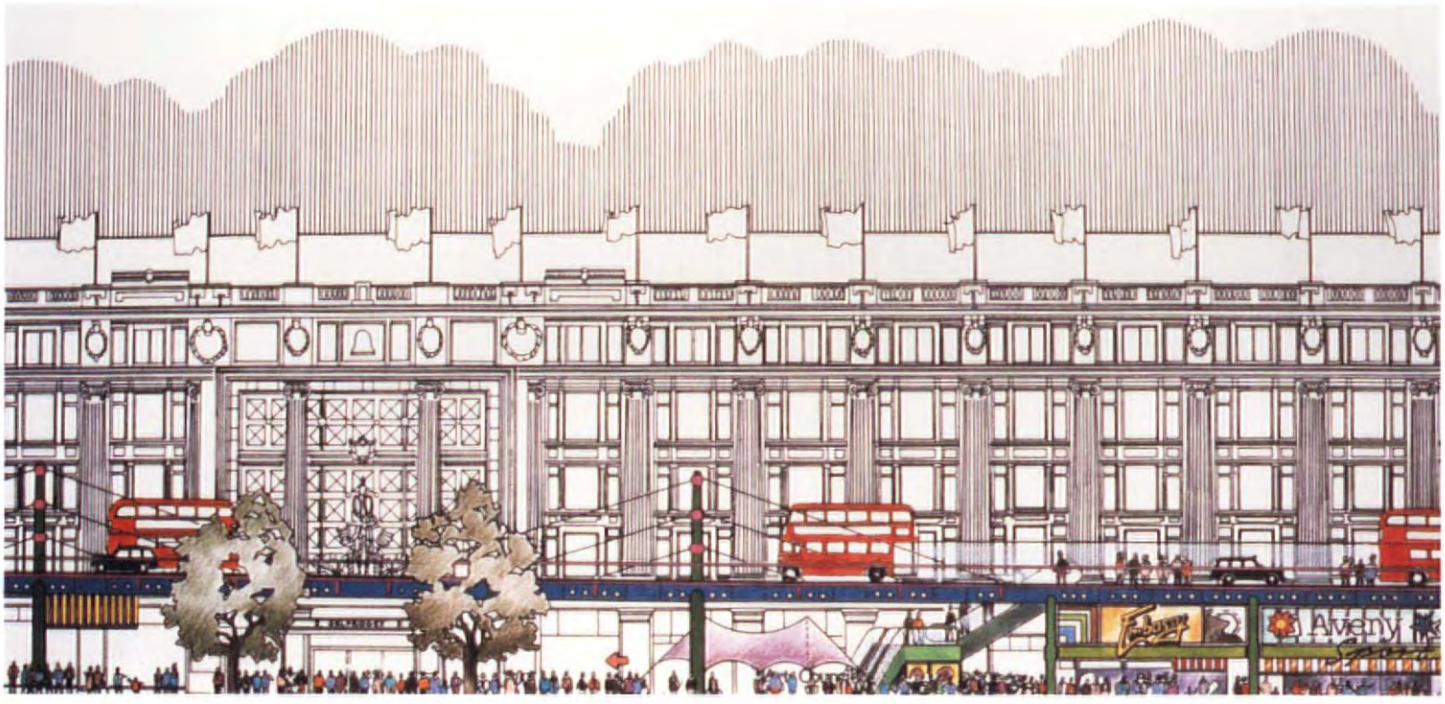
I first met Brian Avery some years ago when he was proposing his alternative traffic scheme for London's congested Oxford Street. (This urban conundrum, by the way, has since become one of those classic, impossible challenges that British architects love to wrestle with, like how to make the public love them or how to improve upon the design of the bicycle.) Avery's solution, in essence, was to build a second Oxford Street a few metres higher than the existing one in order to separate local and through traffic. A positive response is still awaited from Westminster Planning and Highways Committee.

In the intervening years he has continued to take this unapologetic "what if" route, postulating alternative urban schemes, alternative automobiles – even alternative countryside.

After running a London practice for a dozen years, Avery has actually built very little. To say that he seems quite philosophical about this state of affairs is exactly right: it is this state of affairs which has given him time to develop his philosophy.

"To take action you do need a philosophy", he says, "and you don't develop a philosophy except by working on hypotheses".

He is a quiet and genuinely charming man whose low key manner belies his grand preoccupations. His is a curiously effective personal style that makes you listen attentively



instead of gasping when he says something like "These are my proposals for the future of Finland".

In small premises located in a courtyard behind Victoria railway station, the other three members of the practice are working busily away, on what I am not quite sure. Despite an imminent trip abroad, Brian Avery seems delighted to take the time to talk about anything and everything. He hands me the control for a dauntingly full carousel of sides, suggesting that I run through them. I press the button and with a clatter a drawing of a futuristic conurbation leaps onto the wall.

"These are my proposals for the future of Finland" he says.

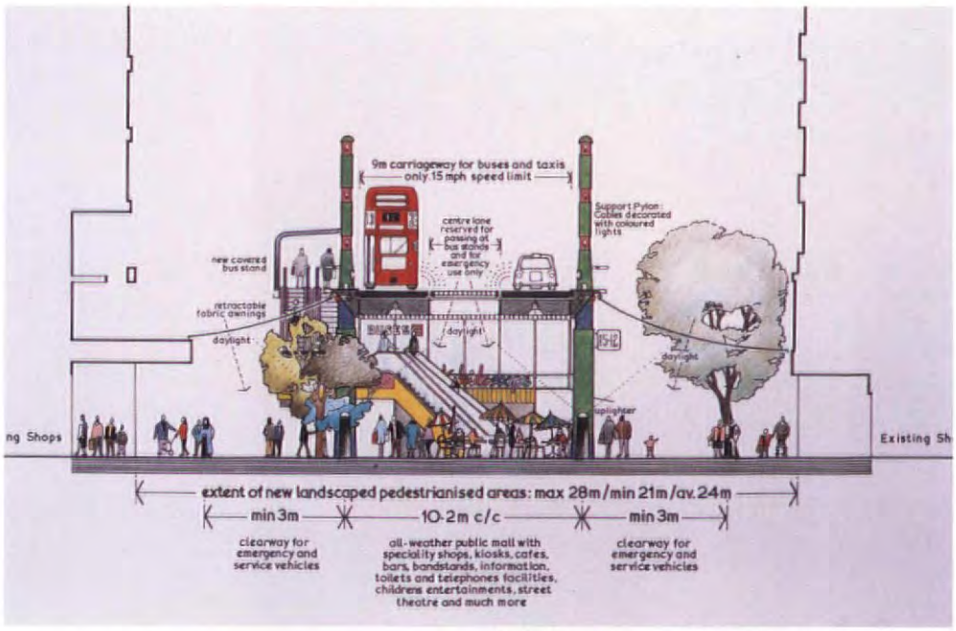
The Avery side show is a fascinating experience. Little has escaped his hypothetical attention, and the ghostly procession of "what if" scenarios only falters when the occasional built project intrudes.

The "Finnish future" scenario interests him especially perhaps because of its parallels with Britain.

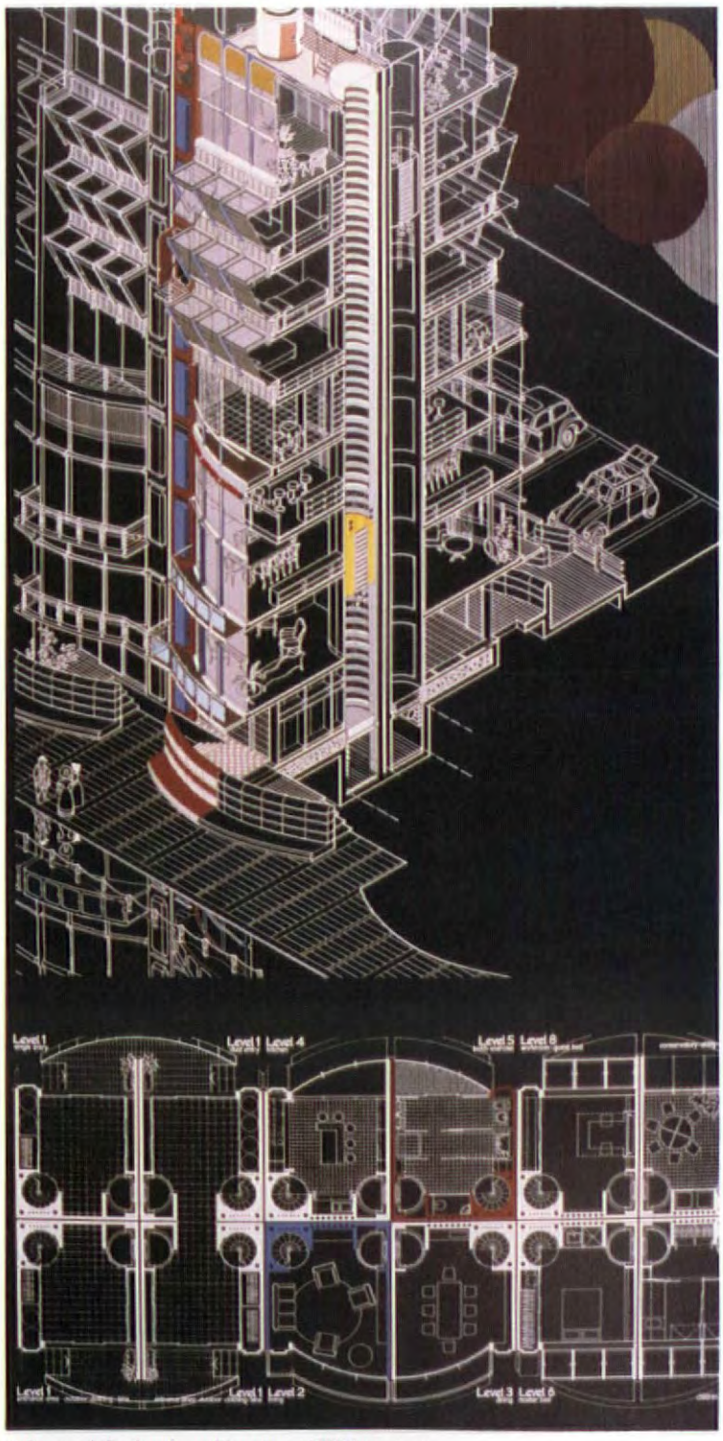
"Finland has only become industrialised since the war" he says. "It's a very large country with a very small population – and it's going down all the routes that we've gone down, including decentralisation and dependence on the motor car. The population is declining, and as the population gets smaller and older, people will have to come back from the suburbs into the towns. They'll need very high density dwellings".

Avery proposes a town plan with buildings that are extendible vertically, enabling the dwindling Finns to stay in one plot for their entire lives whatever their circumstances.

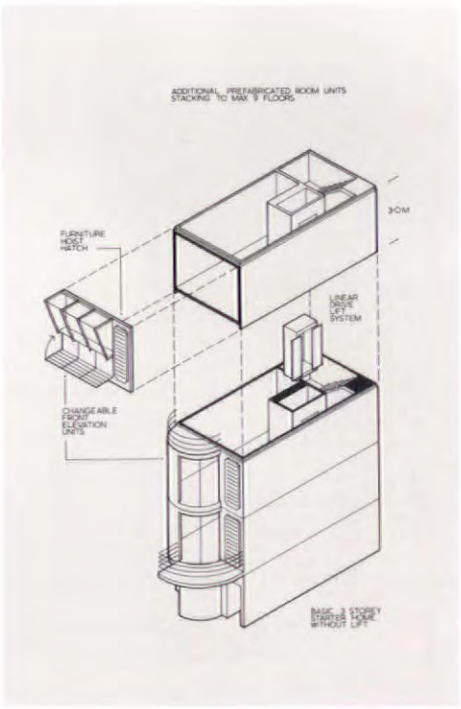
"It's about building an infrastructure in a city" Avery explains. "First of all you have a small footprint – you want to build high-density and a large footprint is very expensive.

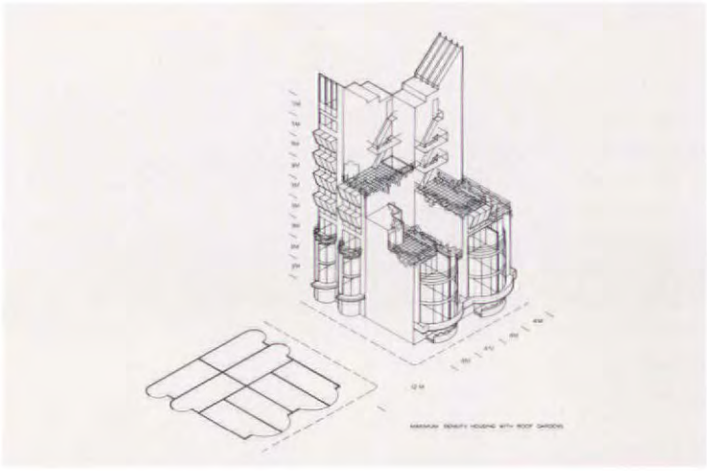


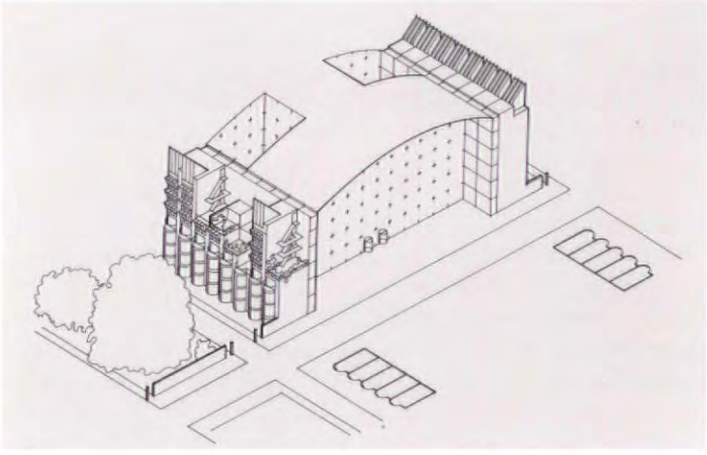
Oxford Street project 1981 (above). "Wilderness City" linear plan for the Helsinki-Tampere axis (opposite page)



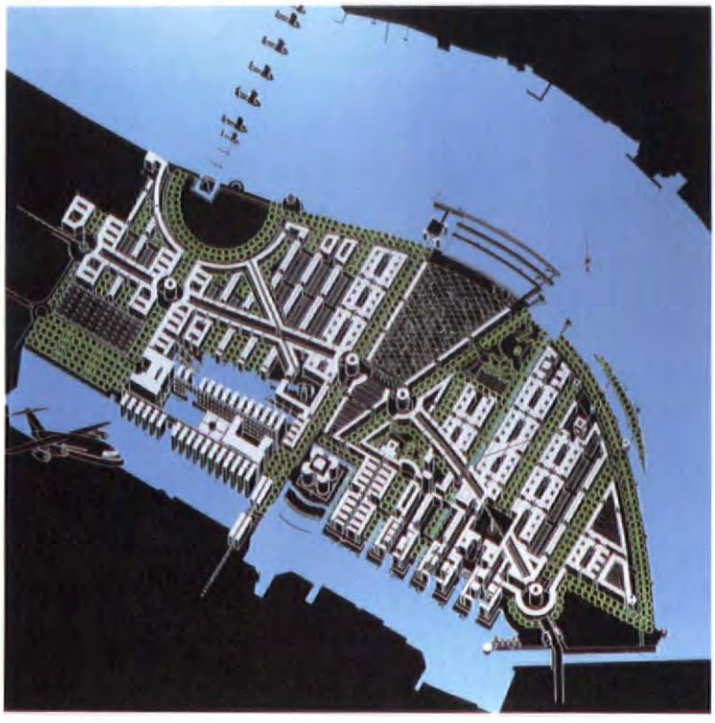
Advanced Technology Housing (ATH) project 1984, showing interchangeable facades and housing units used as megastructures

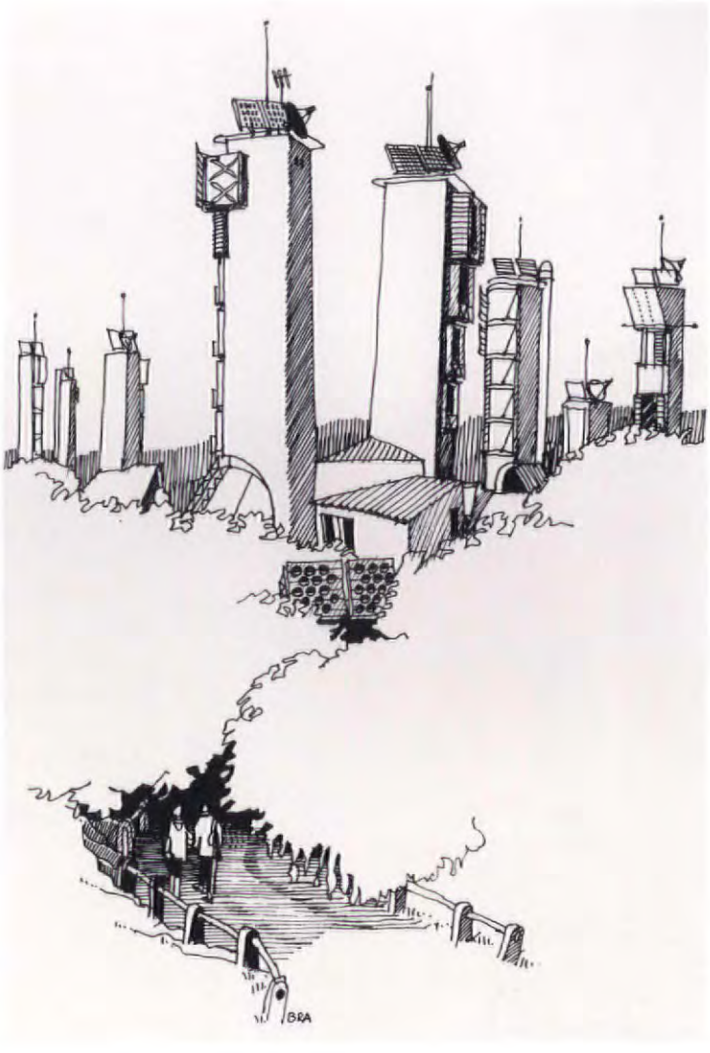






Project for Silvertown, Docklands 1992 (below) with sketch detail of Advanced Technology Housing for the countryside (right)





You also want to be able to expand into your home proper, not just the loft. In Britain we're already taking Victorian houses built for larger families and converting bedrooms into working spaces. In my scheme we're just formalising that, but also keeping people very close to their place of work. The whole scheme creates an urban matrix in which the civic buildings can rise in the traditional model. But the most important thing is that it enables people to live in the city again – not in blocks of flats but in owner occupied freehold properties. You can start to bring back a sense of urbanity that we last achieved in this country in the eighteenth century. The magical squares and terraces of London and Bath are very much this format".

Avery has also looked at the British countryside, and has not liked what he has seen.

"Go for a walk on the South Downs now and if you're not run over by motocross riders or cyclists rallying, you're run through by a coach load of people re-enacting the Battle of Hastings" he claims. "It's really quite bizarre. My delight in the countryside is going there for all those things that you can't find in the city. Now I find I have to drive further and further – perhaps 50 miles".

I am not sure where this is leading us, especially when the next slide shows a stylised drawing of a bucolic scene invaded by a Range Rover and an ominously low communications satellite. Avery explains that it is leading us to the changing relationship between the countryside and technology.

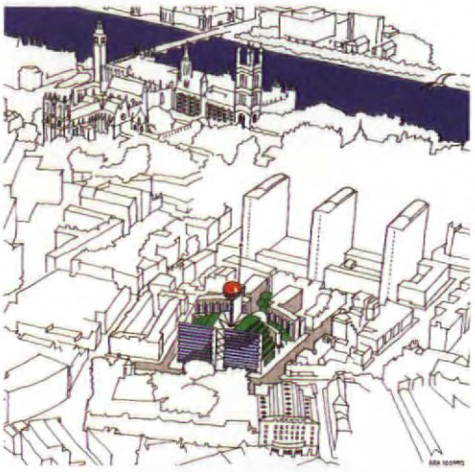
"Every third car coming out now is a four-wheel drive" he says, "albeit that people don't actually use it. It seemed to me that we might revert to the traditional view of the countryside as a tranquil haven from the city by increasing our technology, not decreasing it. Using four-wheel drive cars equipped with all the latest suspension and navigational equipment we could dispense with the necessity for tarmacadam roads on the minor byways. You might have to increase the amount of limited-access, high speed carriageways, but provided you were within half an hour of a high-speed carriageway you could still get to any point in the country as quickly as you can now. There would be pockets of tranquillity in between – but you would need to import more technology to achieve it."

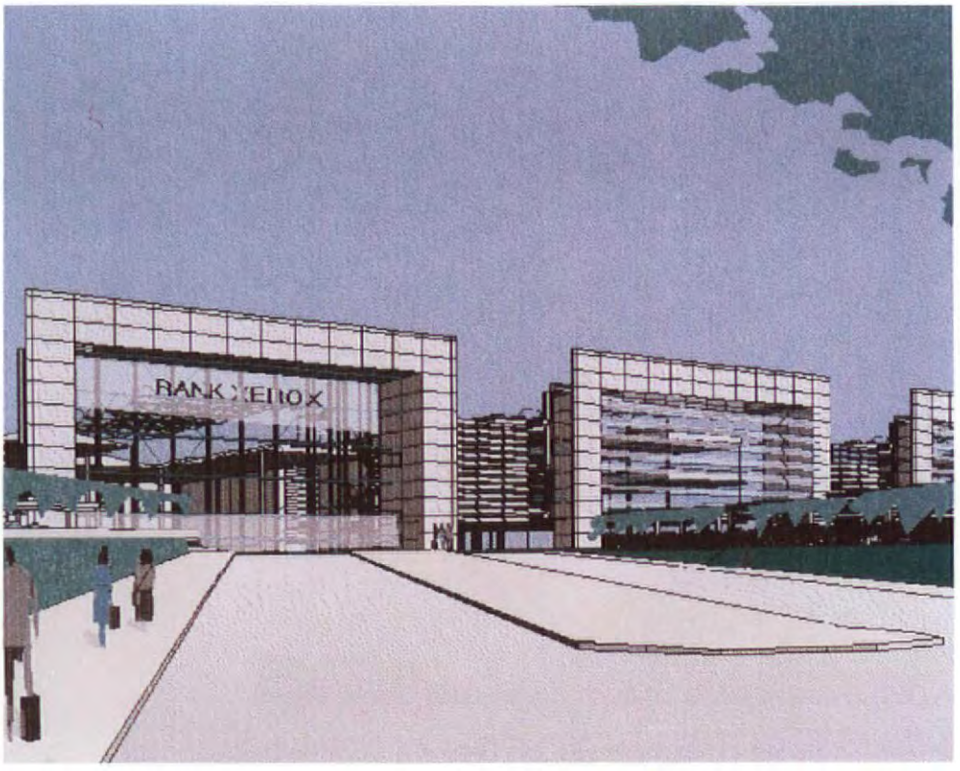
Then there is his proposal for the European Patent Office in The Hague – an enormous building of a million-and-a-quarter square feet.

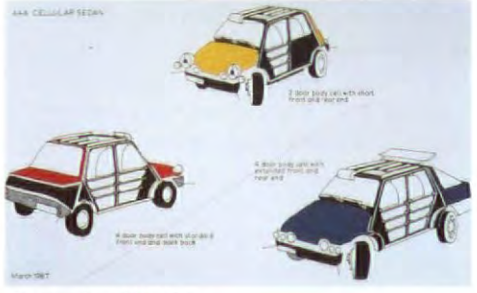
"There I was using the evaporative effect of water to draw air through at low velocity. It used ducts under the building and was rather like that old Reyner Banham analysis of the Belfast hospital."

An early project was for some small industrial buildings directly in the flight path at Heathrow. "There were enormous acoustic problems" Avery says. "So I developed this glass umbrella shade against the high frequency sound. It was an all-glass solution but when I had it checked out by Southampton University, it had the acoustic attenuation properties of a two-foot thick piece of solid masonry."

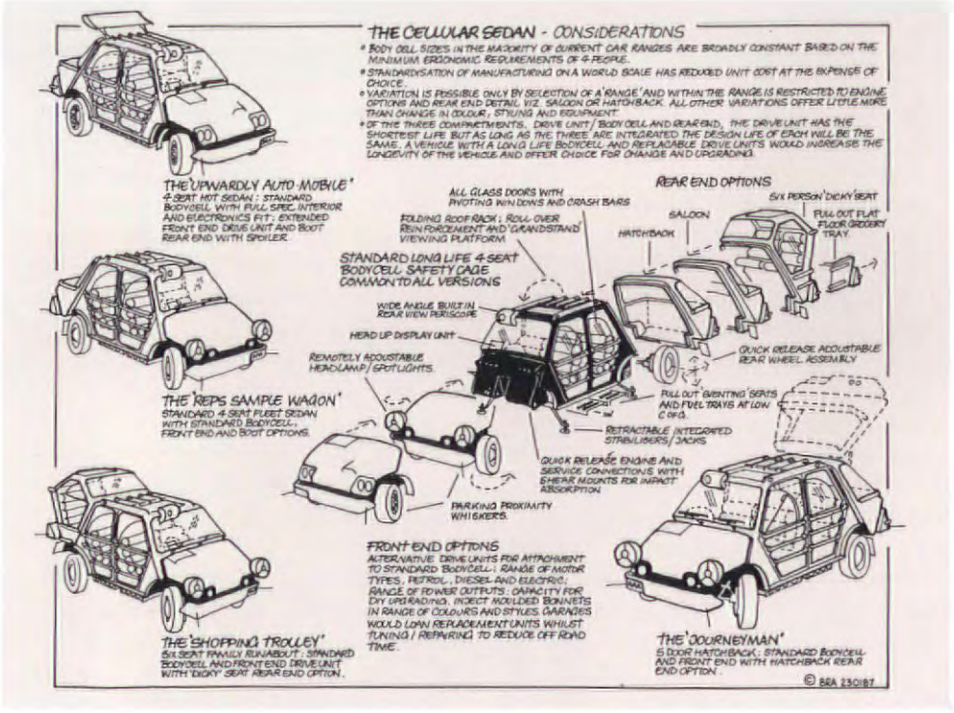
The images keep coming. A chair. An uplighter ("We had a patent for it, but everyone else started making it and I got tired of writing letters. Concord do one not unlike it..."). A bid for the National Gallery extension. A live commercial scheme clarifying the interior of British Land's flagship building in The City of London ("It had five access points, but unless you knew which core you were in you had no hope of finding out where you were. We designed a whole series of information boards and sequential changes with hard and soft finishes to let visitors orient themselves. When it was finished, a delegation from the Barbican came down to see it"). A transit hotel concept near London's Centre Point. A proposal for a "cellular sedan" – a car where a general central section is made of high quality materials that will not deteriorate, while different front and back sections can be clipped on. ("It's a different

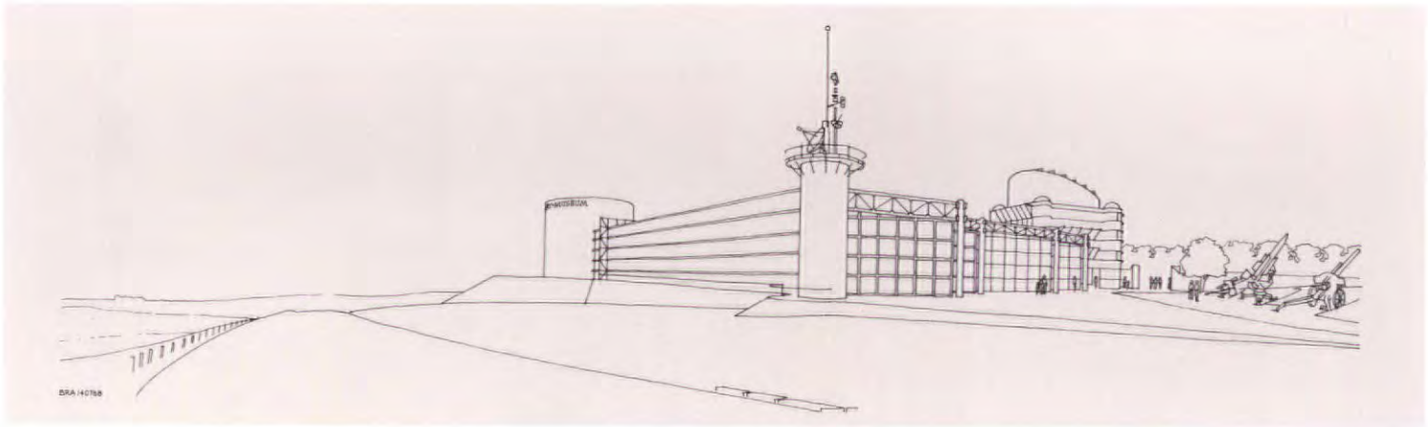




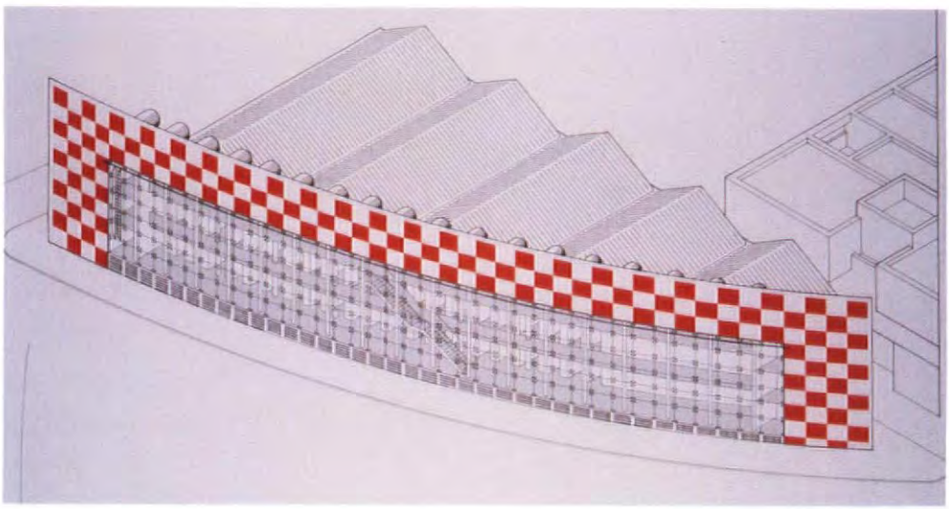


(Top and middle) Channel 4 competition entry 1990. (Above right) Rank Xerox competition win 1991. (Above and right) "Cellular Sedan" car researches 1987





Woolwich Artillery Museum project 1988 (above). London Fire and Civil Defence HQ project 1988 (right)



way of looking at cars".) The Oxford Street traffic proposal again, now presented as a scheme for the centre of Abu Dhabi. A Flash Gordon setpiece that Avery describes as "part of an ongoing concern to come to terms with the effect that micro-electronics, internal communications and visual communications are having upon our lives".

He believes that runaway technology means we are often fighting a rearguard action, trying to preserve a way of life threatened by new gadgets that we don't remember ordering.

"We can't defeat them, but we have to determine how we wish to live our lives" he maintains. "And it can be done. Who would have thought that when Los Angeles had its smog problem that it would result in the introduction of catalytic converters in California. Now in the UK we have catalytic converters. A decision was made about the lifestyle of California which has affected the world."

Avery also believes that industry is mistakenly accepted as inviolable and sacrosanct, with an inner logic of its own.

"But given direction, given a political dictate and social, environmental or poetic concern, industry would be very happy to find ways of serving us. Often the press gives such well-rounded arguments that people feel nothing can be done. And yet the example of smog in LA proves that the poetics can get something done".

Reality intrudes the form of a built project – the Royal Artillery Regiment Museum near Stonehenge. Avery Associates won that competition and also, by their standards, something of a track record in museums.

"But for me there's not an archetypal object called a museum" Avery says. "Only a museum that is specific to its subject and its site. In this case it was trying to bring out the resonances of this chalk down and its history".

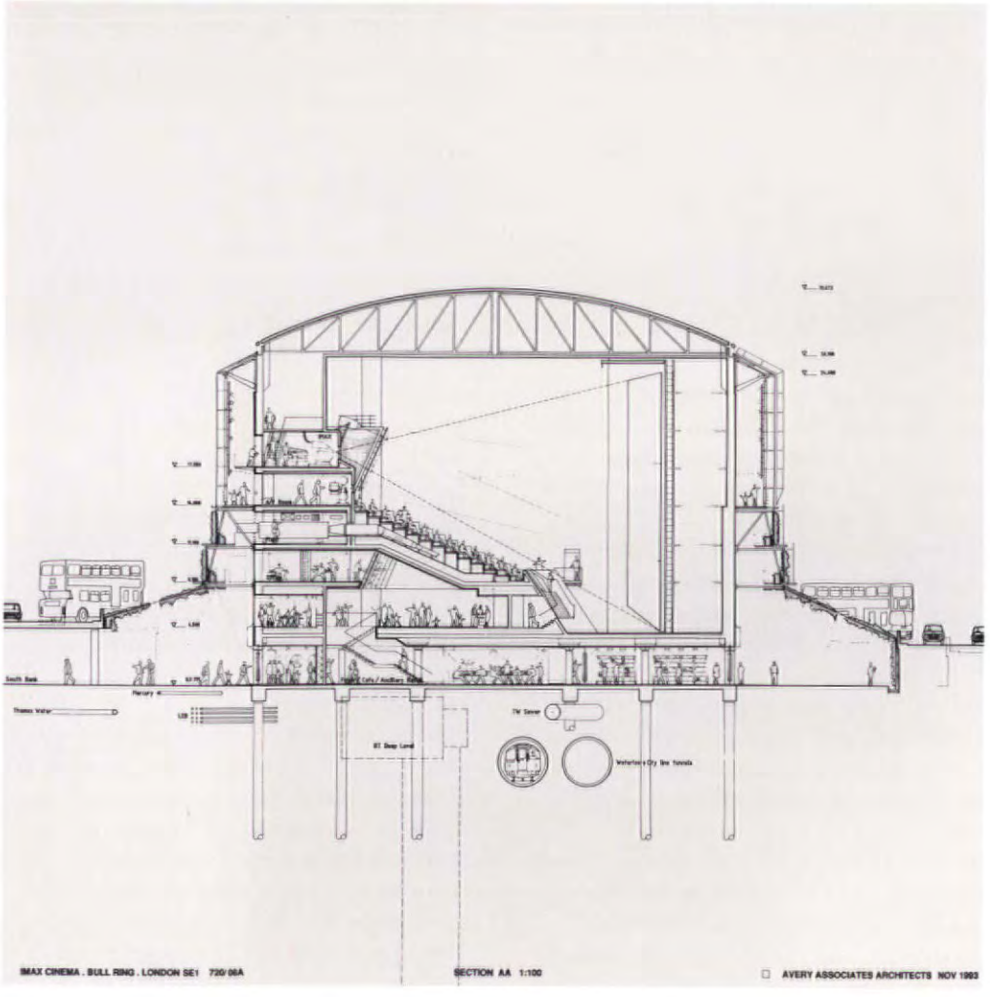
Then came MoMI – the Museum of the Moving Image on London's South Bank. A large project, MoMI was an enterprise that had to pay its way – there is no government funding for this British Film Institute celebration of the world of cinema.

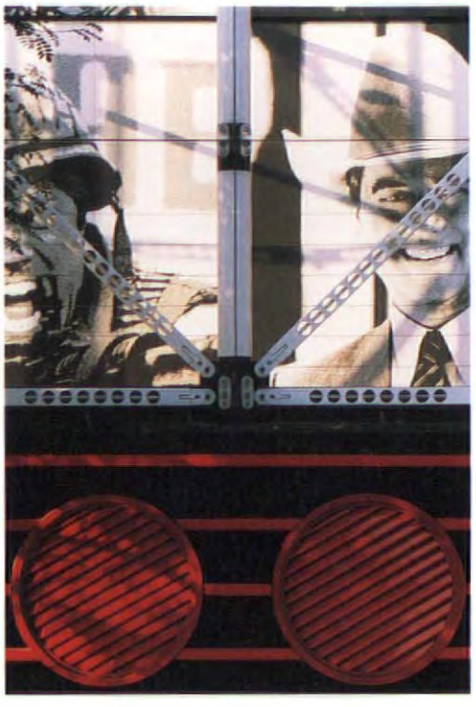
"It was fast-track design management and so we had to have some pretty firm ideas. There were some disappointments and not everything got done. But the spirit is there, I think. It is a building peculiar to its place and time and content. It's about the sensuality of film, the plastic strips and the sprockets, the larger than life flamboyance – all of this became suffused into a character called MoMI".

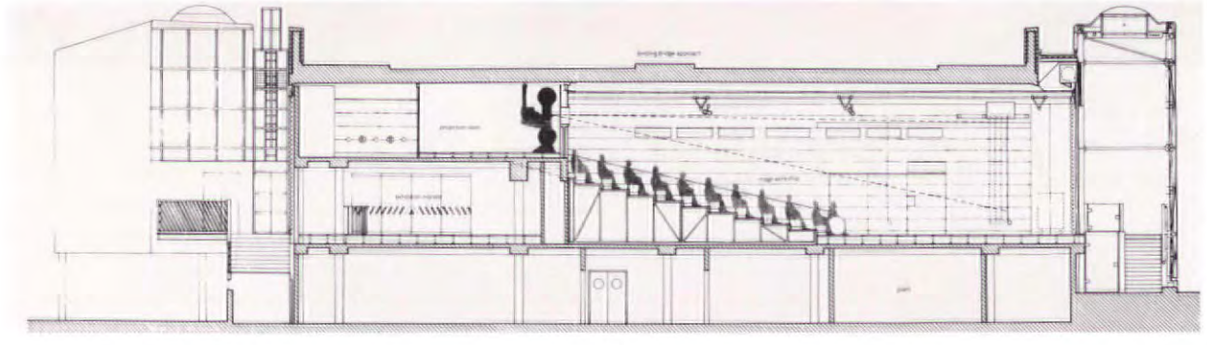
Perhaps unsurprisingly, it was the things at MoMI that could not be achieved easily that Avery particularly enjoyed.

"I wanted a tower to fix where the entrance was" he recalls. "We had such trouble with the local authority because of the height. I proposed fixed versions echoing the structure over the Hayward gallery nearby, but they wouldn't have it. So I proposed this one with a hydraulic ram that went up at one minute intervals. On the hour it got to the

Waterloo Imax cinema, scheme, drawings and model photograph 1993







Museum of the Moving Image beneath approach to Waterloo Bridge 1984. Section shows structure fitted beneath bridge

top and then fell down, rather like the ball at Greenwich. We calculated that if that was the case it would never be fully up on aggregate for more than 28 days a year. And if something's not up for more than 28 days a year, you don't need planning permission for it".

On the strength of MoMI Avery has now secured a related live project – the site of the proposed IMAX cinema in the desperately bleak Bull Ring underpass at Waterloo. "We hope to cheer it up a little" he says, although in truth the real challenge would be to make it look worse than it already does.

"Yes, it is awful – a dreadfully difficult site with underground lines and tunnels".

Charged by the client to make the cheapest memorable statement for IMAX, Avery dutifully suggested overplanting the standard prefabricated IMAX box with Japanese Honeysuckle.

"The client was aghast. He felt that it was certainly memorable but it didn't communicate to him the idea of an IMAX cinema. This raised the question of what is an IMAX cinema? Meanwhile there was a leisure consultant appointed. He said to us if we could produce a building that is not only memorable but also speaks of its content we might change the audience take-up from 500,000 to 700,000 a year. That was actually very valuable to me – it meant I could afford to spend the money generated by the extra audience over a period of years to make the building speak of its content – which is what I wanted to do in the first place. And this came not from the architectural debate but from the realisation that it was worth spending more money."

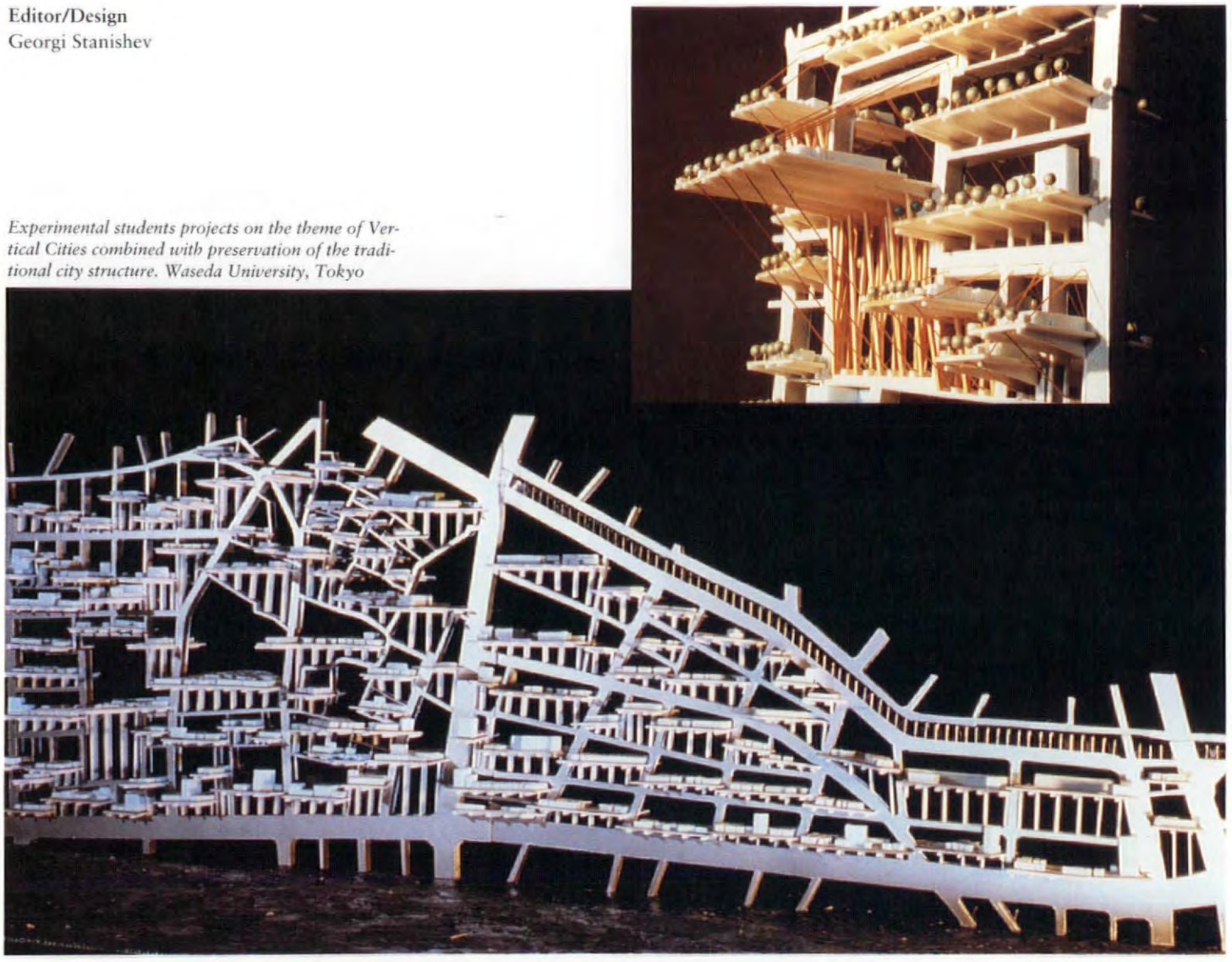
How does Avery Associates keep going?

"I don't know" Avery says amiably. "All I know is between the practical jobs I quickly need to do more theoretical studies. I couldn't work in an office where we were just doing buildings for the sake of maintaining a practice. The strange thing is that my background is in technology. I studied first at Leicester where I was exposed to a lot of components. From that I gradually found that there was something lacking in components that were expressive only of themselves. Then I went to Essex and was introduced to the complexity of meaning. I've been trying to reconcile the two ever since."

Finally I ask him, as tactfully as possible, whether the preponderance of theory has had any negative effects on the real projects.

"I haven't had the luxury of building enough to test that theory" he replies. "We've really only had three major clients. But they've been very loyal..." □

Editor/Design
Georgi Stanishev



Experimental students projects on the theme of Vertical Cities combined with preservation of the traditional city structure. Waseda University, Tokyo

NEW BABYLONS

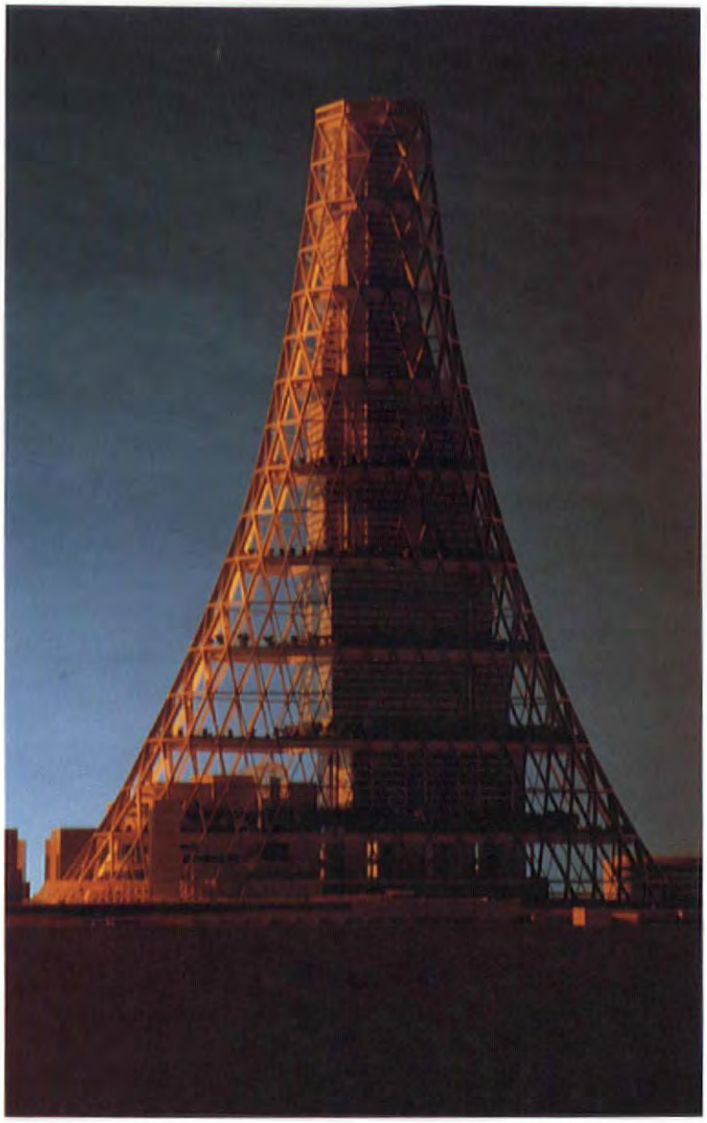
Since the time of the Tower of Babel people have been trying to build cities vertically. In our century, for the most audacious minds, even Manhattan was too low with Buckminster Fuller's project to dome over 50 blocks of Manhattan no exception. Today Japan is one of the influential centres of experimentation in this field. Here Shizuo Harada, author of the most daring super-high-rise projects of the 1980s, argues in an interview with Georgi Stanishev, that the history of human settlements is inevitably moving towards the conception of vertical cities.

G.S. Apart from design work in the field of vertical cities, you are developing a whole theory defending the verticalisation of human settlements, through publishing books, teaching, producing films, using the wide possibilities of the media, etc. At the same time Japanese architectural culture is so non-vertical, so strongly related to the horizontal line that it is difficult to see from which tradition you draw the ideology of the vertical city.

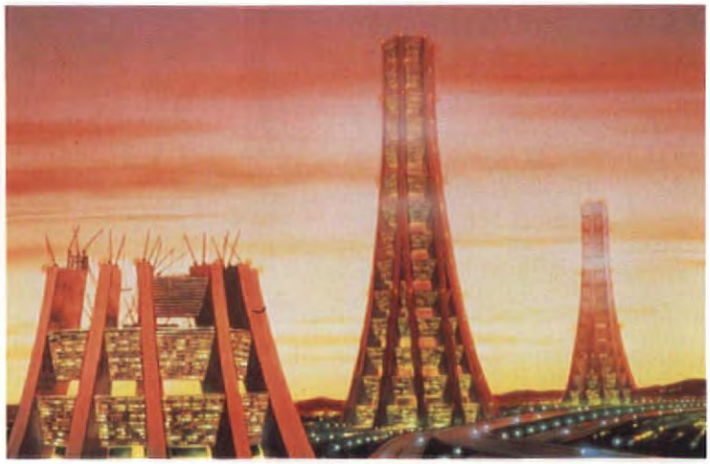
S.H. The use of low buildings stems from the fact that there is a large amount of space available to be exploited. But in Japan this strategy now meets more and more difficulties. At the same time from a different perspective we see that we have a whole treasure house of "vertical space" in the sky. The Japanese city is horizontal, that is true, but there is another important traditional feature which is related to the conception of verticalisation, and it is its high density.

How could this high density be realised in the two-dimensional fabric of the traditional Japanese city?

According to Japanese tradition there are two specific spaces absent in European architecture: *Engawa* – the semi-open space - and *Roji*, literally – "a small pass between houses", or the semi-public spaces. They



Left: ABC (Advanced Building Complex) Project for Hamamatsu City, 1990. The 88 storey, 365 metres high structure stresses the maximum interface with nature through its semi-exterior space system. Model



play the role of a kind of an interface regulating the relations of inner space with the outer world. As you know during the Edo era Tokyo was one of the highest density cities in the world. It constituted very low rise housing of one-two storeys, interconnected by a capillary system of *roji* and *engawa* networks consisting of small alleys, paths and terraces used as "mediator", for family-social-life, for play, and for praying: a typical multi-purpose space for everybody. Even after 1868, when the Meiji era began and many foreign engineers worked on the reconstruction and modernization of Japan, the network of *roji* and *engawa* spaces in housing did not change at all.

I can confirm that we did not have any high rise tradition and that Japanese cities developed as strictly horizontal structures. But we have the very definite tradition to live in a very high density through the *roji* and *engawa* system. And I think we should continue this very important feature of a Japanese space in a modern way. That's why I'm trying to recreate such semi-public spaces in my "vertical" projects.

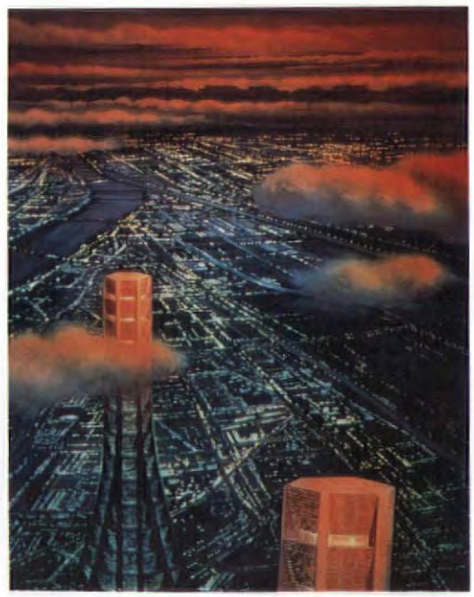
Do you mean that the common denominator between the Japanese traditional city fabric, and your super-high-rise projects is the high density of the semi-public life network, in a verticalised version?

This is my basic concern. Today we built many high-rise housing buildings, towers up to 40-storeys but these are mechanical collections of people in one place that have nothing to do with traditional qualities, because they lack this traditional high-density capillary system.

Do you consider that a mono-functional housing structure can constitute the whole organism of the super-high-rise, since we speak of vertical cities, not buildings?

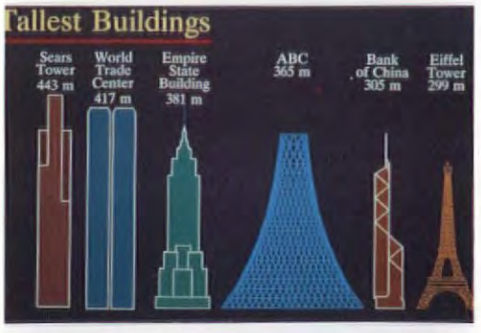
I started with the housing project for Tokyo, but now I'm concerned with a whole set of city functions. And my concern is an innovative system of relations between these functions. I am very near to the conclusion that, contrary to all traditions, housing should be placed in the city centre, while other functions should be distributed around its periphery. The city centre of Tokyo is a monstrous, dead, a "vacant city" at night, through massive "day-migration" processes, emptying one area of the city to fill another, losing up to 20% of the day in movement. I would go so far as to call them "Temporary-Day-Time-Cities", or "Time-Share-Cities".

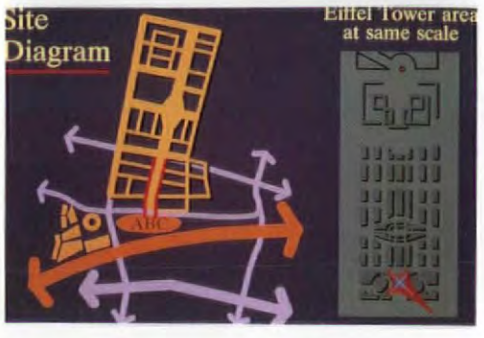
There are also other Super-high-rise projects in Japan as well as in the wider area of the

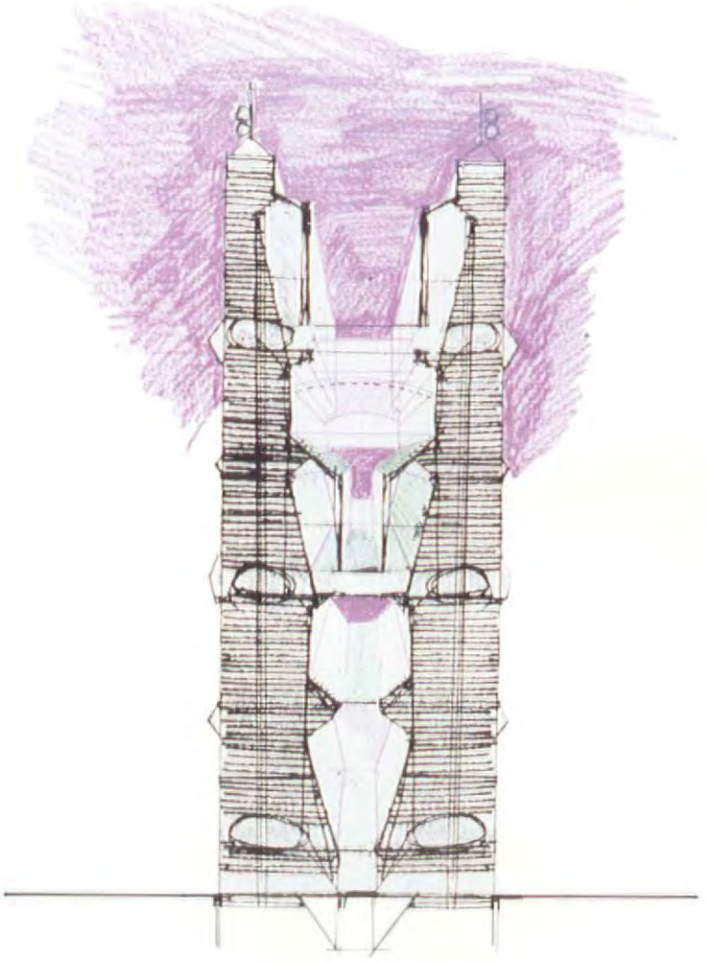


Top and above: Views of the Sky City 1000 metres project for Tokyo, 1989. The structure is composed of 14 cup-like layered space plateaux, with diameters from 400 metres in the bottom, up to 160 metres on the top
The image of Mount Fuji, the highest natural form in Japan, is considered a source of inspiration and challenge for the new super-high-rise structures

Below: Research and comparative analyses of the ABC Project for Hamamatsu City
Right: a proposition for a 600 metre high building with public utilisation of the central spaces







Far East region - the Landmark Tower in Yokohama and the Petronas Twin-Tower in Kuala Lumpur, or the UOB high-rise building in Singapore? Do you think that your projects are a part of this larger tradition, or are these different?

I suspect that there is hardly a better place for realisation of high-rise, high-density structures than Japan or other Asian countries of the region. First, because, I do not think the spirit of positivism is still alive in Europe, or in the United States, as it is in the Far East. And second, apart from high land-costs, and lack of vacant land, these high-density projects very much fit the way of life of Asian people, with their close social communities, high density, semi-public spaces, and strong connections between the communities themselves.

The projects you mentioned are different. They are simply big buildings, while I am speaking about a true vertical city, including all the complicated city functions involved.

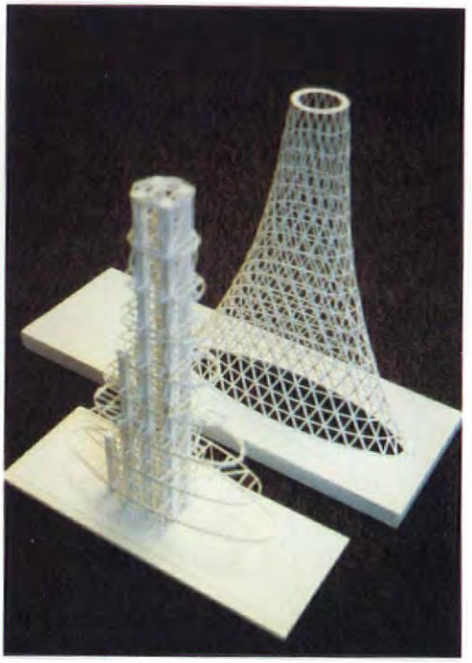
Why do you call one project, the "Advanced Building Complex" (ABC), a building, and the "Sky-City 1000" project, a city? Where does the typological frontier between the building and the city lie in your terms?

The difference is not, of course in height or other quantitative dimensions. It is really that a city cannot be made by one mind. That is why when I am acting as system-designer, projecting the system of interrelated vertically arranged surfaces, then I prepare the basic vertical terrain for a city, which is to be built by many other architects. Conversely, when I am the designer of the whole thing – it cannot be anything other than a building. Typologically my projects belong to the class of architectural-urban hybrids, in which architectural functions are mixed with the urban ones like the transportation system. In this aspect my vertical cities may be considered alongside the Algiers project of Corbusier, with its "buildings-roads", or with Kenzo Tange's "city-bridge" project across the Tokyo bay, or even Tower Bridge in London, which was a bridge, mixed with apartment housing functions.

But as we know from Christopher Alexander's thesis on artificial and natural cities, the city should be a growing organism, a function of history and many choices, intentions, controversies etc. Shouldn't there be generations of architects participating in the development of a city-tower?

There are examples of simultaneously designed cities which function very successfully since the time of the Italian Renaissance. But I would predict that the super-high-rise artificial cities of the future will function as complementary devices to existing historical cities, thus constituting a twin-city system.

The Twin-city conception is an integration of new satellite structures, Techno-Cities, within the so called historical Mother-Cities. The purpose is to withdraw the most dynamic functions from the important historical cen-



Top, above left and above: ABC Project for Hamamatsu City, 1990. Section. Model. General view on site. Structural research model. Due to the exo-skeleton structure around the periphery, the interior spaces of the platforms can be freely arranged with different urban schemes

tres in Japan, leaving the latter for mainly cultural, administrative, commercial and habitation uses. Thus the techno-cities are basically oriented towards education, research and industrial application of advanced technologies in chemistry, biology, super-conductivity or computers. The model of a vertical city is very proper for this type of techno-city. Such was, for example, the conception for the ABC Vertical city project in Hamamatsu City.

What will be the model of social interrelations in the ABC project, if it reaches realisation?

The ABC project in Hamamatsu city consists of 10 platforms and is only 365 metres high. The idea was to insert into Japan a kind of a "foreign country", to shape and concentrate the foreign cultural and industrial invasion in Japan, and to create a model of a new international society. The commission was mostly related to US companies and institutions like the University of California at Berkeley, Boston University, IBM, General Electric etc. They laid claim to parts of the ABC platforms while they were still in the project stage.

From the Japanese side the project was supported by IBM Japan, Japan Railways, Japan Industrial Bank, as well as by some new companies, playing the role of a bridge to lead foreign investment into the Hamamatsu project. The top platform is occupied by an international hotel.

That seems to me like the Tower of Babel with its mixture of cultures and nations.

Aren't you afraid that it could repeat its fate?

Isn't Hong Kong already a Babel? As far as the most intensive cities of the world like New York, Singapore, Tokyo, are already historically converted into multinational Babels, I am not frightened by the Babel analogy, especially if it is designed for a "Babylonian" way of life.

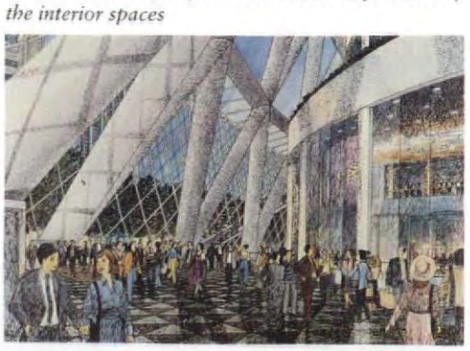
The other direction of challenge, which your Vertical cities evoke, must be Mount Fuji.

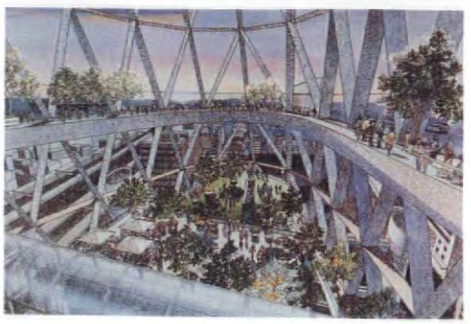
Yes, but on a scale of 1 to 10 there are other projects which are more literal in this sense. The real height for a vertical city would be about 4000 metres, which is higher than Mount Fuji.

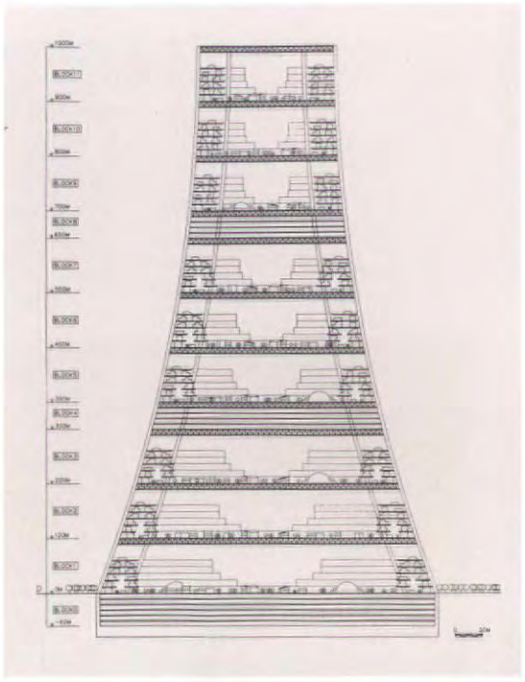
You call one of the versions of your Sky-City project – Tokio Eopolis. What is its actual relation to ecology? Could you point out the principles of the ecological interaction between the vertical city and nature?

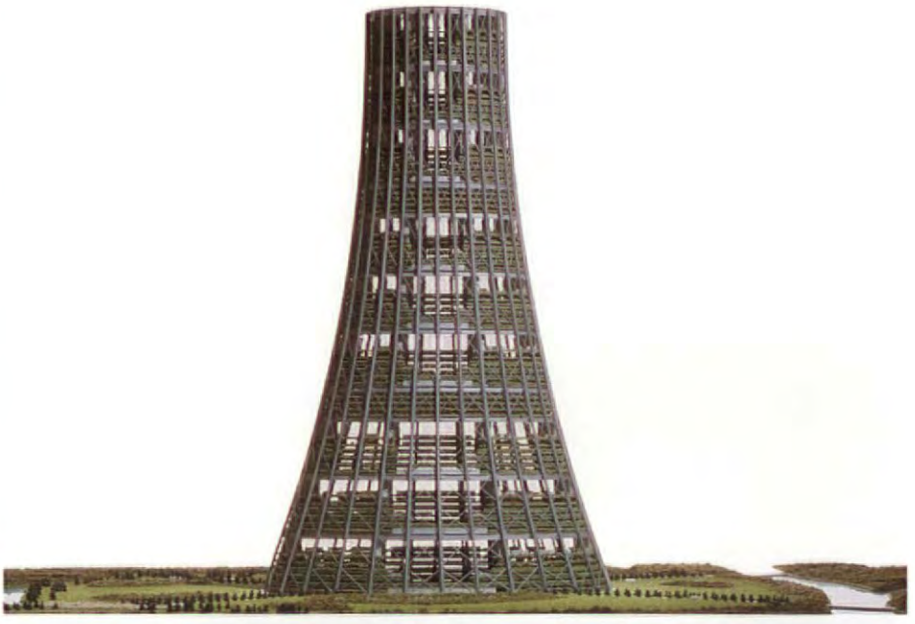
We started work on ecological issues in an earlier project for an Autonomous Building, consisting of nine square blocks with atriums in the centre, rising each above the other. This project contained sub-systems such as energy and information which allowed the whole megastructure to be self-sufficient. This concept became the basis for Sky City, a 1000 metre high project, made of 14 macro-elements, "rings" or "cups", hung one above the other. The natural energy systems there are concerned with aerogenerators, solar heating panels, photovoltaic cells and water recycling

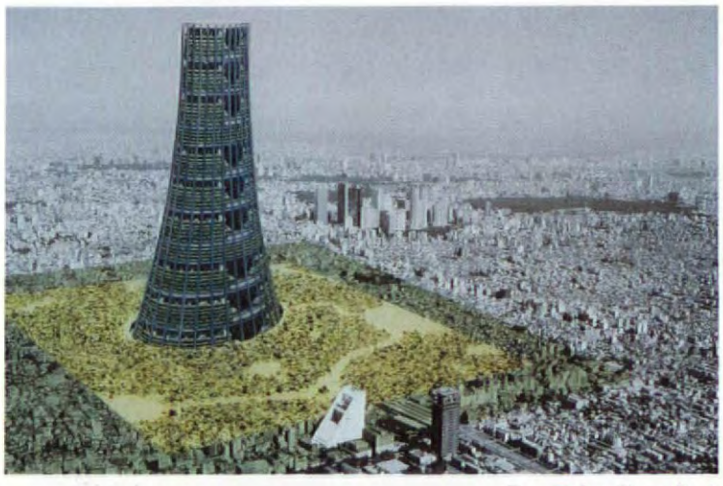
Below: ABC Project for Hamamatsu City. Views of the interior spaces

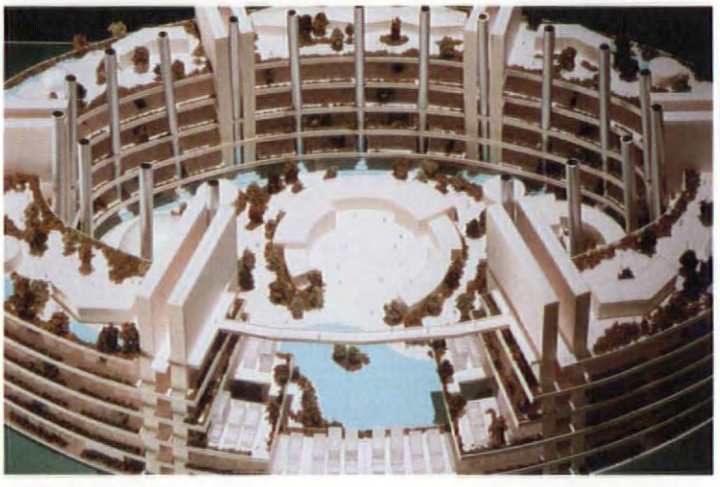




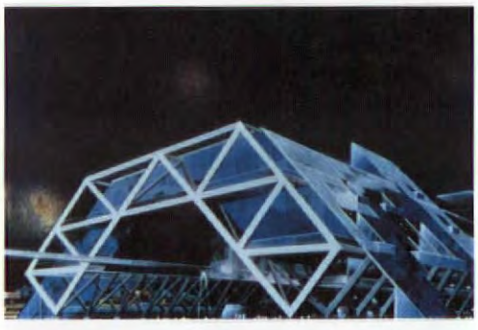








Top: Tokyo Ecopolis, 1992, a 1000 metre city structure consisting of 12 multi-layered city rings with platforms. Section. Model
Above: The montage shows in green a vast high-density area of Tokyo, which can be concentrated in one Ecopolis tower. Model of a ring of the tower



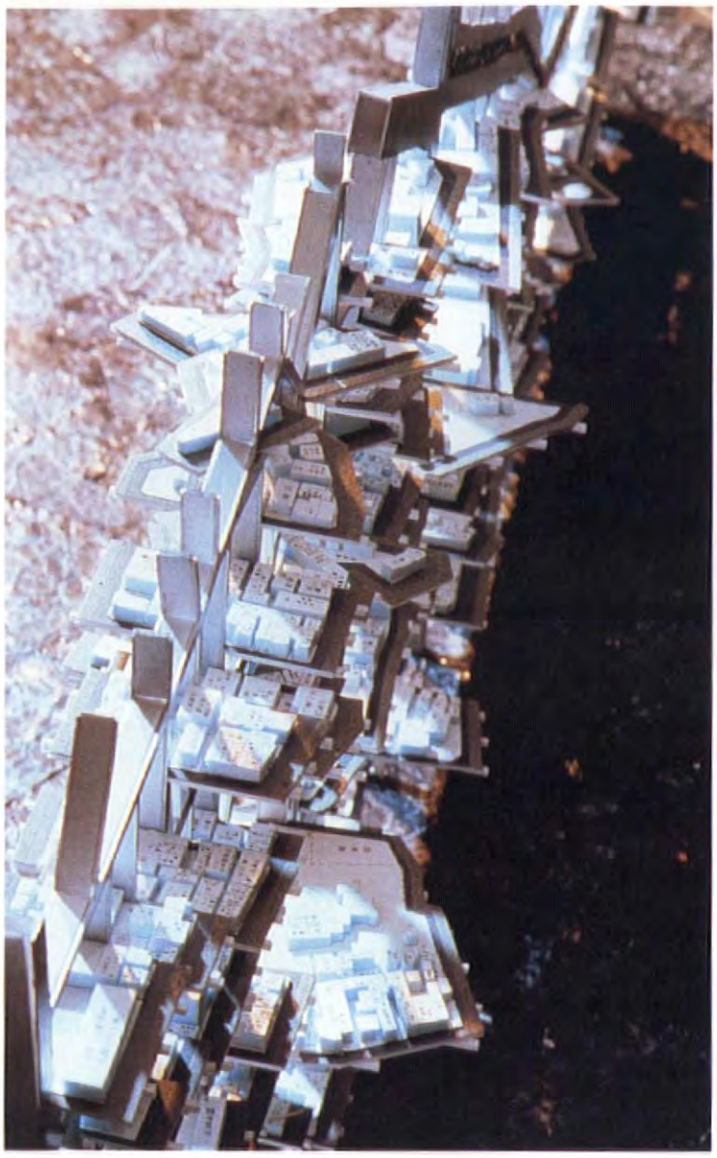
Left: Stratiform project for the Tsukuba International Exposition
Below: ABC 500 Project, 1992. Model and montage view

treatment systems. We develop ecological architecture as a special permanent research direction of our ESCO company, the latest project of which is the New Model House concept.

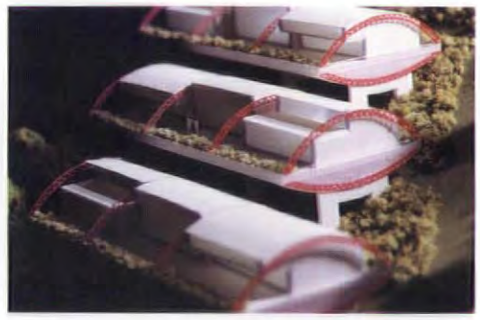
You once worked with Kiyonori Kikutake. Do you share some of his metabolic principles? I mean especially those concerned with the different speeds of change, growth and obsolescence of the different parts and systems of the city?

Yes, I think my basic ideas are very strongly related to metabolism. But ideology is not a method of design, it is rather a view point onto any self-organising, living system – either organic, or social. From this point of view the stability of infrastructure in the city constitute only the first scale of a whole range of different speeds, where another might be the blink-rate of the Neon Ad lighting. Similarly the artificial platforms of the ABC project are permanent and stable terrains, on which the processes of building, reconstruction, adaptation etc. constitute other speeds of city evolution.

What is the most problematic thing from the technological point of view about super-high-rise? The possibility of earthquake, fire, vertical transportation?



Right: New Model Housing, 1993. Arch-coupling unit with pre-tensioned steel structure, allowing free internal span of 14-16 metres. Models



Left and below: Experimental students projects, showing multi-platform vertical structures based on reproductions of quarters of the traditional city

For high-rise buildings over 200 metres, the wind problem is more severe than the earthquake one. We made the plan elliptical to reduce the span in one of the directions, but also to have the possibility to situate the ABC tower as a "wing" with minimum resistance to the prevailing wind.

With regard to fire protection, the idea is to separate the exo-skeleton from the inside platforms. The other innovation is water flow through inside the structural tubes.

In relation to vertical movement, beyond 700 metres conventional elevator systems are useless because of the increasing weight of the cable. We invented a cable-free transportation system based on a kind of the magnetic transmission of power. It can be moved continuously in a spiral way. Technologically the ABC 500 project is the most progressive and challenging one. But we are still working on this project and looking for a contractor.

I suppose, for a contractor one of the most important characteristics of the project must be the price. How does land price in your Sky City platforms compare to the average cost of land in, say, Tokyo?

In the case of Sky-City we calculated less than 6,000 US $ per square metre for platform land, including the actual land cost. The whole territory of Sky-City is 850,000 m². You must have in mind that periphery plots in Tokyo cost about 8,000 - 10,000 US $, but in the centre it is 10 times more.

Which other environments are you considering as possible areas for future city development in Japan?

As well as conquering the air and sea, we are now researching possibilities for the other direction of the vertical – underground. The Japanese government and the Ministry of Construction consider all areas more than 40 or 50 metres below the surface as public property. Society can freely use this area for subway or for some public infrastructure: it is a new reserve for the extension of the city.

And I am still interested in more "normal" linear cities as well. We propose a linear "stratiform" structure with platforms or layers used to hang artificial terrain, on which you are able to build whatever you want even series of different single-family houses with gardens. This has been realised already in some experimental structures of two- to six-storeys.

How do architecture students react to your ideology of verticalisation?

Usually when I show my projects to Japanese students they don't agree with my ideas, they don't like this environment and the language in which it is expressed. But when we start discussing it I suggest they propose their own versions of vertical cities. Then they start to work and when they reach some level of decision, they are already converted into supporters of my ideology! They usually propose a much more immediate and conceptual approach, sometimes simply to extend a flat urban plan vertically. To my mind this funny transformation of the horizontal plan is also an original way to keep the history and local identity in the vertical city.

What are the chances of ever building a vertical city?

I think it is the inevitable future in Japan. But wherever it is going to be done first, it should be built by an international corporation. I think the act of building an international high rise city would convert this corporation into a prototype model of the new international corporative society of the future. □

Rebuilt Sports Hall, John Moores University, Liverpool, 1993

Architects: Ormrod and Partners. Project architects: TW Long and Roy Roberts

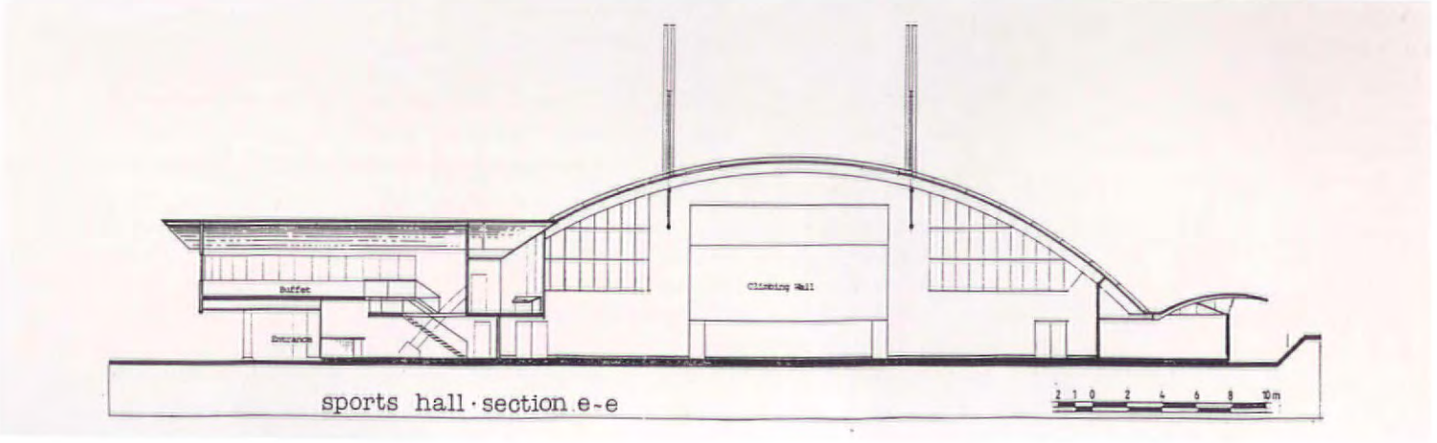
The recently completed sports hall rebuilding is the first phase of the redevelopment of the South East end of the site for public use. The original building suffered up to 100 mm deflection in high winds which rendered the joints in the roofing sheets useless. The sports hall roof had leaked for some 15 years. The structural solution was to restrain the six main composite steel arches at third points. This was achieved by the installation of two steel beams some 60 m long and 2.5 m deep at the appropriate position; these beams are in turn supported on double 300 mm dia. C.H.S. cable braced and stayed columns. The building was completely stripped down to the six primary steel arches which was the only element of the existing building retained before installation of the new steel support system.

Phase II of the sports hall includes the installation of the new entrance shown on the section. This entrance is bridged by a cafe area which has views of the sporting activities inside the hall and externally to the immediate surroundings.

Changing rooms and an equipment store have been added on the North West side of the building.

A 4 m high wall has been built around the whole of the playing area to provide a uniform vertical rebound surface for practice.

New roof to sports hall shows off profiled aluminium roof decking to advantage (left). Details (clockwise) show new arch-supporting 60 metre masts, handrailing and interior. Section shows neat junction with entrance roof (below)



sports hall · section e-e

Photos Hrch. Helfenstein

Kirchner Museum, Davos 1993

Architect: Urs Schneider

The aim was to design an exhibition hall neither competing with nor overshadowing the work of Kirchner himself. Thus the four ground exhibition halls were designed in an austere style – white walls, oak parquet flooring and ceiling essentially contribute to a simplified cube, recalling the spatial impact of exhibition halls of the turn of the century.

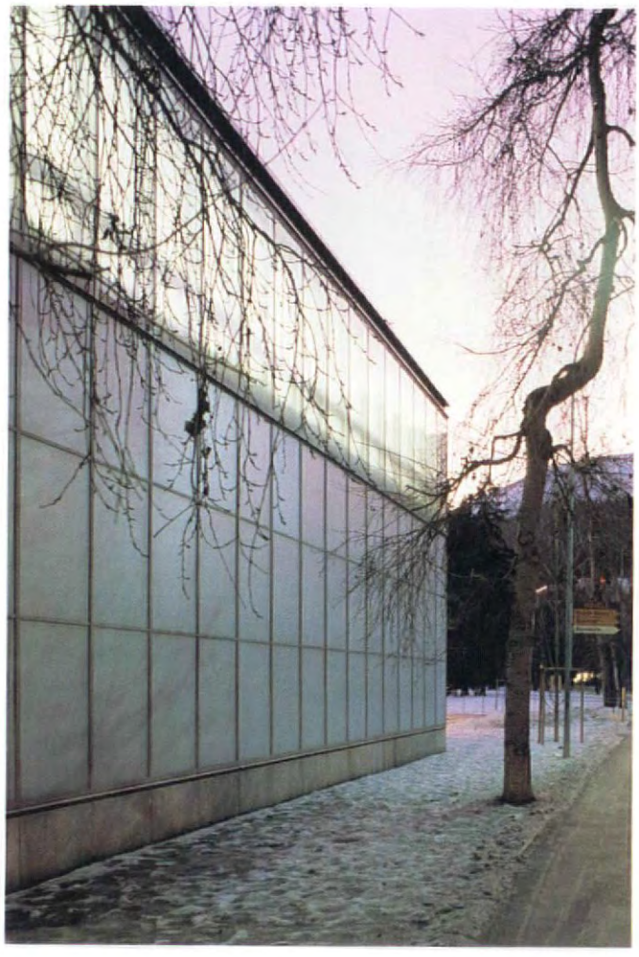
Light coming from the sky-light is diffused and not affected by snow in the upper floors of the exhibition hall. Halls above are supplied with artificial light. Domes in the hall form the complete volume of an additional hall – the area of the lounge, which also serves as the area of the information service.

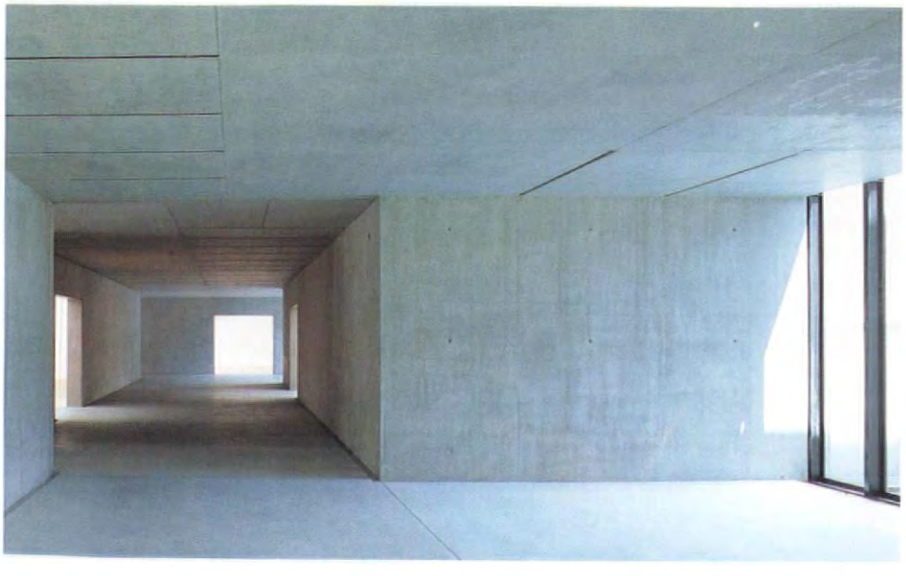
Visiting the museum the public pass through the hall, looking onto a park, a street and the surroundings of Davos, which Kirchner painted.

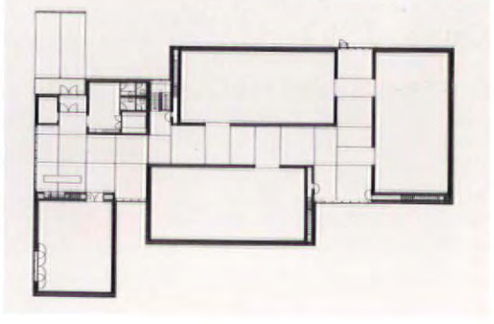
The glass interior of the museum, made of translucent, opaque and bright glass material, was inspired by the fresh air of the Davos valley, painted by Kirchner. This light is essential for the building. Depending on the various functions of light and perspective glass panels in the interior vary in their workmanship and production techniques.

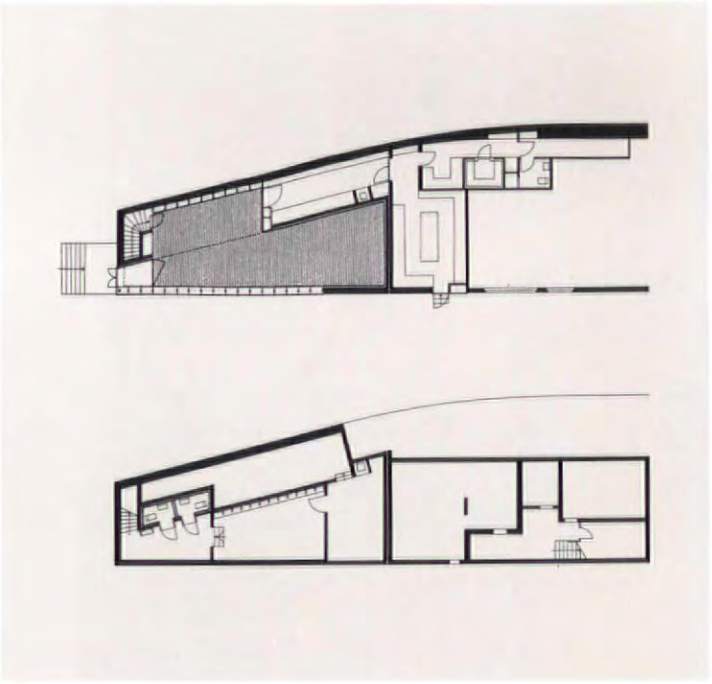
The stained glass in the entrance hall is clear and smooth; in the upper lit halls it is opaque, while on the facade it is profiled and opaque so as to remain semi-translucent.

Recycled glass pieces, with their reflected colours, add to the decoration of the roof. The core of the museum, the high domes of the exhibition hall, are situated freely in the greenery of the park. In their situation they repeat the layout of Davos with its spread-out flat roofs.









Restaurant Vinikus, Davos 1992

Architect: Dieter Bachmann Schiebach

The unusual and impressive construction plot near Schiabach and its present day structure are the outcome of over a century of exploitation by the former owner – a contractor company. Gravel has been drawn from plots along the stream, and support walls, reservoirs and amelioration of the stream. The existing area was extended by the addition of further plots, eventually comprising an enclosed area which corresponds to that of the surrounding supporting walls.

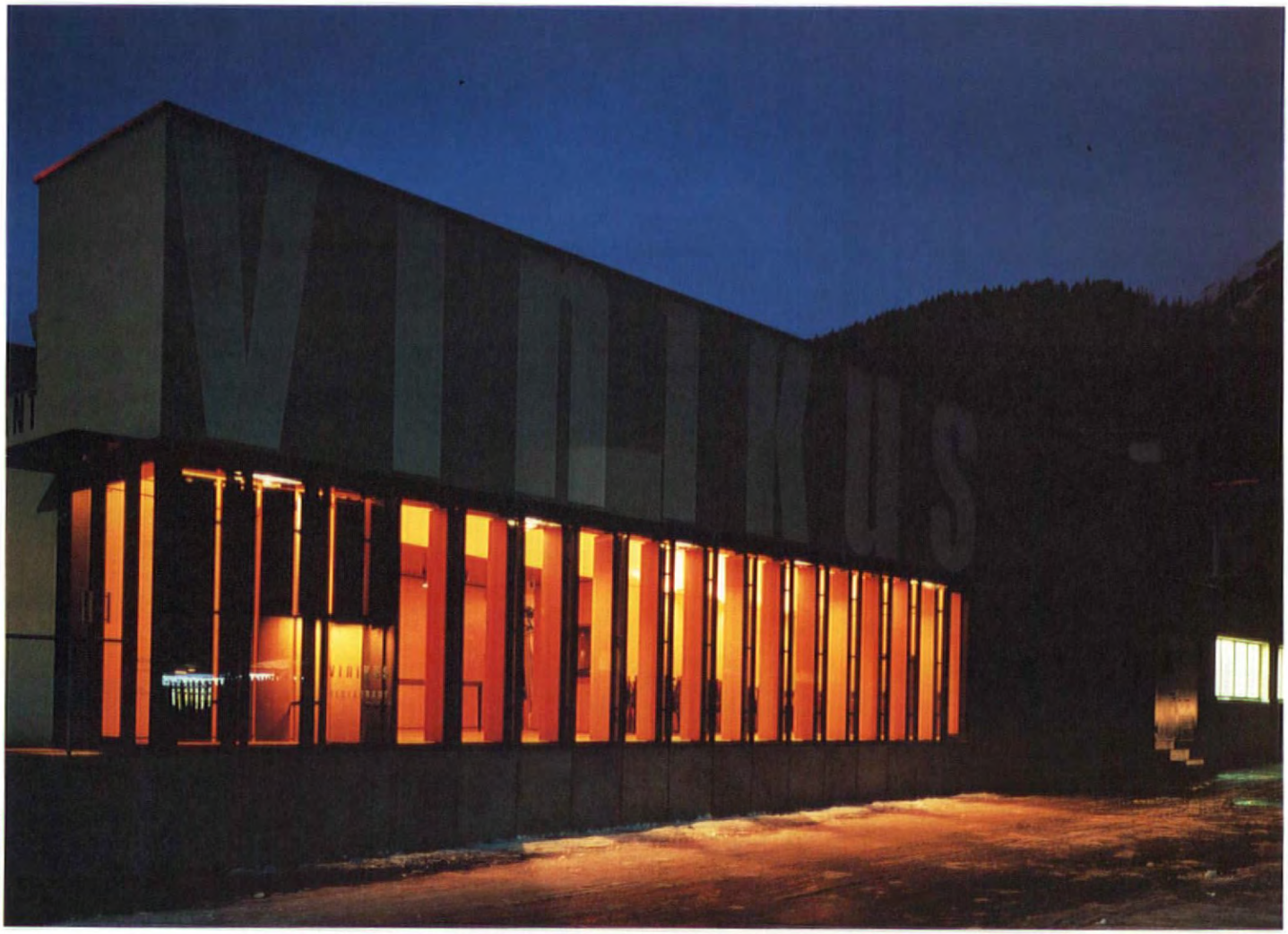
The inclusion of the restaurant in downtown Davos was the first step towards the transition of the area into a community centre with public functions. Half of the plot was envisaged to become a new restaurant for wines in line with the plans of Mr Kristoph Kunzli, a young wine merchant. The principal area of the former restaurant was turned into an underground cellar and storeroom for storage of wine. The volumes of the former one-storey restaurant were enlarged within existing limits, outlining the internal volume of the dining room with the respective height.

The cellars have concrete covered floors and the walls are lined with bricks. The walls around the opening are held by a metal frame. Similarly the surface of the walls will best fulfil its function serving as a symbol of the restaurant. Large-sized chip board panelling partially covered with veneer was used; the floor area was parquette covered.

Light for the built-in wooden structure can come from windows with removable shutters, left open in daytime and drawn at night.

The dining room is aired through openings in the panels of built-in structure. The colour scheme of the interior is achieved through a 1 mm oak veneer covered chipboard.

The re-designing of the dining room has given way in favour of harmony between the hall and its furnishing, therefore it was realised on the ground floor. The individual elements are made in a rustic style. Two lavatories built-in the "incomplete structure" are exceptions confirming the rule. Walls, like the ceiling, are concrete. The wine stand in the degustation hall, made of chipboard, is left with its natural cover and the hall has massive oak tables.



Photos Hrch. Hellenstein

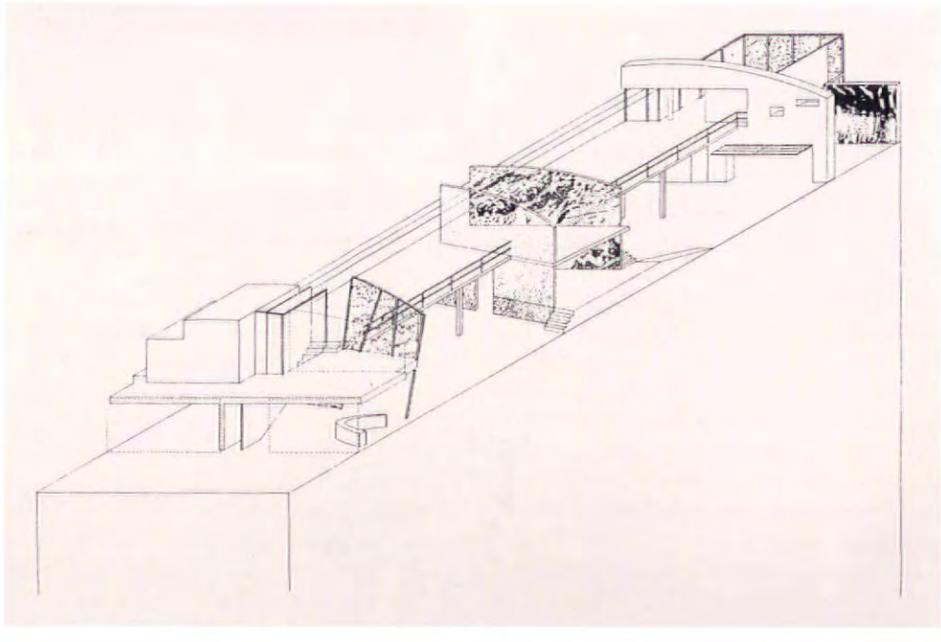
Advertising agency offices, London

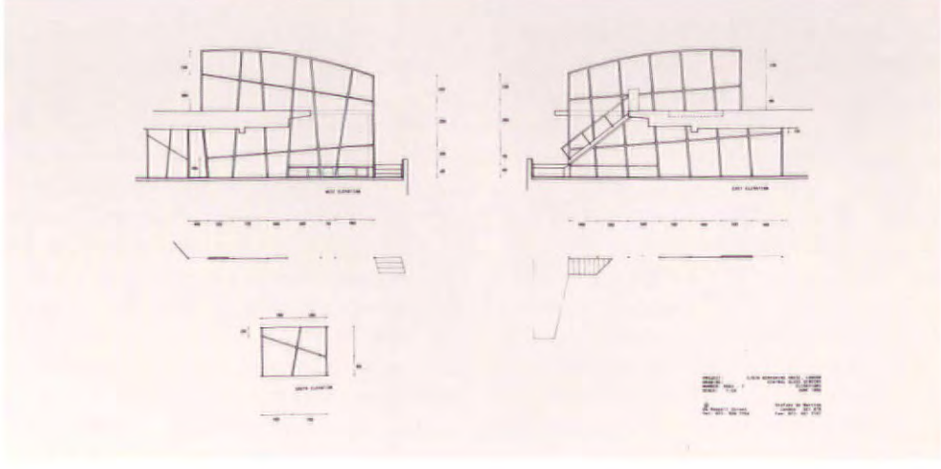
Architect: Stefano di Martino with DEGW

In the wave of revisionism spuming over London, the modest 1960s tower best known for the "Oasis Swimming Pool" had been "redesigned" by DEGW, with the addition of a "Penthouse", an extension of the roof top under a vaulted roof, a "pod" protruding over the side of the building, as well as recladding in aluminium and granite over the original Portland Stone, slate and concrete.

The speculative office space under the roof consisted of two open floors, looking across Covent Garden, Westminster and the Thames on the South, with a double height space facing the British Museum and Bloomsbury on the North.

The brief for transforming the "Penthouse" into offices for the Chiat/Day Advertising Agency was derived from the experience of their other offices in the USA. The requirements were to accommodate 45 people in a number of working groups consisting of 4 or 6 people, some working in pairs, all within an open environment, but each with a personal space. As a counterpart to the workstations, a number of meeting rooms were needed to address different situations: smaller ones for individuals or teams, infor-





mal ones for larger groups, and conference rooms for presentations and meetings.

In addition, services for the functioning of the agency were specified: production and traffic area, dark-room, audio-visual room, storage, showers, kitchen and coffee points.

On Frank Gehry's suggestion Rem Koolhaas was approached as a suitable architect; he recommended London-based ex-O.M.A. associate Stefano de Martino to partner the project. This collaboration established the concept of the layout. The project was designed by Stefano de Martino, and DEGW managed the realisation. □

HE WHO BUILDS TOO HIGH HAS NOTHING TO FEAR

Hong Kong Architecture: the aesthetics of density. *Edited by Vittorio Magnano Lampugnani with contributions by Ted Pryor and S.H. Pau. Prestel-Verlag, Munich, c/o Thames & Hudson Ltd. London. 192pp, 80 colour illustrations. £40.00.*

Review by Ronald Green

All cities are museums of architectural history – even Milton Keynes – and each is chained by location to a different set of circumstances. The course of events is the uncontrolled monster that shapes their destinies. So great is its sway that different circumstances at different times can convert them into radically different places. Hong Kong is one of the most extreme and remarkable of all the world's cities. Siezed from China by the British in 1841, Hong Kong is about to be restored to its rightful owners. Thus this book arrives at a poignant moment, the end of colonial rule. But as a city, only the last 50 of its 156 colonial years saw any great development. The massive electronic high-rise powerhouse of today is a creation of circumstances that find their origin in the Pacific War of 1941-45 when Japan siezed the colony in its premature attempt to create a Pacific Rim economy rather like the one that exists now. After 1948, when mainland China fell under Communist rule, Hong Kong became the Eastern equivalent of West Berlin – a refuge from collectivised tyranny.

It was emigration control, and the press of population upon the tiny enclave and its islands that forced Hong Kong's growth into the forest of skyscrapers that exists today. First houses covered the land; then the houses were replaced by apartment towers, and yet more land was recovered from the sea. Finally even the balconies of the apartments in the apartment towers were turned into apartments themselves. What the effect of the removal of the land frontier with China in 1997 will have upon this crazy pattern of building and rebuilding remains to be seen.

Unfortunately, despite its title, the aesthetics of density barely deals with what might be called the historical infrastructure of Hong Kong. Its sparse text is confined to unsatisfactorily short essays, by far the best of which is a titularly uncredited piece by the German novelist Tilman Spengler, who writes about old Kowloon, black market gold dealing and, most interestingly, on the spatial significance of shop windows. In Hong Kong, he believes, these windows, with their elaborate displays, act as a kind of "virtual space" that relieves the pressure of the immense population upon the city's crowded pavements. But no one will buy this book for its essays. The most informative part of it comes from Patrick Zachmann, whose photographic evocations of this wonder of the twentieth century come close to justifying its high price.

AN OPPORTUNITY MISSED?

Nationalism and Internationalism. *By Jeremy Aynsley.*
Form Follows Function. *By Susan Lambert. Design in the 20th Century series, Victoria & Albert Museum, vols 1 & 2. Each 72 pp, £6.95.*

Review by Paul Jodard.

Museums used to be places where we went as much to pose questions as to find answers. Now that the emphasis is on the "guest experience" in EuroDisney's ambiguous phrase, the real is at risk of being lost behind the reconstructions. The Victoria and Albert Museum in London has, hopefully, a sufficient density of collections, and sufficient acuity in its curatorial staff, to evade this descent to the lowest common denominator of instant response. These strengths are shown in the Museum's new Gallery of Twentieth Century Design, which houses both industrial and one-off products, graphics, textiles and furniture of the last 100 years.

The purpose behind the Gallery is not only to present designed objects in chronologically coherent groups but also to introduce approaches to the design process, and suggest how designers have gone about their work in different ways. The two books under review are the first in a series of seven, and continue the theme of the gallery by looking at different aspects of designing. They are aimed at a sixth form and first year college market.

It is perhaps unfair to judge a series from two titles, but there does seem to be a structural problem with these books: put simply, they are too short.

Seventy-two pages and 70 illustrations restrict the authors too much: a length of 15,000 words would have given time for more development, and 96 pages scope for more pictures – even though there are already several illustrations repeated unnecessarily between these two books.

Jeremy Aynsley's book on is divided into two main sections, on internationalism and nationalism each dealing with a number of different approaches to the concept, and a closing section on regionalism and globalism. This plan is further restricted by his taking a long run-up at his subject. As a result, many of the points he makes have no room for development or explanation.

It is a pity that the last section of the book, dealing with recent aspects of design, is the most compressed. The earlier sections, particularly those on design in Italy and Germany, are much stronger, and define well the author's notion of design as a cultural construct, reacting in relative ways to political and social circumstances and changes, but also informed by an internal discipline.

The second book in the series looks at one such discipline, form. Anyone familiar with Susan Lambert's earlier books on the function of drawing (*Drawing, Technique and Purpose*) and on the transmission of works of art through prints (*The Image Multiplied*) will not be surprised at the breadth of learning and vision in her *Form Follows Function*. Here she traces the development of the functionalist notion, and related ideas on truth to materials and pure forms, from Vitruvius up to the present. After a historical introduction, and a chapter, not surprisingly, on the Bauhaus, different aspects of the theme are presented in chapters on form and process, form and the design system, and form and identity.

Starting with Vitruvius is also taking a long view of the twentieth century; but the author here handles the transitions less abruptly, and has a knack for finding unfamiliar but apt quotations to enliven and support her argument. This is that a formal analysis can be applied to the design process at different stages and in different ways, and can still be a valid approach to design despite the collapse of a narrow definition of form under Modernism. The broad texture of this argu-

ment allows for a good range of examples to be brought in, but again the strength of the approach falters when dealing with current products. But as a review of architecture and design in the earlier part of this century the text is excellent.

In both books the typography is disappointing, an apparent fear of hyphenation leading to absurd letterspacings, and the placing of illustrations occasionally awkward. These are serviceable introductions to contemporary design history, but also perhaps an opportunity missed.

A MAN FOR ALL SEASONS

Michael Hopkins: the work of Michael Hopkins and Partners. *By Colin Davies. Phaidon. 240pp. £39.95.*

Review by Ronald Green

The architecture of Michael Hopkins covers a multitude of sins – in the eyes of non-architects that is. For years a devoted Modernist, committed to prefabrication, finished-assembly construction and see-through aesthetics, with the waning of the century he has trimmed his sails to a new wind and become a materials fundamentalist instead. Today he rolls easily in a gentle swell, sails aback, waiting for the rest of the field to catch him up. And the wait will do him no harm, for his office is loaded to the gunwales with major establishment commissions. On the drawing boards in Marylebone is every variety of fundamentalist building you can imagine, from non-air conditioned derivatives of the Inland Revenue Offices at Nottingham (which replaced the risible efforts of an earlier design and build team), to the new water-cooled Parliamentary Building at Westminster (which will, with its Piranesian Jubilee Line station underneath, finally replace the luckless 1970s grand project of Robin Spence and Robin Webster).

This book, in a remarkably clear and straightforward fashion, sets forth the entire history of Michael Hopkins' architecture. Not quite a large-type edition, it is nonetheless so easy to browse through or read that one almost feels guilty gaining an appreciation of such impressive buildings with so little effort. Nor is the clarity solely pictorial. Colin Davies' introduction is a model of straightforward narrative that provides just enough childhood background and student life before plunging into the only navigable passage there is between the young Michael Hopkins of Foster Associates, Green King and Patera, to the middle aged Michael Hopkins of Glyndebourne and Bracken House.

Whatever one thinks of Michael Hopkins' architecture, it has undoubtedly been his capacity to shift in and out of high-tech architecture that has set him apart from the rest of his generation. Hopkins plays fast and loose with history, not only seeking inspiration in the Renaissance, but commissioning a retired architectural photographer to give a "forties feel" to pictures of some of his buildings. Yet at the same time his credentials as a Modernist are impeccable. He and his wife Patty not only raised their family and ran their office from a glass and steel box in Hampstead, they erected another one in Marylebone when they moved their office out of the house. Today Hopkins feels no call to defend the Modern canon when it comes under attack. Instead the key he offers to inspirational flexibility is "honesty". As the book shows us, the Edwardian brick arches at Lords are just as real as the steel tubes and cables at mast-supported Schlumberger.

To some extent this makes sense, but neither Colin Davies, nor Patrick Hodgkinson, nor Kenneth Frampton (all of whom have essays in this book ever really explores the uncertainties underlying the exhumed building technology of this neo-Victorian functionalism. After all, the "chimneys" on the Parliamentary building are only real in the sense that they are working types of heat exchanger, they are not the bona fide nineteenth century smokestacks they appear to be.

THE RICE MAN GOETH

Peter Rice, An Engineer Imagines, *Artemis, 240pp, £34.95 (hardback).*

Reviewed by Paul Jodard

A friend recently proposed to a firm of architectural publishers a book with the title *Engineering Takes Command.* The editor approached was appalled by the title, but not, it turned out, because of the rather obvious pun on Giedion's famous book, but because of the possible "offence" to architects implied in it. I hope architects will not be put off and certainly not offended by the title of Peter Rice's posthumous autobiography, *An Engineer Imagines.* As an account of the work of one of the most important figures in late twentieth century architecture alone it deserves attention, as well as for what Peter Rice has to say about the role of the engineer in contemporary practice. It is a pity that the book is priced so highly – perhaps a more modest second edition will help ensure a wider readership.

The book opens with an account of the design and building of the Centre Beaubourg, the project which first brought Peter Rice to the notice of a wider public, though he had earlier done important work on the Sydney Opera House. Later chapters describe this project, as well as the Menil gallery in Houston, the Lloyds building in London, and the Theatre de la Pleine Lune. Other chapters are more reflective, looking at the problems of working with industry, the challenge of working with different architects simultaneously on differing projects, on his work with Renzo Piano for Fiat, and on such subjects as architecture and photography, his respect for mentors such as Ove Arup and Jean Prouve, and the pleasures of horse racing. The important essay on "The Role of the Engineer" has previously been published elsewhere, but is here revised and extended. The effect of the whole book is of modesty shot through with genius, combined with a clear understanding of the real role the modern engineer can play in architecture, and of its limitations.

For "engineers need identity," Peter Rice tells us. "Engineers need to be known as individuals responsible for the artefacts they have designed." His own astonishing, though tragically short career as an engineer working with architects has helped to start making this happen, and his book will do much to further the cause. But Peter Rice is not making a case for the public adulation of engineers in the Brunel or Eiffel tradition. Rather he is talking about engineers' understanding of their own worth, and their being willing to stand up and take credit for it.

This is an elegant and important book: it deserves to be widely read for what it has to say about the past, and for what it has to say about the future. □

UNADULTERATED PRAISE

Sir,
I am delighted with the first copy of my subscription. The paper, layout and colour reproductions are excellent and the text and selection of articles imaginative. Are we going to see the first decent architectural magazine in this country for a long time? I do sincerely hope so.

For me, apart from the need for excellence of the aspects mentioned the magazine should be devoted to Architecture and should carry a continuous display of excellent architects' drawings as well as photographs. It also should not deteriorate to the introduction of advertising in the text but keep it to front or rear as you have done.

Wishing you well for the future, I'd like to tell you that I shall send all our future enquiries through your Building Reply Service.

Yours sincerely,
Matthew Wallis
London

BUT ON THE OTHER HAND . . .

Sir,
Your A-Z of cladding (Issue 26) is inaccurate and misleading.

B - Common insulation systems are polystyrene, not just polyurethane.

C - Composite panels should never be site assembled as they rely for their performance on the adhesives between skin and core.

E - Edges of vitreous enamel panels are not necessarily corrosion proof unless formed to shape.

G - Glass is not "usually" mounted on a back up wall using "secret fixing", it is normally either suspended, silicone bonded or mounted within a curtain wall assembly.

H - Horizontal cladding is not more labour intensive than vertical cladding, it just needs different edge details.

M - Cladding materials would also include pre-cast concrete board products and pre-painted steel in addition to those listed.

O - Overcladding is not just a cosmetic refurbishment, it can also offer benefits in terms of thermal, acoustic and fire performance.

R - Rainscreen – it is not known that the cavity is "well ventilated".

With this low level of technical description, it is not surprising that (your leader) "Europe is plagued by ignorance". Perhaps *World Architecture* should be striving to reduce the level of ignorance – I would be delighted to discuss how this might be done.

Yours faithfully
Alan J Brookes (Dr)
Alan Brookes Associates
Architects + Technology Consultants
London

OUR SCIENTISTS REPLY

Sir,
We were interested to read Mr Brookes' comments to the A-Z of Cladding (Issue 26), although we find that there are some ambiguities in his criticism. This feature was compiled by ourselves in association with Walter & McNamara Architects and was devised as a general introduction to cladding and cladding terms. It was not intended to be definitive, encyclopaedic or technically exhaustive.

B - The feature states that "The insulation is a rigid board, normally polyurethane, ...". We did not say it was just polyurethane. Sources referred to include the European Panel Information Centre which state "...a core of thermally efficient insulation material - polyurethane or polyisocyanurate - ...", and *Architects Journal* 18.9.92, where Mr Brookes himself writes "in the production of foamed panels, polyurethanes are most commonly used as the core material".

C - The British Steel Strip Products publication Colorcoat in Building gives the definition of a site assembled composite as "two skins and reformed rigid insulation assembled on site similarly to the insulated system."

Further, the MCRMA publication, Metal Wall Cladding Detailing Guide, published October 1992, Section 2.4 Site-assembled composite panels states "This system is a combination of the site-assembled double skin construction and a factory-assembled composite panel..."

A publication from the European Panel Information Centre states that composite panels shift most of the assembly emphasis from the site to the factory production line.

E - The feature states that enamelled steel panels provide a corrosion proof surface.

G - The introduction was to cladding and not curtain walling or suspended glazing.

H - The MCRMA publication, *Metal Wall Cladding Detailing Guide*, published October 1992, Section 4.1 Horizontal cladding - "is more labour intensive than vertically fixed cladding and therefore is generally more costly."

M - Agreed, but the list was not intended to be exhaustive.

O - Agreed, but we did not say it was just a cosmetic refurbishment.

R - It is not clear what Mr Brookes is implying here; by who is it not known? *AJ Focus July 1988, Cladding Insight* quotes "... a rainscreen has an outer skin that sheds rainwater without being totally airtight, over a well-ventilated cavity, over insulation, over a vapour barrier, over an internal skin."

I trust this answers the points raised.

Yours faithfully
Nicola Churchill
Director Ad-lib Research Consultancy Ltd
London

A SENSE OF PROPORTION

Sir,
Today our burgeoning cities pose one of the most critical problems faced by our planet, and it is the architects' responsibility to society to solve these problems. Your remarks about the search for a "suitable building" for the European Bank of Reconstruction and Development are somewhat beside the point. If this Bank were serious about its aim, which is to save the chaotic economies of Eastern Europe from falling into absolute penury, then it would not matter what sort of building it was housed in. Today we have no sense of proportion about these things. No way of allowing diversity within order. How are we to enact Alfred North Whitehead's dictum that we should preserve order amid change and change amid order if we cannot address the crucial problems of urbanism with the seriousness that they deserve.

Sebastian Gomez
New York City

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Fax: +44 (0)71 383 3181

OSCAR NIEMEYER:
AN OLD FRIEND REMEMBERS

World Architecture's recent profile of Oscar Niemeyer (WA 26) has awakened memories of the great South American architect for Pierre Vago. Unlike those of so many of today's starlets, he writes, Niemeyer's works will endure as witnesses to the true architecture of the twentieth century. But ultimately Vago concerns himself with the man, rather than his reputation.

Niteroi Museum, Rio de Janiero 1993

I got to know Oscar when he had not yet gained the European fame which came with Brasilia. He was revealed to us by his admirable church at Pampulha, built in 1942. The *Architecture d'Aujourd'hui* committee, of which I was the Chairman, awarded him its first Grand Prix for Architecture.

At the invitation of President Kubitschek, together with a group of ten 'experts' from different disciplines, I visited the site where the new capital of Brazil was being built. Niemeyer wasn't there. His aversion for aeroplanes is well known; and the journey along the road that had just been opened was still something of an adventure. I wasn't convinced by the overall plan for Brasilia, a rigorous and rigid enlargement of Lucio Costa's beautiful sketch, but Niemeyer's first buildings seduced me, as did those I was able to see later, on many visits to Brazil and to other parts of the world. My admiration was not without certain qualifications: a critical and lucid attitude has always seemed necessary. It was at his house, built on one of the hills overlooking the vast city of Rio, that I really discovered the sensibility, the humanity of the man who wrote:

'The straight line, hard, inflexible, created by man, does not attract me. What does draw me is the free and sensual curve. The curve that I find in the mountains of my country, in the sinuousness of her rivers, in the clouds of the sky and the waves of the sea. The whole universe is made of the curve...'

Niemeyer's work, in Brazil, Italy, Algeria, Berlin and Paris, is well known. The list of honours awarded to him makes impressive reading. But he has never played the big star. Very recently, he has given an account of himself in a book in which he 'tells his own story', which I would recommend to anyone interested in architecture. (*Niemeyer par lui-même*, pub. Balland).

I would like to emphasise something in Oscar's personality which is rather rare: his faithfulness to his commitments, to his political commitments in particular. In an age of denials, when some are drawing discreet veils over their past attitudes, Niemeyer talks about his membership of the Communist party since 1945. While the cock crows for the third time, he has had the courage of convictions. And he is right. The collapse of that caricature of socialism which took over a great part of the world, and of the parody of democracy which masked a dictatorship further and further removed from the ideal which was its initial justification, should not lead us to forget the commitment to Communism of so many artists and intellectuals, who believed in it and worked for it, sometimes at the cost of painful problems of conscience and of conflict between their convictions as artists and what they considered (rightly or wrongly) to be their political duty. I can imagine what his years in the Soviet Union must have meant for someone like André Lurçat, even if he didn't have to suffer in the same way as Hebebrand or Percel. I was the confidant of that uncompromising Communist, Francis Jourdain, torn by the distance between his human and artistic ideals and the reality he discovered. For Niemeyer, the struggle for social justice and human dignity had to mean political commitment, and he is right to proclaim it. Many who thought like him would like it to be forgotten. It is fashionable only to remember the detestable side of a system which has happily collapsed in much of the world. It needed a Pope, and a Pole at that, to remind us that not everything about it was bad. And one begins to worry when one discovers the manifestations of this 'democracy' which isn't a democracy at all. Of course, behind the curtain of silence imposed by Power, there already existed the corruption, the prostitution, the drugs and the hooligans; but never did they flourish in the name of liberty, of free competition, in a fierce struggle for Profit. And in an area in which we are particularly sensitive, we are seeing the anarchic invasion of new 'virgin lands' by architects (and not always the best), connected to powerful financial groups, putting forward projects as a function of the juicy profits of the builders and developers they work for. The cacophony in Berlin is a fine example of what ought to be avoided.

Politics and architecture: the problem isn't limited to the situation created by the fall of Stalinism, following on from the destruction of the Nazi and Fascist systems. It also exists in our own societies, ruled by the market economy, free enterprise and the – democratic! – power of often philistine decision-makers, of bureaucrats of every grade; and the immense power of the media. And while in their ivory towers architects and critics argue about post-modernism, deconstructivism and the sex of angels, our cities are still being disfigured, and there is hardly any interest in the almost unbelievable W. S. Atkins report for the Brussels Commission, which ordinarily should have provoked a violent reaction from the whole of the profession. Help, Oscar! Help! Injustice isn't dead yet. □

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