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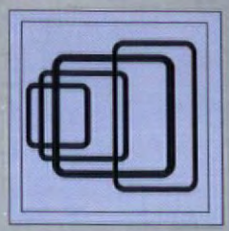

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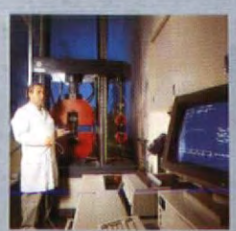

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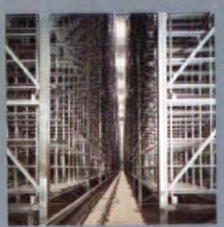

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THE INDEPENDENT MAGAZINE OF THE INTERNATIONAL ACADEMY OF ARCHITECTURE (IAA) NUMBER 34

Peter Bonfig

de Portzamparc in Paris

Ridley Scott production studio

Grey Crawford

Cover
A detail of 101 Bismarckstrasse, KPF International's first building in Berlin. Photograph by HG Esch.

Rendering with Electricimage

Alan Davidson

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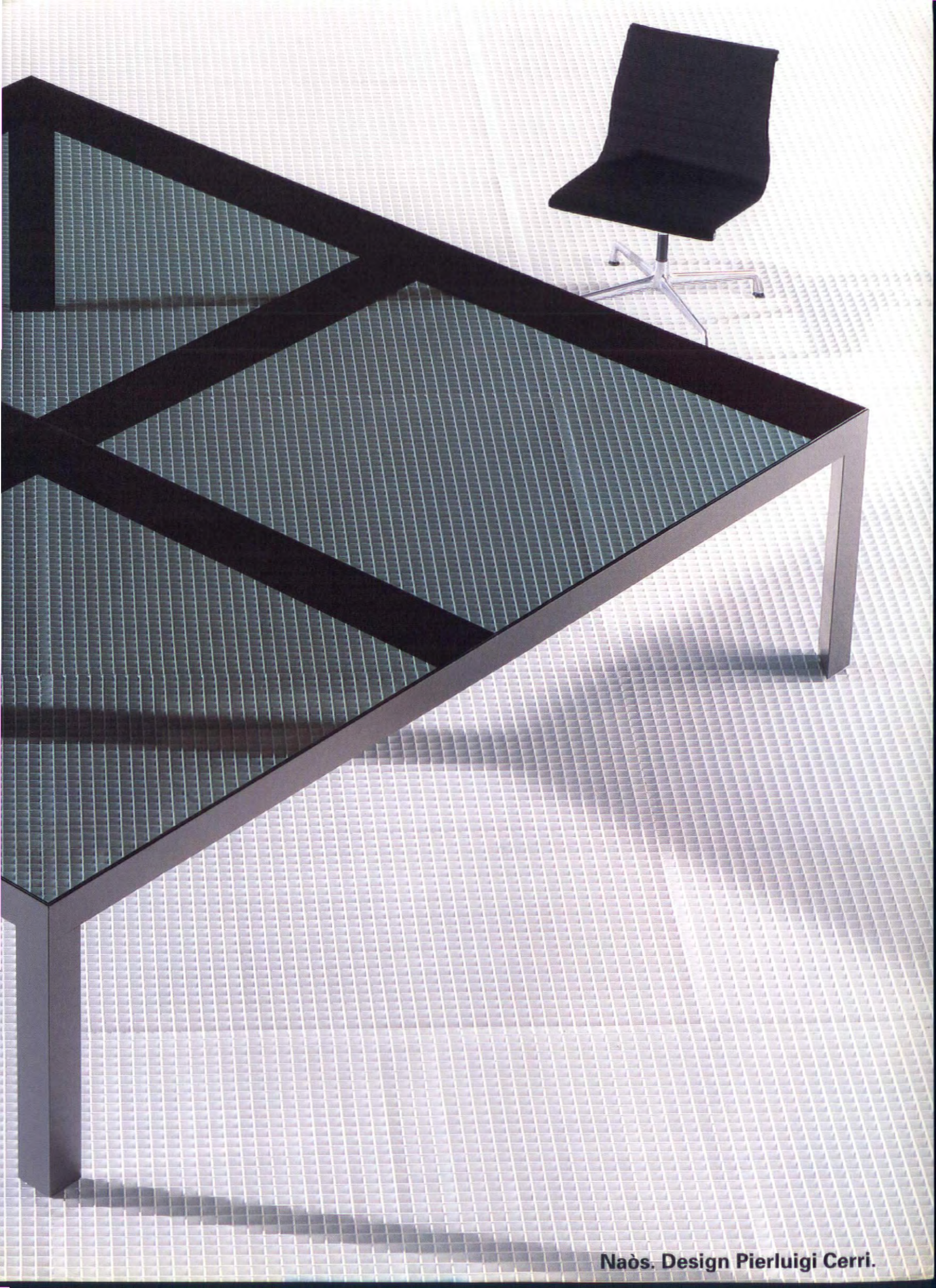

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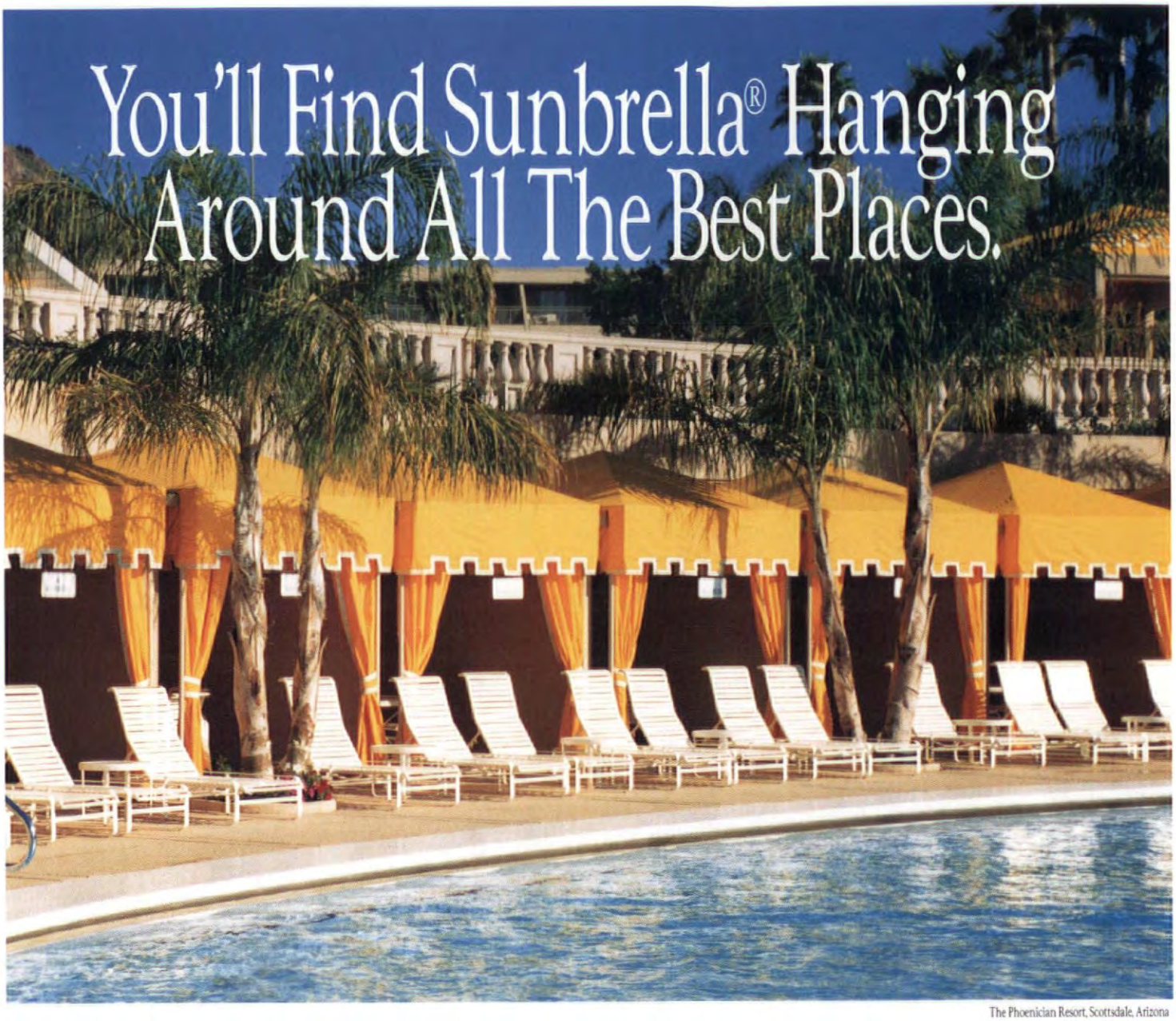

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From construction planning to organisation and building facilities management

CAD400 BAU is a 2D/3D system developed by H.A.N. Dataport and offers an optimum range of professional solutions designed to meet the requirements of architects, structural engineers, planners, interior designers, building service engineers and property managers.
CAD400 BAU is the one product on the European market which can handle every aspect of planning in a continuous process using the same data model. This eliminates errors and allows the design process to proceed efficiently through increased coordination between the various disciplines.

Acceptance is the basis for the productive application of any software

The modular construction of CAD400 BAU allows the system to be introduced stage by stage in line with practical requirements. CAD400open is the first software to offer an intuitive user guide based on a graphical user interface as standard within the complex CAD environment. This means that even a first-time user will be able to find his way around immediately.

• *Architecture – from creative design to full implementation*

The architecture module of CAD400 BAU undertakes all of the planning tasks ranging from design planning, visualisation, work schedules and fully automated quantity surveying up to the transfer to building administration systems (AVA).
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• *Reinforcement – an economic solution*

This program supports all of the planning tasks carried out by the structural engineer in generating a reinforcement plan and wire mesh installation for a building. Data can be imported directly from other CAD400 BAU modules. All major interfaces such as IGES and DXF are available for other systems.
A large number of prefabricated reinforcement units made by AVi, BEST and VA have been integrated.

• *Building Services – all technical installations within a single module*

CAD400 BAU Building Services provides a comprehensive solution for all aspects of planning in relation to building services and incorporating air conditioning/ventilation, heating systems, sanitary installations and electrical installations. The various planning stages, the preliminary project design, the design itself and the planning of the execution together with integrated calculation functions are efficiently supported on a data base. Manufacturers' catalogues and symbol libraries are incorporated into the overall system.

• *Interior Design – combining creativity with perfection*

An ideal tool for companies involved with planning and specification for projects associated with interior facilities, shopfitting, trade fairs and department stores as well as hypermarkets, hotels, restaurants and hospitals. Additional modules are available for the specific requirements of kitchen and office designers.

• *Facilities Management – the effective coordination of individual tasks*

CAD400 BAU Facilities Management is a continuous-process product for area management, removal planning, factory layout generation, routine and preventive maintenance, building-related documentation, inventory recording, restructure planning, checking environmental technology and demolition planning.

• *Cable and Network Management – rapid and reliable troubleshooting*

Downtimes for a computer network segment are costly and often have security implications. The dynamic synchronisation of the logical information obtained from a network management tool with the physical information derived from a building plan is essential for ensuring that the damage analysis can be carried out rapidly and the fault remedied in heterogeneous networks. Modern programs allow the network administrator to manage, modify and completely redesign existing networks.

H.A.N. Dataport and IBM – an efficient overall service with a future

CAD software for architects and the construction industry has been combined with high-performance hardware and an open operating system. CAD400 BAU and the IBM RISC system/6000 family with the Unix-based AIX operating system are an ideal match. Continuous investment in new products is an essential policy element of both IBM and H.A.N. Dataport. Consequently H.A.N. Dataport Software GmbH and IBM Germany concluded a cooperation agreement at the end of 1993 to cover sales, support and product development. Other agreements have been signed with IBM Austria and IBM Switzerland. This cooperation is being extended to other European countries and there are already over 30 H.A.N. Dataport sales offices throughout Europe.

"The future can be realized today – with CAD400 BAU!"

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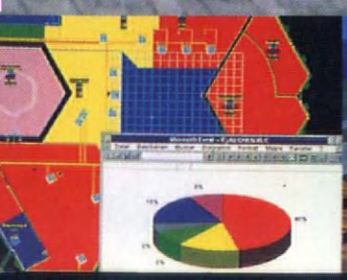


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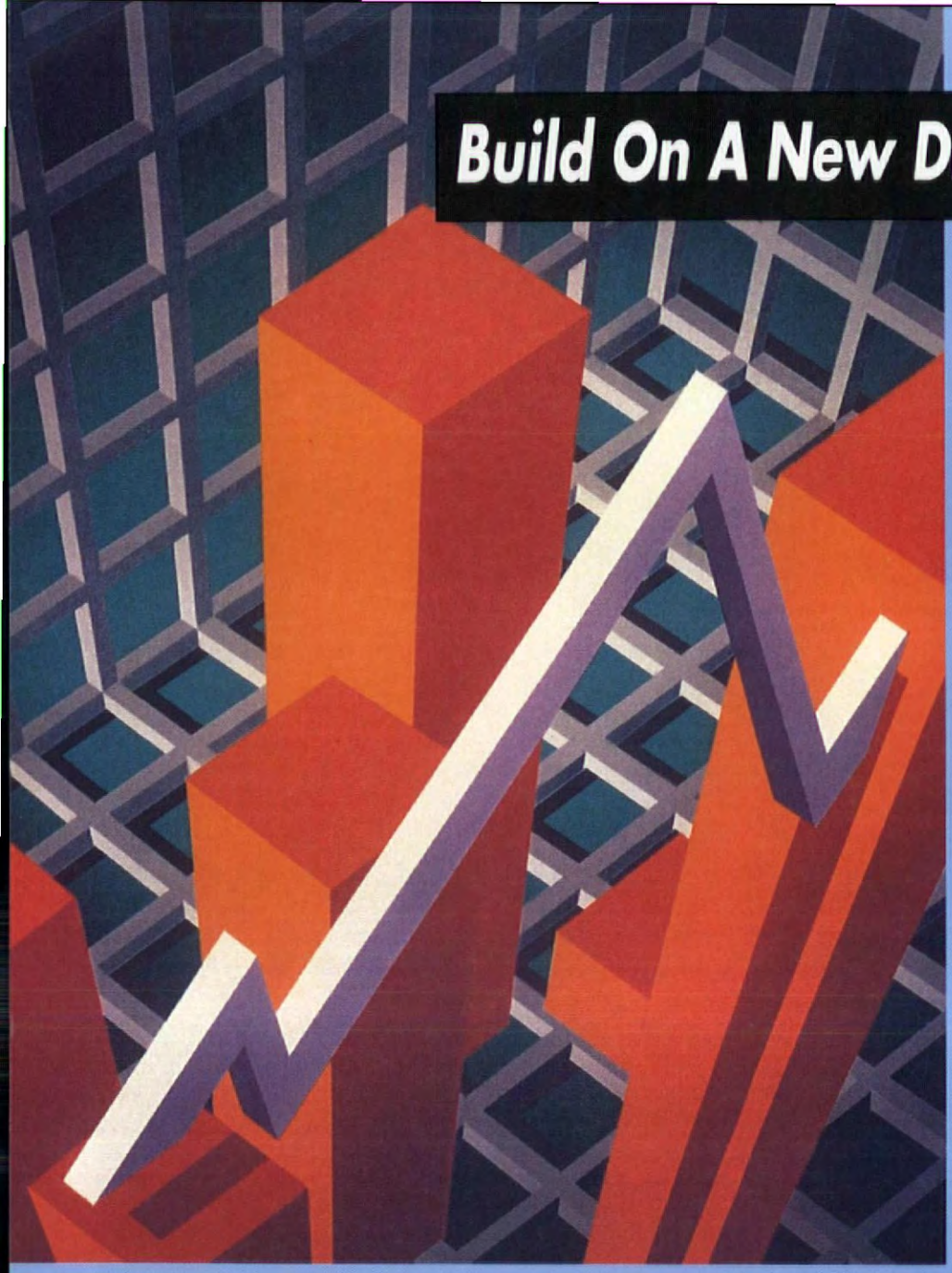

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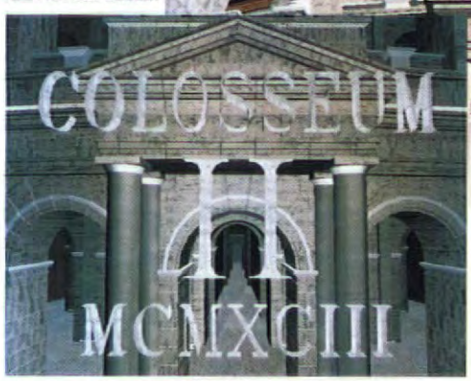

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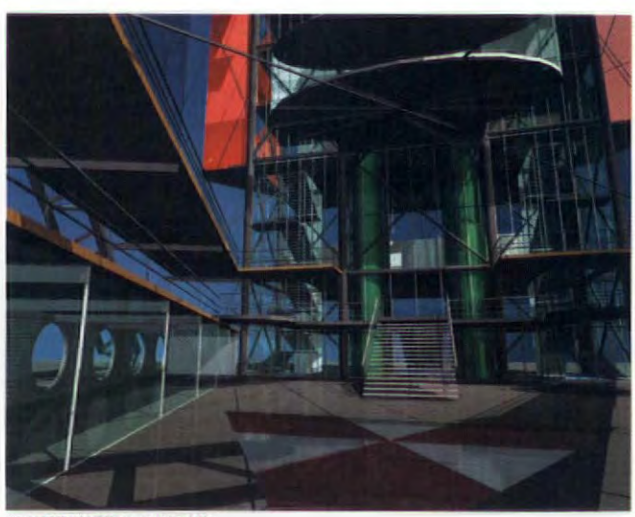

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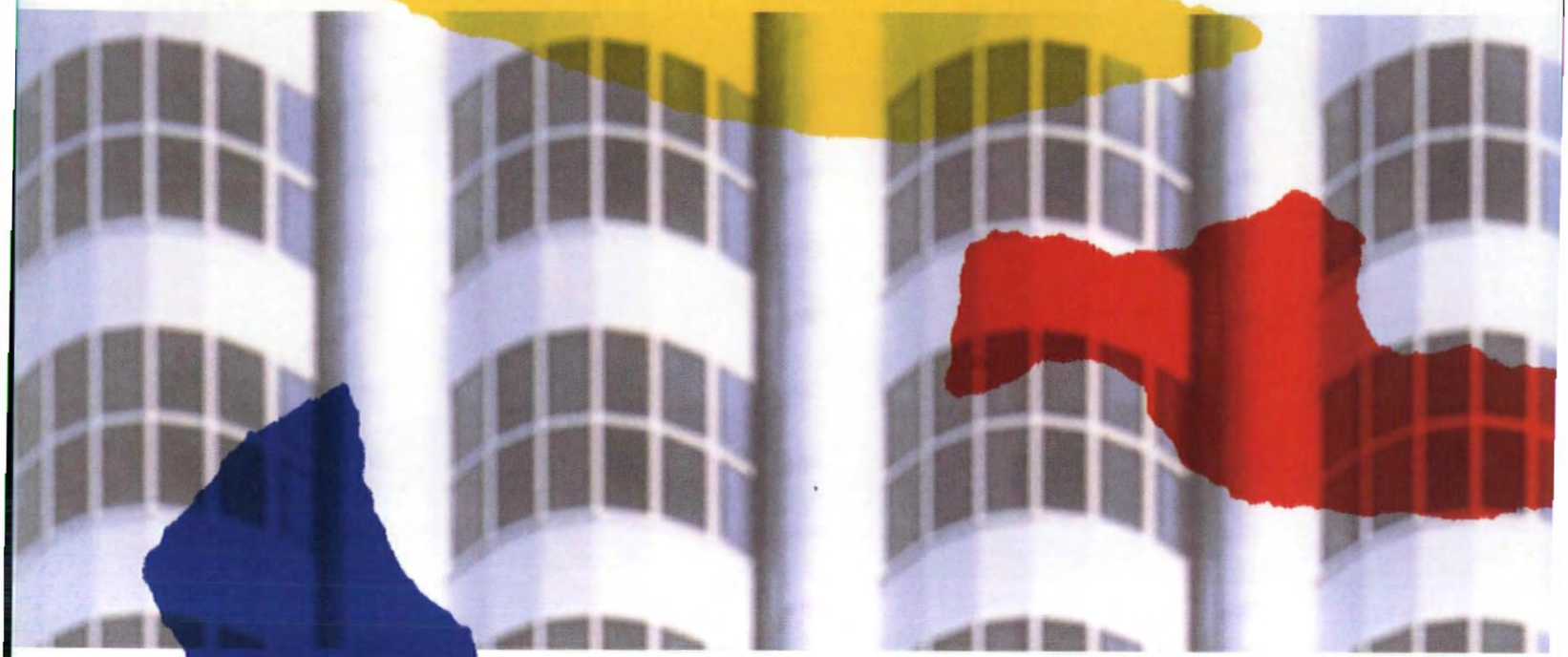

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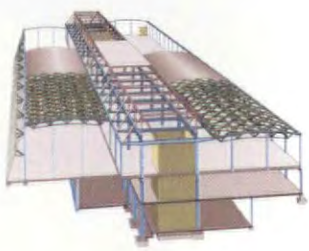

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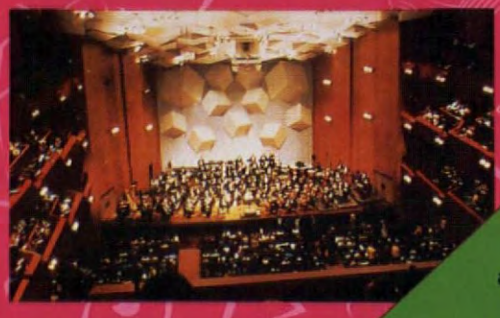

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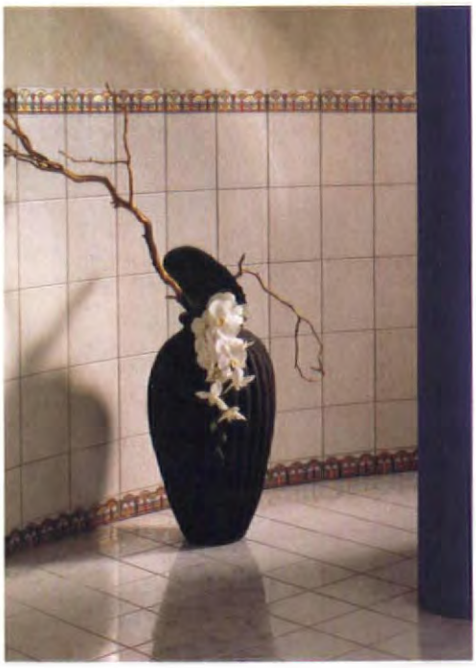

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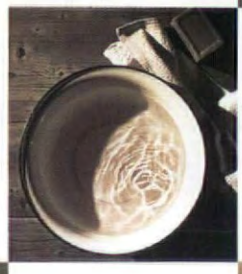

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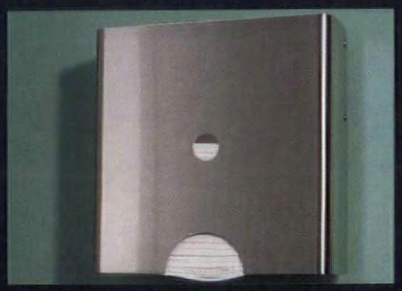

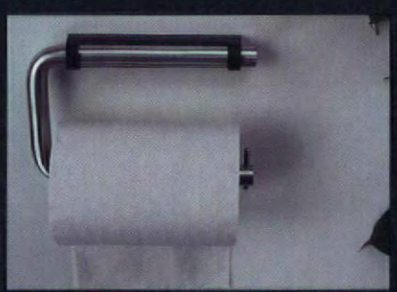

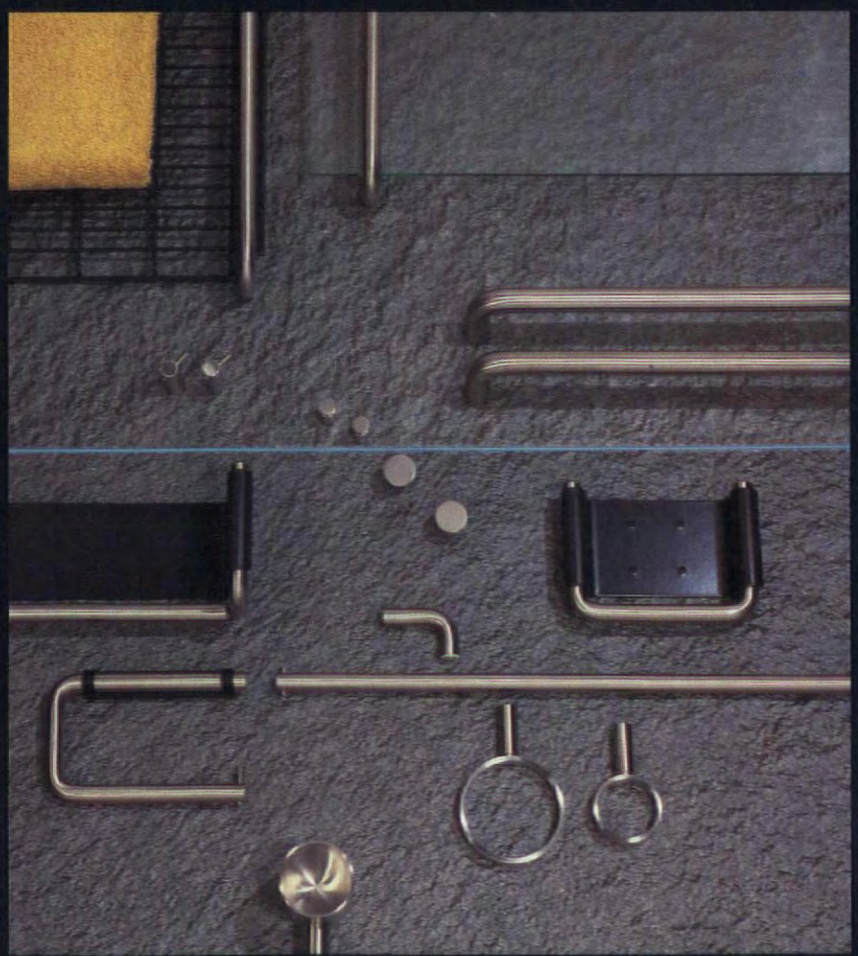

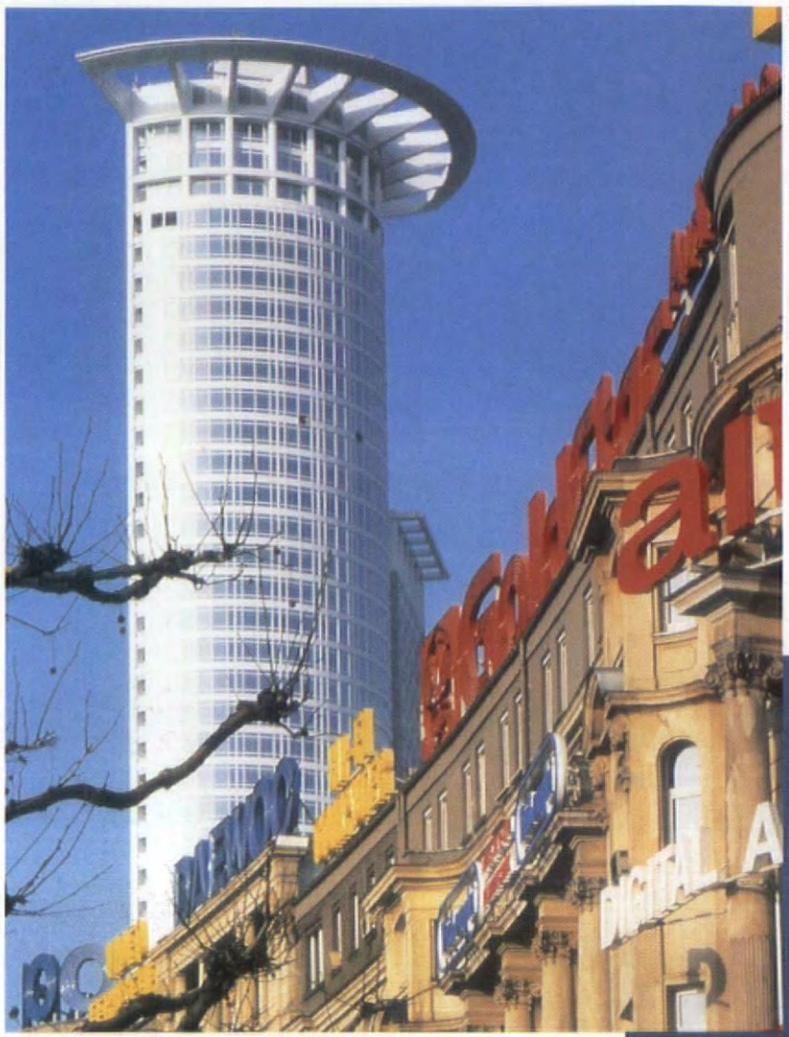

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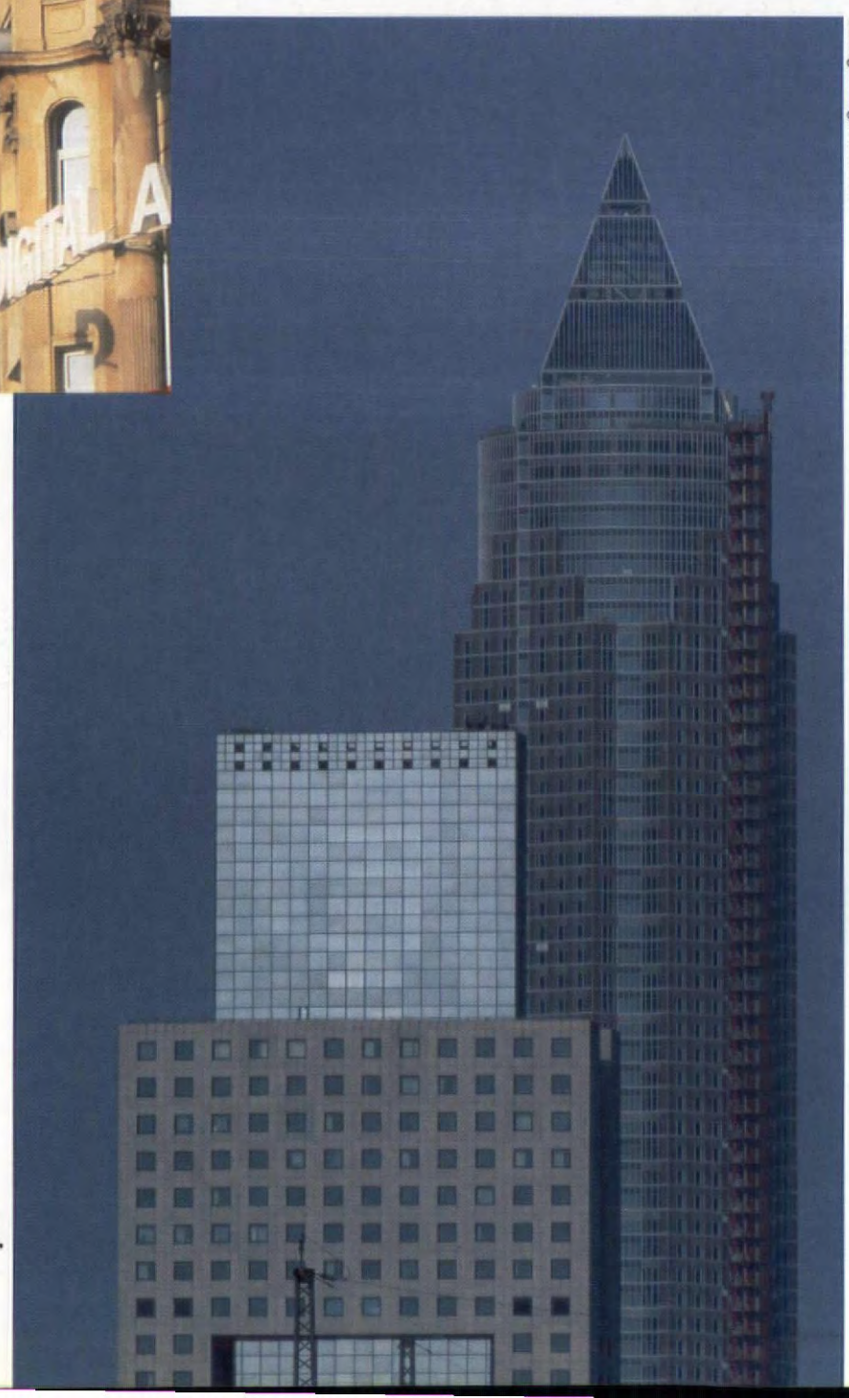

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3.

1. WESTEND 1, Frankfurt
architect: Kohn Pederson Fox, London

2. TORHAUS, Frankfurt
glass facade and prefabricated concrete facade
architect: Prof. O.M.Ungers, Köln

3. MESSETURM, Frankfurt
natural-stone / glass facade as element-facade
architect: Murphy/Jahn, Chicago

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IMAGE of applications screen

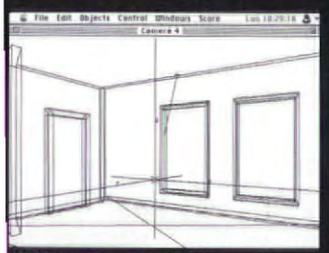

IMAGE of a project realized with CAD

IMAGE at a project done with OIKOS products

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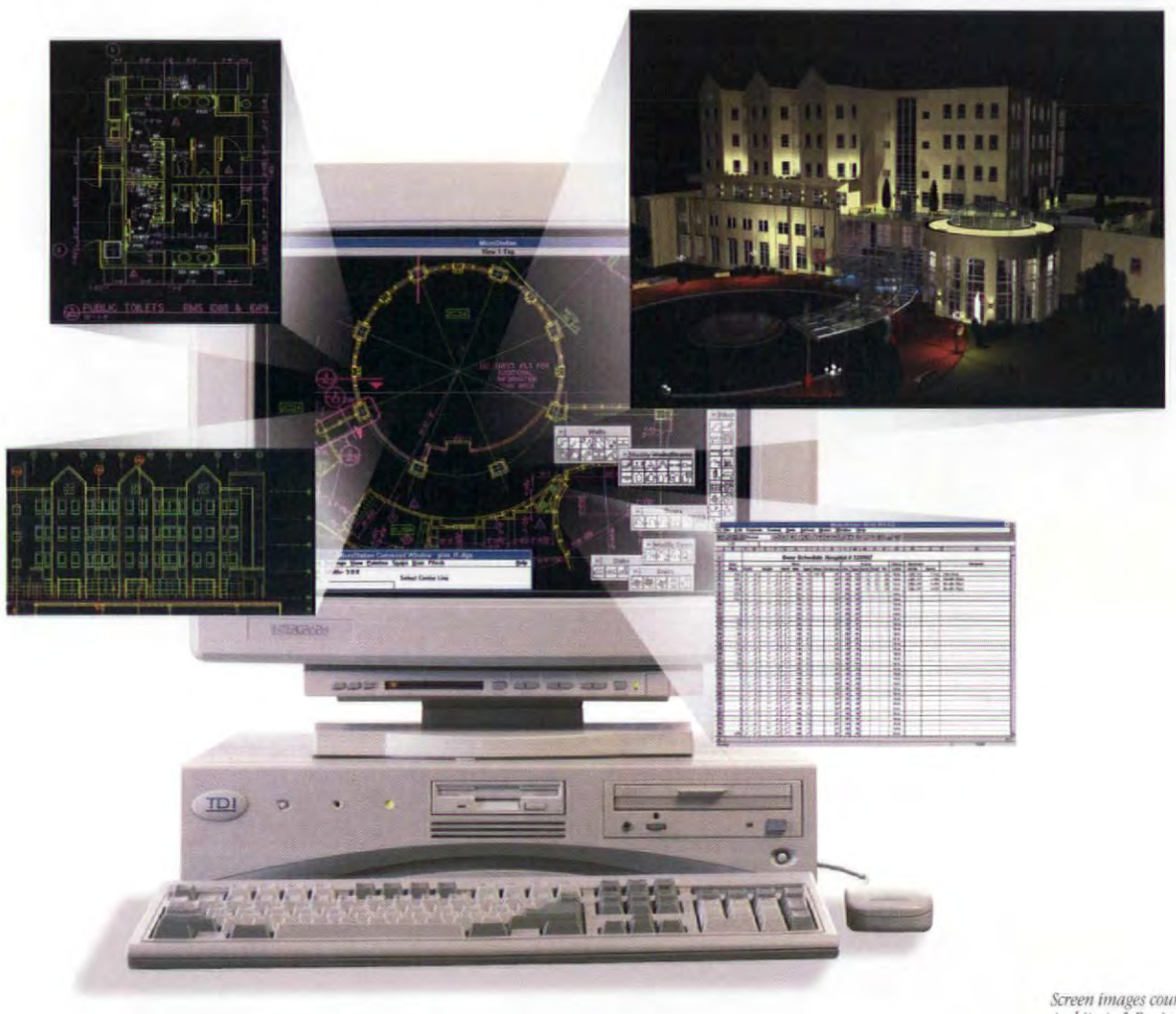

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Architecture on waves of urban decay

As the rise of the Asia-Pacific region and the see-sawing balance of economic advance in Eastern Europe makes clear, the role of architecture in our global attempts to control city centre, perimeter and out of town development by regulating new building is coming increasingly into question. In the old worlds — a classification including the Americas as well as Europe — we seem to be engaged in a fruitless struggle to regulate a powerful natural force with the aid of increasingly weak administrative systems. This powerful natural force is nothing less than the process of decay and disintegration, which is a condition of all organic and inorganic life. In the natural world, for example, "cities" evolve in numerous ways, some are formed by reefs of oysters, barnacles and other molluscs that build up over centuries into enormous encrustations in shallow coastal waters. These great natural conurbations have their own cycle of growth and decay. Slowly they increase their mass until, through an internal process of decay, their whole structure is rendered disconnected and unstable so that the wave motions of the ocean, their natural environment, eventually destroys them.

If we take this natural cycle as a paradigm for the urban situation, at a time when, as the architect Rem Koolhaas has memorably put it, "urbanism has ceased, but urbanisation goes on", we may find ourselves coming to the conclusion that what we have hitherto perceived as urban expansion and diffusion may not actually be a growth process at all, but the final stage in a process of decay that began with a mollusc-like overloading of infrastructure and a consequent loss of any capacity for self-repair and maintenance. Urban diffusion then, the spread of cities into surrounding areas, might stem simply from a loss of elasticity in central urban fabric: an inability to sustain a growing burden of maintenance.

If we accept this contention for a moment, that the cities of the old worlds are not so much spreading as eroding, then we can visualise the process of perimeter expansion as a kind of gradient, extending from a theoretical high point at the city centre, to a theoretical low point at its most distant rural district. It is this gradient, from high urban life to low rural life that is being flattened by migrations and diffusions into an entropic plain with no gradient at all. In a fractal microcosm of the great explosion of our solar system, inner decay and a great eroding force are in fact dispersing our old cities and scattering their fragments far and wide.

As this description makes clear, such a process, if it exists, must have begun long before our century. Senescence and decay are not functions of planning policy, they are part of the environment in which planning exists and indeed came into existence. Urban dissolution is a process far more profound and irresistible than planning policies would have us believe. Compared to its remorseless effect upon investment in architecture and architectural theory, planning is a trivial adjunct to the entropic decay of urbanism: too powerless, too recent and too subject to the vagaries of political and economic events to change the direction of a long term multifold trend.

In order to understand such a process we would need to study, not the failed urbanism of the last hundred years, but the urban topography and demography of the last one thousand, viewing it as a vast arena of accelerating and decelerating change in which singular megastructures break up and decay into dispersed, low-density microstructures. In such a long-wave context, conventional urban planning is no more than a way of talking about an uncontrollable bleeding of the substance of intense urban life onto the spreading carpet of evenly distributed autoroute settlement.

Martin Pawley

YANKS AT OXFORD

Kohn Pedersen Fox International is headquartered in unassuming offices in London's Covent Garden, but from there the fledgling practice runs operations as near as Oxford University and as far as Bangkok. Five years after the firm set up shop World Architecture *interviews the two senior partners and finds a whole new view of London, Europe and the world.*

"Is Cyprus in Europe?" asks Lee Polisano. After a brief discussion of the significance of Cypriot participation in the Eurovision Song Contest, it is decided that it is.

"In that case the United States embassy in Cyprus was our first European job, and it started in 1984."

Lee Polisano is a small, dark, quick-witted architect in his early forties, a graduate of Virginia Polytechnic Institute. His partner, David Leventhal, is a Harvard man, a shade older and slightly less likely to take the lead in conversation. The two evidently work well together as team, as they have done for nearly ten years. Nowadays they run Kohn Pedersen Fox's 46-strong London office, Kohn Pedersen Fox International (KPFI), between them, as well as its five-person Berlin satellite. Both have lived in London since 1988, when the office opened. Before that they commuted regularly across the Atlantic, when all KPF's jobs were run from the firm's New York office.

Polisano and Leventhal had a grandiloquent introduction to working in Europe. Two years after the Cyprus Embassy building, at the height of "Big Bang", the financial boom that accompanied the deregulation of the stock market in London, the firm was signed up to design one third of the 100,000 square metre first phase of Canary Wharf, the new financial district proposed for London's Docklands. At the same time another 40,000 square metre London project arrived in the shape of a new building for bankers Goldman Sachs. The third major project was a competition victory, against stiff opposition from five other invited firms, for the commission to design the Westend DG Bank in Frankfurt.

By themselves, Canary Wharf and Goldman Sachs in London and the Westend tower in Frankfurt meant that KPF hit the ground running in Europe with approximately 200,000 square metres of new office floorspace on the drawing board. Although these three megaprojects were all designed in New York, the scale of this work was why KPF's senior partners approved Polisano and Leventhal's plan to move to London and open a permanent office there.

"Before we left we had a meeting and we said, 'Who wants to join us?' ", remembers Polisano. "There were 200 people working in the New York office at that time. We didn't ask for a commitment to stay for a fixed period, but everybody who accepted knew they would have to live in London and, if they had families, they

would have to bring their families with them. None of us knew how it would work out. The aim was to take ten staff with us who had worked on the European projects in New York, but who were also sufficiently experienced to enable us to continue with our accustomed work methods, using the techniques we knew best."

When the move took place in 1988, the partners rented office space in a rundown part of Victoria. Of the ten staff members who made the move six – Senior Associate Partner Peter Tao, and Associate Partners Karen Cook, Bill Davis, Kevin Flanagan, Andreas Hausler and Wolfgang Neumüller – are still with the firm.

"In a sense we were testing the water, but we knew we would have to make the office self-sufficient within a reasonable period of time," adds Leventhal. "We expected to become established on the European scene, and we were prepared to learn how to do it."

One unglamorous but vital part of learning to work in Europe was obtaining professional accreditation in a large number of different countries. This might sound simple and, in some cases it was, but not always. At the time KPFI arrived in London there was a reciprocal professional agreement between the United States and the United Kingdom which permitted architects qualified in either country to work in the other. Today this agreement no longer exists but, even when it did, one KPFI partner had to take the Architects Registration Council of the United Kingdom oral examination in professional practice. This task fell to Polisano, who had been in practice for many years. He passed with ease although, as Leventhal points out, "he did study in the plane on the way over." In other European countries their experiences were either better or worse. In Germany and the Netherlands, their qualifications were accepted as soon as accredited copies of the necessary documents were supplied. Only in Belgium, where Polisano and Leventhal went on to win the contract to rebuild the 1958 Martini Tower, a landmark dating from the Brussels World Fair, have they encountered real difficulties. As things stand they are still unable to practice on their own account in Belgium.

"We expected that there would be increasing uniformity in the EC over accreditation, and in many cases there has been, but not everywhere."

So successful was KPFI's first year in London that the practice soon outgrew its Victoria offices. With a growing locally recruited staff they could no longer contain their operations there and had to look for a larger replacement. From the beginning the choice of an unobtrusive office had been intentional. Polisano and Leventhal had agreed early on that, as interlopers of a sort, finding their way in the European scene, they would do well to make themselves inconspicuous. It is a principle that survives to this day.

"We knew there was a certain amount of resentment in London about the number of US architects arriving in the city at that time," Polisano recollects, "so we did not want to flaunt ourselves."

"We work counter-expectationally," helps Leventhal. "We arrived just after the boom and when we began expanding we ran right into the recession. All of our investment in London took place against the background of a falling market. I guess our modest choice of offices was appropriate for that situation, part of being counter-expectational. We like to think it's the best-kept secret in London."

The partners' search for a larger replacement for their Victoria premises ended with a disused and unconverted Covent Garden fruit and vegetable warehouse, which they purchased on a long lease. They have been adapting to their needs ever since, most recently through the addition of a ground floor model shop. So far it has worked well in every way. At the beginning of 1995 KPF celebrated their fifth year in their "counter-expectational" offices tucked away in Covent Garden. From the outside the converted warehouse is so unassuming that one client's chauffeur would not let his charge get out of the car until he had personally confirmed that No 13 Langley Street was indeed the London office of a firm famous for such skyscrapers as Chicago's glass bow-fronted 333 Wacker Drive.

As the 1980s gave place to the 1990s, KPFI was forced to dig-in to survive a property recession whose repercussions were more severe than any commentator had expected. Compared to most they were lucky. The Frankfurt tower project went ahead as planned, while Canary Wharf, although resold to a new developer, redesigned and downsized, was in the end completed too, in a somewhat modified form. For Goldman Sachs, KPFI retained complete control of the conversion and enlargement of the old Daily Telegraph newspaper building in Fleet Street, although again recessionary gloom was to mask their considerable technical and aesthetic achievement. Prepared originally to design a new building along the lines of the great newspaper buildings of the past, they were forced by the planning authority of the City of London to convert the old building into no more than a kind of entrance court to a vast new "groundscraper" behind.

"We thought that we could best provide the kind of building our client needed by following the style and proportions of the old newspaper buildings," says Polisano. "Unlike most, they used large floorplates and tall ceilings for their printing presses, and we needed both for dealing rooms. But the planners did not want us to do that. Instead we had to come to terms with creating a large building that looked from the outside like a lot of small ones."

Another lesson learned by the partners at this time was the importance and unavoidability of the competition system in Europe. At the time Polisano and Leventhal left the United States the normal method of commissioning a KPFI building there was for a developer to telephone the senior partner. In Europe, as they swiftly discovered, not only were their projects prone to be restricted by difficult sites, onerous planning policies and strict building regulations, but it was normal practice for many architects to produce competing projects for the same commission, with no reward for the losers, even though only one could win.

"We weren't used to putting in such an effort and spending so much money up front," says Leventhal bluntly. "United States firms are accustomed to competition, but it is hard for them to come to terms with the European system, particularly open entry competitions with no payment for work done. Since we set up in London we have won 13 out of the 20 invited competitions we have entered, but we do not enter these open contests."

The partners agree that the competition system is good in so far as it works as war games do for the military, giving the staff training that they could otherwise not get in such a short time.

"But we still find it odd to have the office looking so busy when what we are working on is a competition project that might never be built."

KPFI's most recent competition win is the soon to be built £3.5 million Institute for American Studies at Oxford. This victory over five short listed British practices is doubly satisfying to Polisano and Leventhal because it sums up their success in becoming "acclimatized" in Europe. The best moment was when they were told by their Oxford client that they had been chosen to design the Institute despite the fact that they were Americans. □

BORN IN THE USA

To most people the practice of Kohn Pedersen Fox is synonymous with the idea of bigness. Large, distinctive commercial buildings like the famous 333 Wacker Drive in Chicago, or the DG Bank in Frankfurt, represent milestones in the firm's 20 year history. But now Kohn Pedersen Fox International, based in London and Berlin, is exploring new downsized high quality projects as well.

The story of the founding of the famous architectural practice of Kohn Pedersen Fox has often been told. In the best tradition of the American Dream the three partners hung up their shingle in New York City on the fourth of July. It was 1976, American Bicentennial year, but apart from being the 200th anniversary of the republic, it was not an auspicious time to set up in business. The United States was still in the depths of the recession triggered by the 1973 Yom Kippur war and the 1974 Arab oil embargo, and New York city itself was famously close to bankruptcy. Undeterred, Eugene Kohn, William Pedersen and Sheldon Fox went ahead.

They were not young graduates, with a total of 50 years experience of practice between them they understood the field, but they were eager to get into practice on their own account. Committed to Modern American architecture in the skyscraper tradition, they wanted to be free to create buildings that would make a positive and sensitive contribution to the cities in which they were constructed. They wanted to design buildings that were active and engaged participants in the urban scene. Not only did they want to put their stamp on the fabric of urban America, they also wanted to create works of architecture that redefined and benefited their surroundings.

The new partnership's first commission was the conversion of a former New York National Guard armoury into a studio for the ABC television network. Small in itself, this job launched the practice into the world of corporate architecture where it soon began to make a name for itself, so much so that, within three years of the firm's formation, US developers had already become interested in hiring the firm to design their buildings because of their excellent corporate connections. It was just such a sub-plot that led to the building of the firm's most famous early office tower, 333 Wacker Drive, Chicago, with its taut glass curve seeming to stretch across its waterfront site and direct the flow of the water itself.

After the completion of 333 Wacker Drive, and its equally famous successor the Procter & Gamble headquarters in Cincinnati – both winners of the American Institute of Architects' Honor Award – Kohn Pedersen Fox grew rapidly in the 1980s boom market. It was a time when an architectural reputation had become a crucial marketing tool in the financing of major urban redevelopment projects. With a growing number of important corporate commissions – including Rockefeller Plaza West and 712 Fifth Avenue in New York, 1250 Boulevard Rene-Levesque in Montreal and Chifley Tower in Sydney, Australia – Kohn Pedersen Fox swiftly gained an unassailable reputation in this area. By 1989 it richly merited John Burgee's accolade: "The best commercial firm now practicing in the United States."

In 1989 the firm was not only acclaimed, but enormous too. At its peak size, at the height of the 1980s boom, KPF New York employed 237 qualified architects and another one hundred interior designers. Inevitably such rapid growth had brought with it the need for organisational changes. Wisely the three founding partners began to reorganise the management structure of the practice from top to bottom. By the mid-

Above, ABC Armoury, New York
Opposite page, 333 Wacker Drive, Chicago.

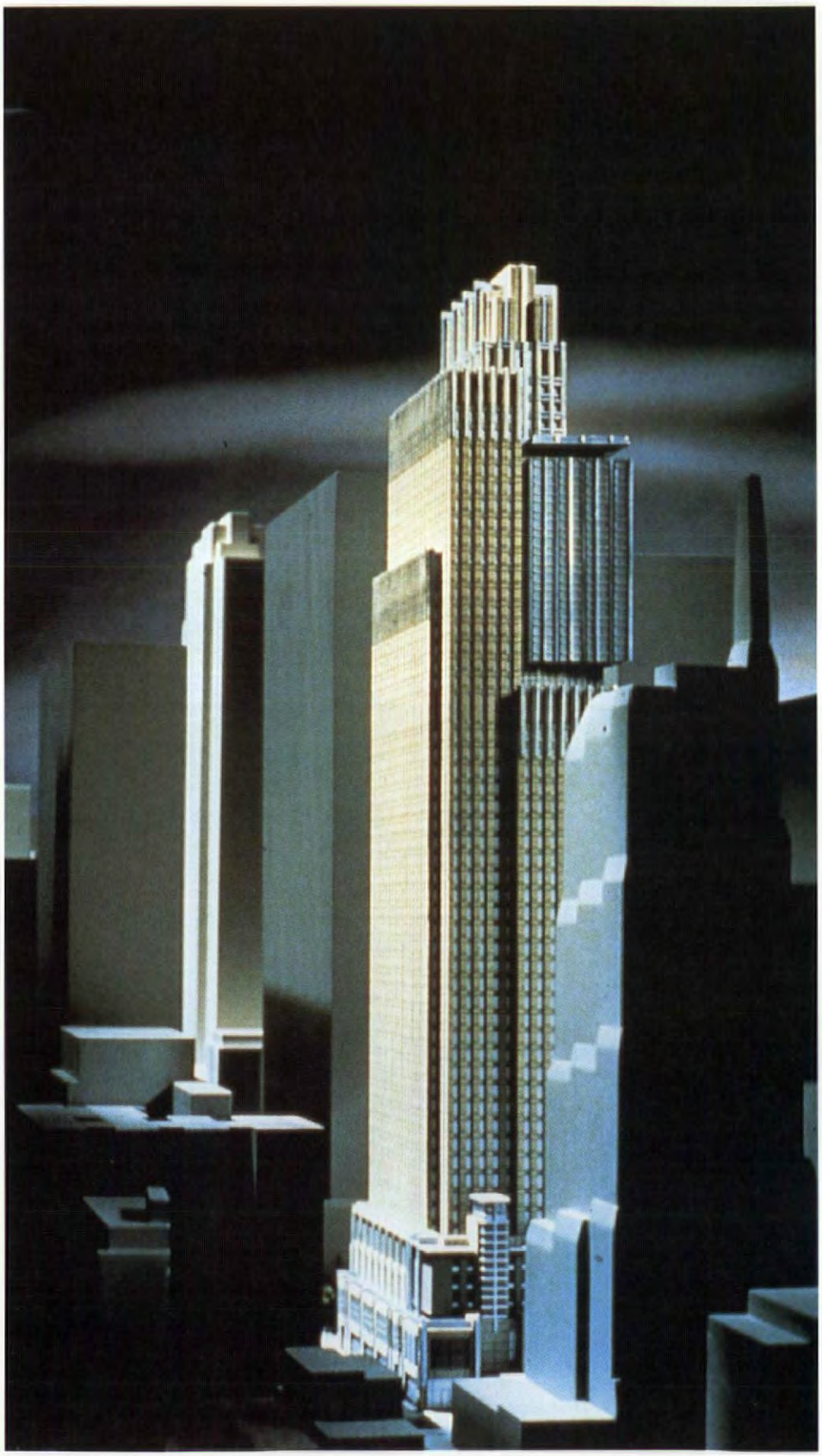
1980s they had promoted four new senior partners; Robert L. Cioppa, William C. Louie, Lee A. Polisano and David M. Leventhal, as well as a number of younger associates. Some time later, in 1993, Gregory Clement was also promoted to senior partner rank. These broadening moves were intended to ensure a smooth pattern of succession from generation to generation, but they served another end as well. With its new administrative structure established, and with sufficient senior personnel in place, KPF could turn serious attention to the prospect of work outside the United States in the new emerging overseas markets.

The thrust for overseas work began with approaches to US corporate clients already working abroad. As early as 1984 the firm had been commissioned to design a new American Embassy in Nicosia, Cyprus and, in one sense, this was their first European job, but in the financial services boom mainstream commercial work too was in the offing. In 1986 the firm won a closed competition to design a new headquarters for the DG Bank in Frankfurt. This was followed by a large commission at Canary Wharf, the new financial centre then being developed by an American consortium in London's Docklands, and another bank headquarters for Goldman Sachs, also in London. The opening of Kohn Pedersen Fox's London office swiftly followed.

The fate of the first three European projects is interesting because they can be regarded, not only as learning experiences for Polisano and Leventhal, the two KPF partners who came to run what was, in effect, a new office in a foreign country, but because they were among the last financial services buildings of the 1980s boom. For the Canary Wharf commission, KPF's New York office had proposed a 50 storey signature building that was almost Gothic in its complexity of outline. Intended to be clad in a novel combination of brushed aluminium and metallised stone, this design fell foul of a change of ownership and an infrastructure cost-cutting exercise on the part of the developers in the worsening economic climate at the end of the decade. It was finally replaced by a less prominent 10-storey structure.

The Frankfurt bank, code named by the office ML58 after its address at 58 Mainzer Landstrasse, also underwent client changes, but in this case senior KPF partner William Pedersen's original design survived unaltered. This was fortunate, for it represented a milestone in KPF's approach to high-profile urban architecture. DG Bank is a slender 52-storey post-Modern, asymmetrically designed tower with smaller floorplates than would have been considered economic in the United States. Mediating between the scale of the office towers in the city's banking district and the residential scale of the Westend residential quarter, the profile of ML58 is notable for its cantilevered crown and its use of asymmetrical setbacks at different heights to follow the height lines of the surrounding housing and office towers. Completed in 1993, some seven years after it was designed, it is already considered a worthy successor to 333 Wacker Drive. Not only a new and much-imitated land-

Rockefeller Plaza, New York



1250 Boulevard Rene-Levesque, Montreal

mark in the firm's architectural development, but a signpost to KPFI's own increasingly contextualised approach to large mixed-use developments in Europe.

With the completion of ML58 it could be said that, in a sense, the umbilical cord linking Polisano and Leventhal's London office with Kohn Pedersen Fox in New York was finally broken. From then on they left the legacy of the New York office behind them. As a result of changing times and changing directions, the work that followed the big three initial projects was more varied and of a different scale and character. Feeling their way carefully in the not always sympathetic environment of the New Europe, the partners discovered social and commercial parameters quite different to those of the United States. There, in nearly 20 years of practice, KPF had completed more than 100 buildings, all of them commercial structures except for two art galleries, three houses and an embassy. Furthermore, despite its origins in the energy crisis years, KPF as a practice had carried out no serious experiments into low energy design, now a matter of increasing importance in Europe.

Looking back in 1994 on KPFI's first five years in London Polisano admits:

"We had a lot to learn. We had to learn that working in Europe is about building relationships, not just with clients but with everybody in the whole European culture of architecture. We had to come to terms with the fact that, more often than not, we would have to compete to build in Europe and that, in future, many of our projects might tend to be smaller and more complicated than they had ever been before. That is not to say that we have lost interest in our larger mixed-use projects. In fact we think that the elements we have explored in our smaller projects have benefited the design of our larger urban projects too."

So far the smallest, with only two per cent of the floor area of the DG Bank, but undoubtedly the jewel in the crown of KPFI's new smaller projects, is the firm's new commission to develop a concept study for the Institute for American Studies at Oxford University. Although still at the preliminary design stage this project was hard-won in competition with other highly regarded practices. Polisano and Leventhal, as well as New York senior partner Eugene Kohn, regard it as a major triumph for a firm with a strong commercial reputation and no track record in the academic field. Located between Mansfield College and Rhodes House in

Procter and Gamble headquarters, Cincinnati

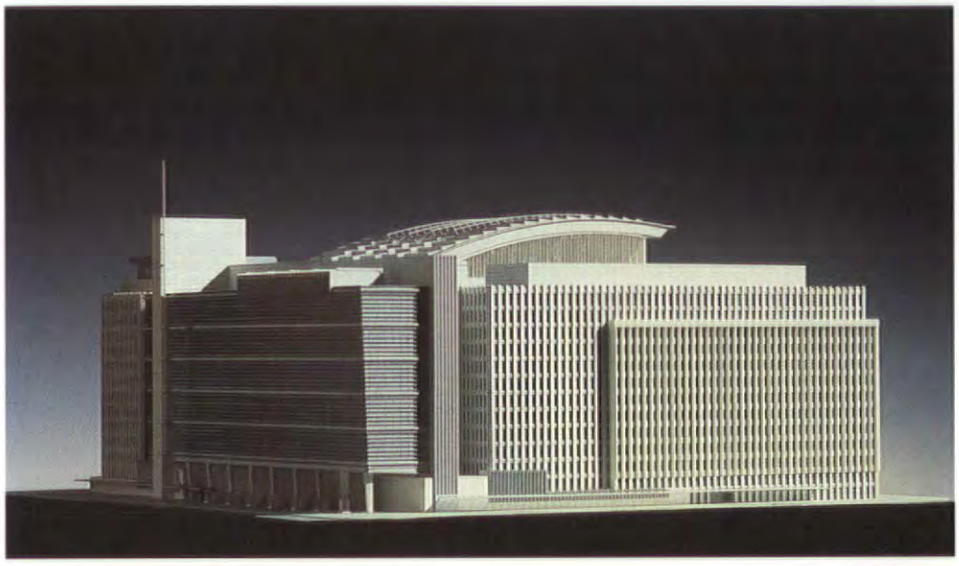
the centre of Oxford, the 2,000 square metre three storey building will contain a library and archive as well as seminar and common rooms and academic offices, with the library the largest element. An unashamedly modern structure with externally shaded floor to ceiling glazing above a Bath-stone finished plinth, the building will be tucked into a sheltered sunken site in the Mansfield College gardens.

Until the Oxford building is completed, probably the best finished example of a KPFI small commission is tucked away at number 27 Old Bond Street, London, where the firm designed a seven-storey 3,500 square metre retail building in this exclusive shopping district for a Japanese developer. Finished in 1992, and now taken over by designer Donna Karan, this modest extension above an existing shop building would almost certainly have been rejected by the New York office as too small. Nonetheless the architects contrived to liberate much more usable retail space above the Bond Street shop than had ever been available before. This was achieved by means of a curved, double height "vertical glass arcade" on a neglected side wall that allowed daylight to penetrate deeply into a multi-storey extension, itself above an existing nineteenth-century "horizontal glass" shopping arcade.

Larger, weighing in at just over twice the floor area of the Bond Street shopping building, but still relatively small, is the recently completed 101 Bismarckstrasse, Berlin, perhaps the most satisfying project to have been executed by KPFI so far. This five-storey office building occupies a corner site on the East West axis of the city in a prominent commercial district. The sweeping outward curve of its floor to ceiling glazed upper floors not only echoes the Weimar Modern tradition of Erich Mendelsohn's great Berlin buildings but, by cantilevering out over the ground floor corner entrance, presents the maximum possible facade length to the major boulevard before curving away down the longer side street elevation. Here again the environmental services are innovative with exposed slabs for temperature modulation and reflected lighting.

The subtle curve of the Bismarckstrasse building is echoed and developed in the larger 24,000 square metre Provinciehuis, a soon to be constructed office annexe on a corner site next to the Ministry of South Holland administrative building in The Hague. This commission was won in a Europe-wide invited competition. The design features a dramatically sinuous block raised 1.5 metres above ground that swerves round the corner like a racing car and encloses a new garden courtyard next to the existing ministry building, before terminating in a sharp vertical edge matched by that of a second block forming the fourth side of the court. Here again careful design has created public areas at intervals along the length of the building that will act as thermal flues to naturally ventilate the structure.

At the other end of the European spectrum from these relatively small projects are the firm's continuing large scale commissions, like the twin-towered De Centrale office development at The Hague, now under construction. Originally projected with a single tall tower, this



Above, World Bank, Washington DC.
Right, WABC-TV, New York

scheme was later modified to feature two lower towers, one of which, at 110 metres, will still be the highest in the Dutch capital. A similar twin-towered scheme, also under construction, is the Frankfurt Forum, a large mixed-use complex adjacent to the city's new exhibition hall, based on a 32-storey and a 22-storey tower with a linking annexe.

Less conventional, as large projects go, is the rebuilding of the 30-storey Martini Tower, the tallest building in Brussels. This structure incorporates the Belgian-French national theatre which is to be retained in use during the construction period. The rebuilding of the 60,000 square metre tower complex will use the existing concrete pilings, dating from 1960, together with the part of the reinforced concrete structure up to the fifth floor slab that encloses the theatre. Above this level the original tower is being demolished and rebuilt using a steel frame in place of concrete, but retaining approximately the same outward form. In the manner initiated by the DG Bank, the lower levels of the tower will feature setbacks related to the height of the surrounding buildings, while the top will provide a recognisable symbol from a distance. The cladding of the new tower will incorporate a natural stack effect ventilation system to minimise the need for air conditioning with its headroom-consuming lateral ductwork. As a crowning energy conservation gesture, it is also intended to cap the tower with an aerogenerator to provide electricity.

Another aspect of KPFI's work in Europe is masterplanning. This began with the Hanseatic Trade Centre in Hamburg, where the practice replanned part of the old waterfront warehouse district and laid out a large mixed use development incorporating a 15-storey tower at the point of convergence of several bridges. Outline design of the development sites totalling 100,000 square metres specified the scale, texture and building materials in consultation with Hamburg city planners' overall policy for new development.

Since Hamburg, the firm has also executed a masterplan for the 52 hectare Nordliches Derendorf development area of Dusseldorf, a commission which was won in competition.

A more ambitious planning exercise was KPF's competition entry for the redevelopment of a relatively small ten hectare site in the medieval city of Halle, near Leipzig, in the former DDR. Here the architects bisected a sloping site with two converging axes, extending down from two churches to the north. Strung between these two axes were rows of apartment blocks that followed the contour lines of the slope. The resulting narrow, winding lateral street pattern resembled the plan of the old medieval town, while the axes themselves met at the entrance to a new convention centre.

Looking back on the decision to open an office in London, it is clear that, while the choice might have been driven by the existence of three big European projects, it has proved successful in other ways that were not fully appreciated at the time. In the post-Cold War world the importance of cities has come to be determined by their geographical position more than by their strategic location, but it is surprising how congruent these two factors are. For a mixture of historic, strategic and geographical reasons, London finds itself poised midway between American and Asian time zones with access to both. Its is also possessed of an economic power greater than any European competitor.

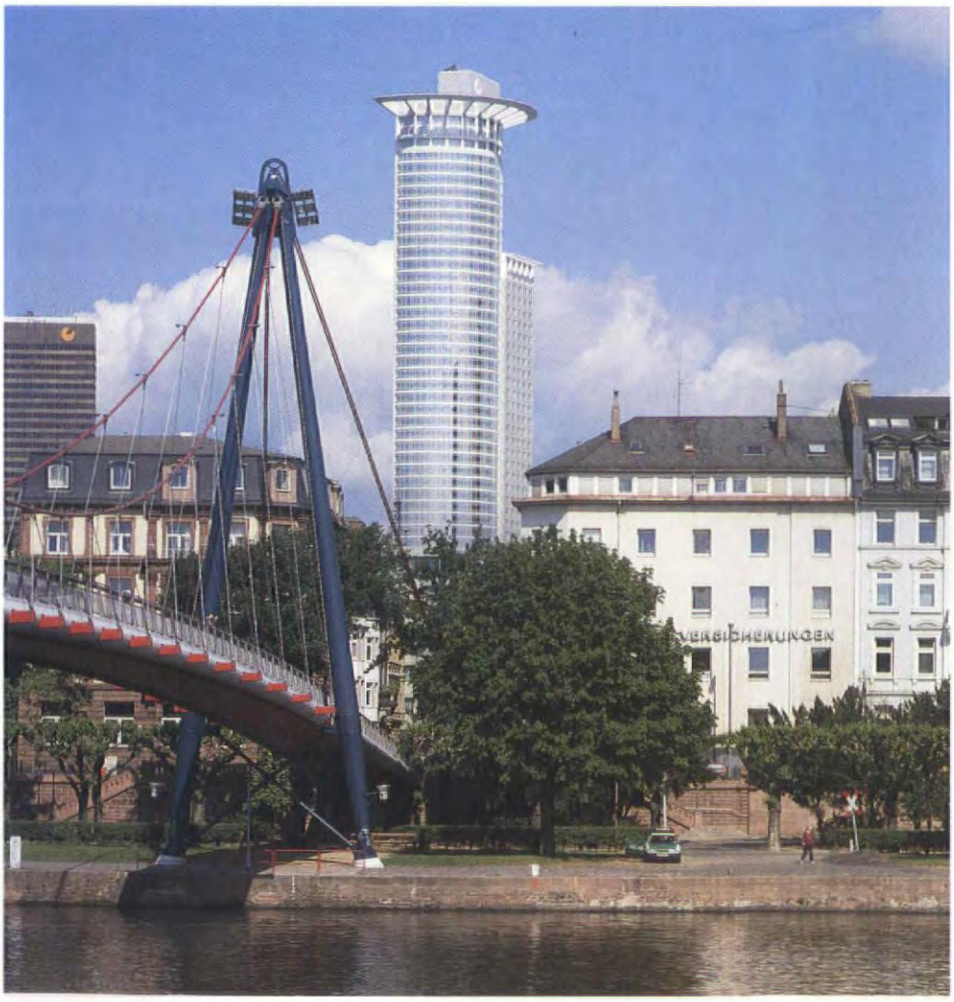
For a firm of architects these are compelling arguments. They explain why the firm fought so hard to win such a relatively small but prestigious commission as the Institute of American Studies at Oxford University. If London represents a concentration of corporate power, it also represents access to different kinds of client, and to commissions that will transform the identity of the firm and broaden its appeal in the years ahead.

In many ways KPFI today represents the new downsized shape of global architectural practice. For Lee Polisano and David Leventhal London is a place to do, not only European, but global architecture. They not only endorse London as a source of highly qualified international talent, but still find it remarkable that, from London, they can run jobs as close as Oxford, and as far away as Bangkok.

"The fact that there are direct flights to Thailand from London, and not from New York, made it logical for us to design our Bangkok project in Covent Garden rather than New York", says Polisano. "London has not only given us access to Europe, it has given us access to a lot of the rest of the world." □

Dennis Gilbert

Dennis Gilbert



Westendstrasse 1, Frankfurt, Germany

International Competition 1987, 1st Prize

The building complex is situated on the Mainzer Landstrasse in the midst of Frankfurt's banking centre and adjacent to the Westend residential district.

The 52-storey tower and lower buildings contain offices for the DG Bank as well as residential units, retail shops and parking. The tower and the perimeter building maintain the existing street lines and envelop a steel and glass wintergarden inspired by European train stations and conservatories of the last century.

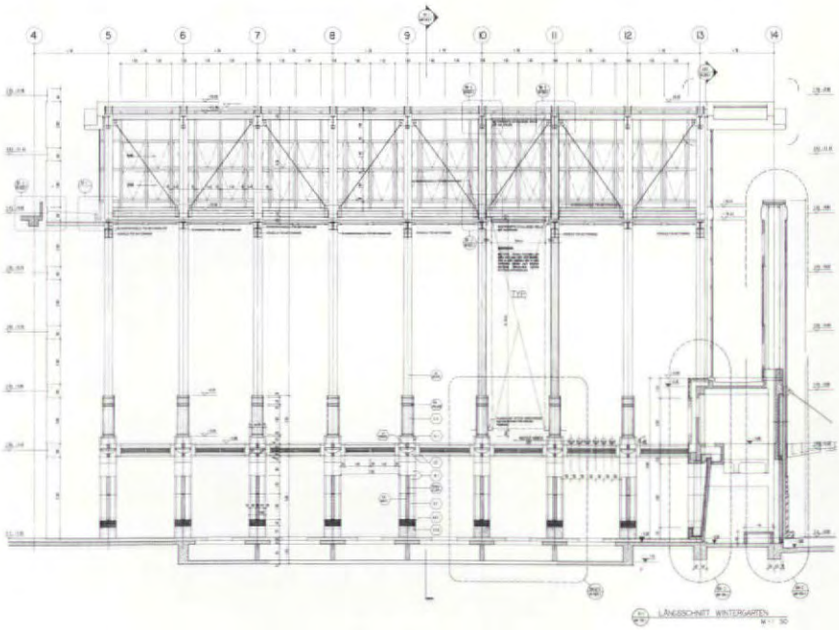
The building mediates between the scale of the office towers in the city's banking quarter and the residential scale of the Westend. For this reason, the building complex has strong setbacks at 22 and 60 metres relating to the traditional heights of Westend residences and the first generation of high rises along Mainzer Landstrasse. The tower sets back again at 150 metres, the traditional height of the second generation of Frankfurt towers. The topmost curved glass and metal shaft culminates in a dramatic cantilevered crown of steel, the project's signature on Frankfurt's skyline. The curved shaft and crown point towards the "Römer", the historic centre of old Frankfurt.

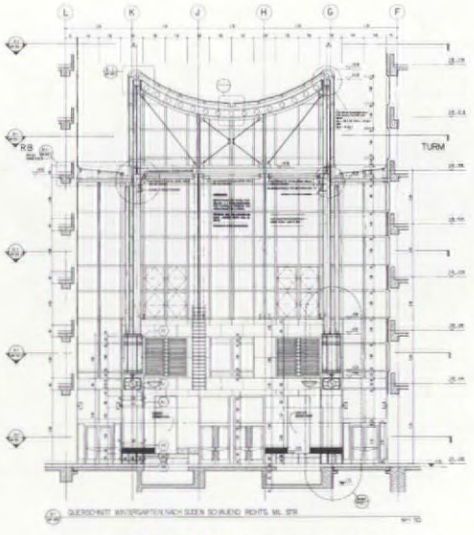
One of the innovative technical features of this project is its version of a double wall: all windows are fitted with an "Abluftfenster" (exhaust window). Low reflective solar insulating glass is used on the outside with an operable clear single-pane safety glass on the inside. This creates an air space of 120 mm depth. Within this space a motorised fabric roller shade controls glare and solar heat gain. Year-round, superheated air within the air space is extracted mechanically before it raises the temperature within the office. The extracted air is partially reconditioned or used for heat generation.

The bearing structure of the building is in-situ steel reinforced concrete with a mat and pile foundation. The wintergarden structure consists of steel on concrete columns. In order to compensate for differential settlement between the tower and the wintergarden, hydraulic jack chambers have been located within the concrete columns at the third level below grade. When sensors register settlement beyond a certain magnitude, hydraulic jacks are placed into the chambers in order to raise the wintergarden structure to its original level.

The building "crown" is cantilevered 10.5 metres from the face of the tower and tapers towards its outer boundary ring. To avoid long-term deterioration and allow for maintenance, the element was built in a fuselage type construction utilising 6 mm steel plate welded together as individual fins and rings. These were individually lifted and bolted into place.

Judith Turner





Top, view from the wintergarden. Left and above, sections through the wintergarden

Dennis Gilbert

Above, left to right: ground floor plan; plan of floors 2-4; plan of floors 40-47

Dennis Gilbert

Peterborough Court, London, England 1991

The site is situated in the heart of Fleet Street, formerly the centre of London's newspaper publishing industry. Also on the parcel of land are two landmark structures: Mersey House and the Daily Telegraph. The client requested 45,000 m² of modern offices, including large hi-ceiling dealing space.

The building is prominent on the city skyline but is discreet at street level. Located behind the existing Daily Telegraph building, it rises up as a series of smaller volumes and finally emerges as a symmetrical vaulted roof of stainless steel.

The listed facades of the Daily Telegraph and Mersey House were retained while a new core was inserted to meet current technological needs. The building is clad in stone, except the southern elevation, which is covered with curtain walling.

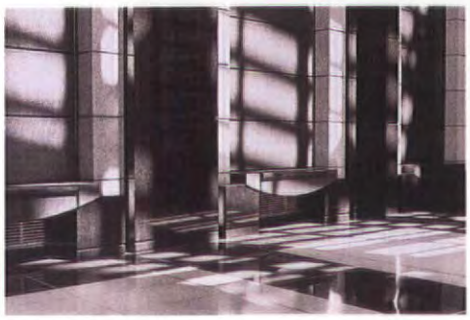
The project reinstates a 16th century courtyard, then home of the Earl of Peterborough. The new courtyard separates the new building from the group of renovated landmark structures whilst introducing natural light to the deep site. Passage through Mersey House allows access to the courtyard and entrance gallery. The new building is organised around two sets of cardinal axes: those imposed by the site's perimeter and those of the existing buildings along Fleet Street. The building's internal configuration responds to a very specific user mandate, particularly for the accommodation of advanced systems in the use of environmental control and information technology.

These corporate headquarters were completed in 1991 and demonstrate the tremendous impact that American fast-track design and construction methods had on London during the so-called "building boom" of the 1980's.

Dennis Gilbert

Above, the prominent upper floors and roofline of the Fleet Street facade showing the curved steel and glass "screen"
Opposite page, the reinstated courtyard

Judith Turner



Judith Turner

Judith Turner

Forum, Frankfurt am Main, Germany 1990

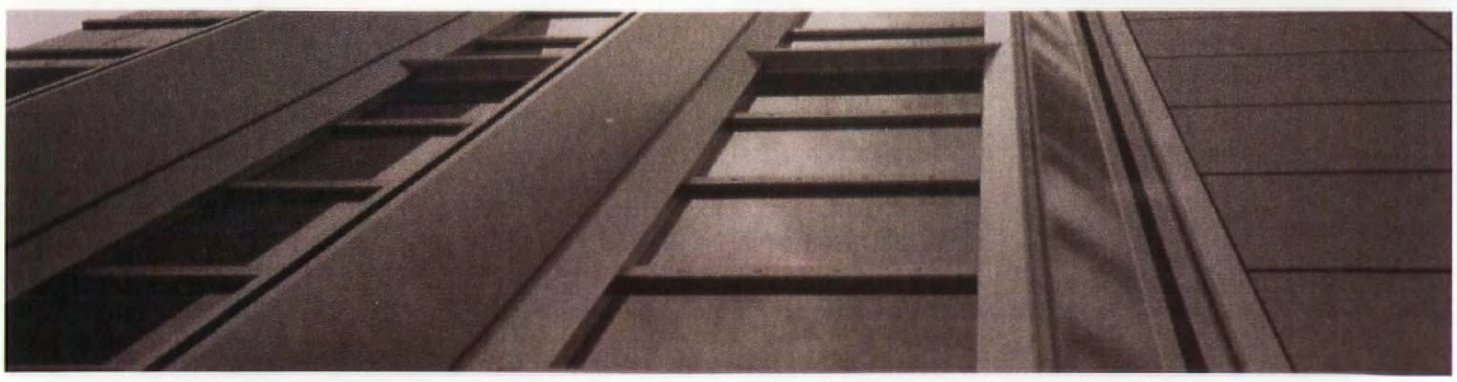
The two office buildings of the Forum Frankfurt, now under construction, are on Friedrich-Ebert-Anlange, a major street on the edge of the city centre. The site is adjacent to the new Frankfurt Exhibition Hall (Messehal) and Tower (Messeturm).

The two towers are united by their curved outer facades suggesting that they are part of a greater whole. The curved surface is articulated with strong vertical fins, the inner facades are flush horizontal walls suggesting a transparent inner layer. A 68 metre gap between the towers has been maintained as a designated public green zone to form a green urban plaza linking directly with the boulevard.

Both buildings have been designed in order to minimise the space required for services and to reduce the amount of energy required to operate the buildings. All building services are located in a single cavity: a raised floor of 400 mm height. The building's concrete slabs are used for cold storage. During the night-time hours, cool outside air is drawn into the buildings and circulated through pipes cast into the concrete slabs, thereby cooling down the mass. During the daytime hours, when the inside temperature begins to rise towards noon, fresh air is circulated through the buildings' mass in order to extract the cold and use it for cooling. During the winter peak cold season, perimeter hot water radiators provide supplementary heating.

Electrical and communication services are also located in the raised floor. Outlets, controls and switches for power and communications as well as thermostats are located in the base of light stanchions which provide both uplight and downlight. Each office needs only one lighting stanchion. This provides for a totally flexible lighting and control system and eliminates the requirement of a suspended ceiling.

Eamonn O'Mahony



Andreas Hausler

De Centrale Tower, The Hague, the Netherlands

International Competition 1992, 1st Prize

The site is situated between the Central Station and the Lavi-Kavel, a new commercial office development. It overlooks the Malieveld, The Hague's main park. Behind the site is the Ministry of the Environment's headquarters, the largest office building in the Netherlands.

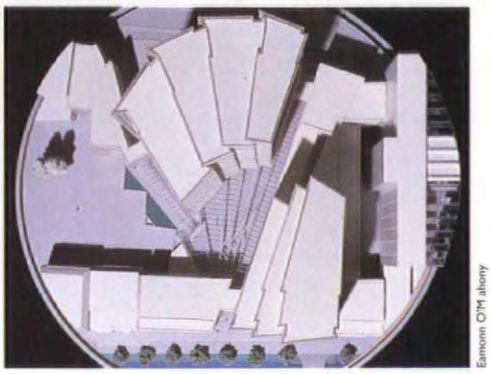
Following a new Hague urban plan, the owner requested 56,000 m² of offices in two towers and a ground level atrium. The two towers are each broken down into a series of thin planes which step in plan and section. This creates a lively slender silhouette along the skyline and a faceted floorplate of dramatic vistas and corner offices.

At ground level a through block passage connects the station to the City Hall area. In the middle of the block the passage expands into a glass covered atrium which unifies the two towers and contains restaurants, shopping and conference areas.

Eamonn O'Mahony

Below left, interior view of model. Below, bird's eye view of model showing circular plan

Eamonn O'Mahony



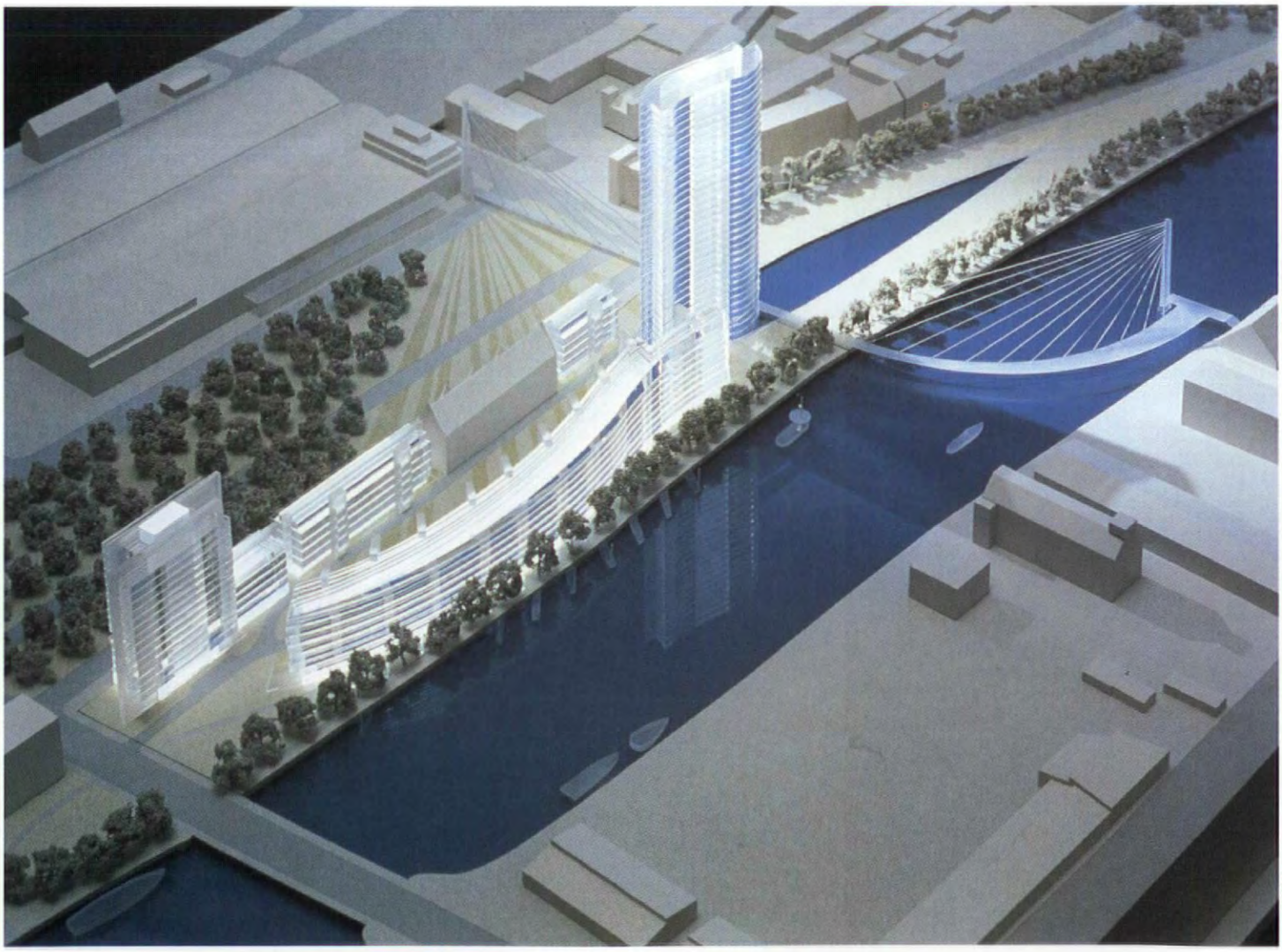
Eamonn O'Mahony

Stralauer Platz, Berlin, Germany 1994

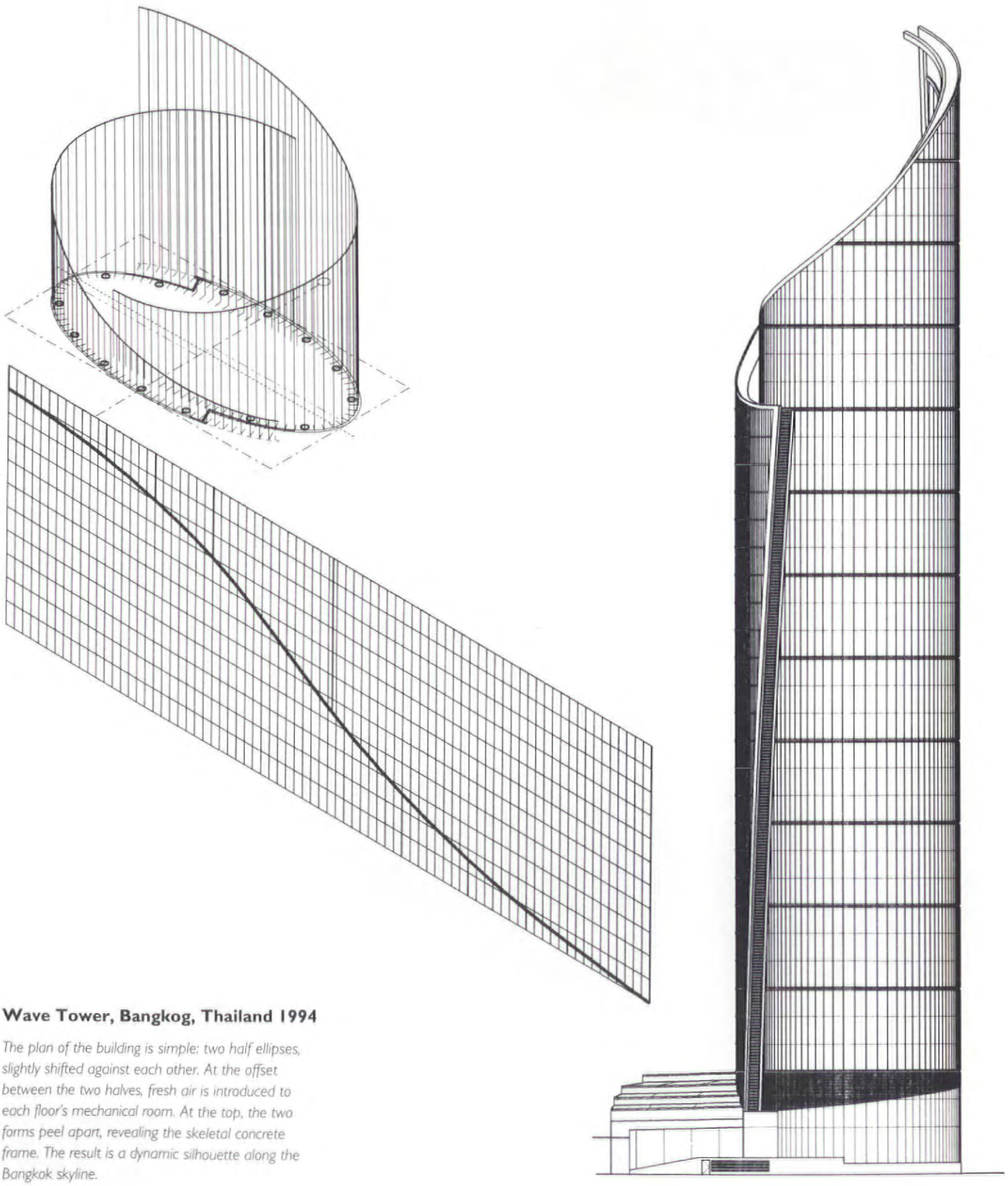
The site for the project is along the north bank of the River Spree in what was once the zone of the Berlin wall. It is now occupied by derelict buildings and an important train station for this part of the city.

The design proposes two office towers with a long low-rise residential building, gently curved in plan, strung in between. The taller tower is intended as a marker for Berlin and is oriented toward both the axis of the Spree and the incoming TGV rail service. The tower's aerodynamic shape suggests movement. Its placement terminates an axial parkland which incorporates a preserved remnant of the wall and a new reflecting pool.

The park is connected to the southern bank of the river by a proposed tensile pedestrian bridge which unites two halves of the city once held apart by the Berlin wall.



Eamonn O'Mahony



Wave Tower, Bangkog, Thailand 1994

The plan of the building is simple: two half ellipses, slightly shifted against each other. At the offset between the two halves, fresh air is introduced to each floor's mechanical room. At the top, the two forms peel apart, revealing the skeletal concrete frame. The result is a dynamic silhouette along the Bangkok skyline.

Eamonn O'Mahony

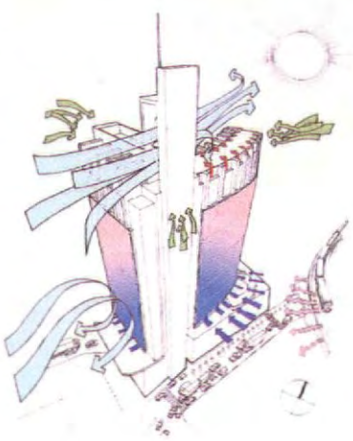
Centre International Rogier, Brussels, Belgium 1993

The existing 30-storey Martini Tower, the tallest building in Brussels, was completed in 1960. It originally contained a mixture of offices, residential units, retail and the French community's National Theatre. In the three decades since completion, this building has fallen into disrepair: building systems are inadequate, facades and interior finishes are deteriorating, and the majority of the building is now empty.

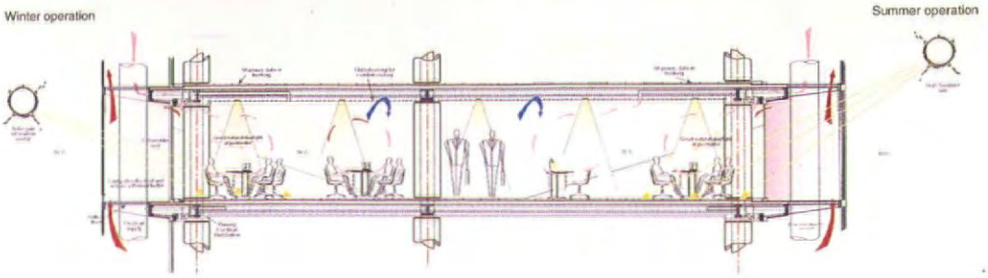
The client requested converting a majority of the space into offices. In the new building a steel structure, replacing the old concrete frame, follows the form of the existing tower. The National Theatre remains in the base of the building. The east and west walls of the new building are clad with a thermal flue: two glazed walls separated by an 0.8 metre gap. Within this space are located vertical air ducts and solar shading. By locating the air distribution at the perimeter, clear height within the offices is maximised.

Eamonn O'Mahony

Battle McCarthy



Left, environmental generators.
Below, environmental operation



International Conference Centre, Beirut, Lebanon 1994

The site is the prominent northwest corner of the city on a sloped parcel of land overlooking the sea, and is bound by Rue Bliss along the palisade and by the Corniche along the sea. The scheme proposes a shop-lined passageway linking Rue Bliss to the Corniche some 20 metres below. The upper part of the passageway will incorporate a courtyard looking onto an existing prominent lighthouse and proposed new park. To the north, the lower part of the passageway will be terraced and lined with restaurants leading to open gardens with wide sea-views, reminiscent of the Spanish Steps in Rome and Lombard Street in San Francisco. A new lighthouse for the proposed marina ends the axis.

The design seeks to act as a catalyst in the renewal of the city by tying it more closely to the sea. It seeks to extend the existing palisade parkland to the north, south and west and links this green belt of the city to the sea. It seeks to shape and place each building to give maximum views of the Mediterranean.

The programme includes an international conference and congress centre with associated facilities along with a hotel, apartments, office space, restaurants, an aquarium and parking.

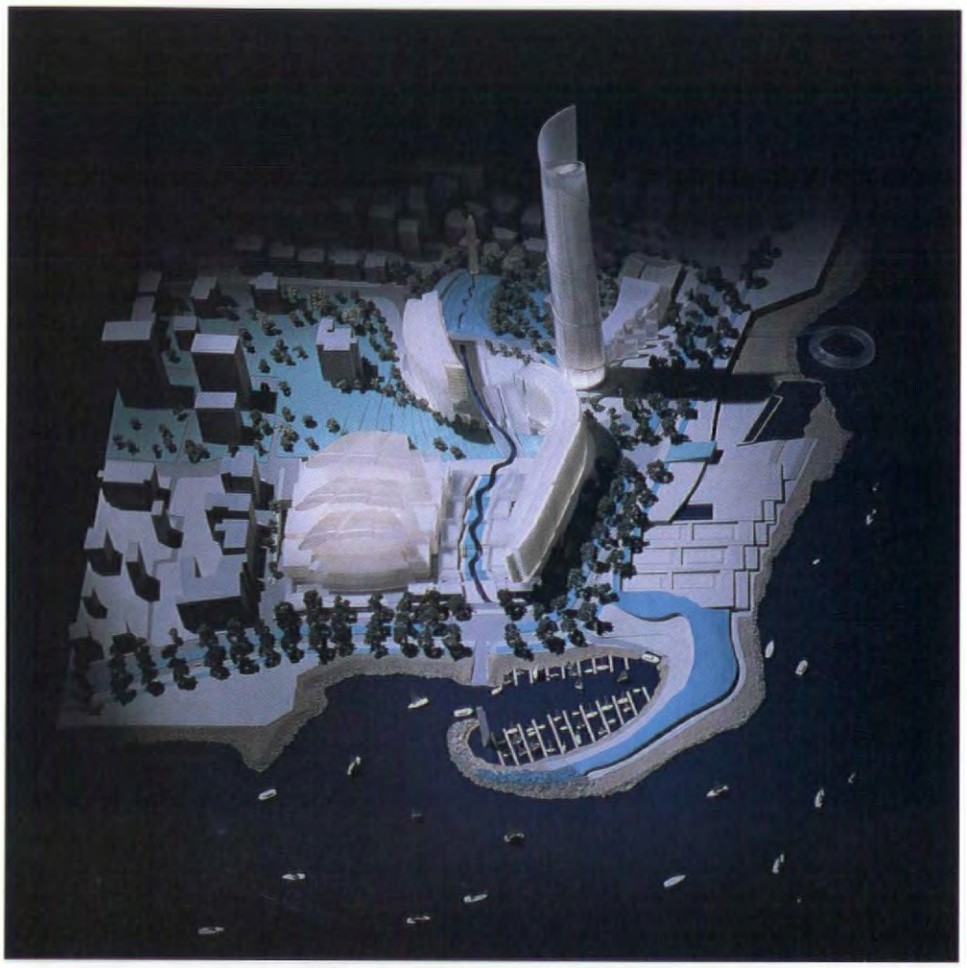
The programmatic elements of the scheme are placed to either side of the passageway. To the east side, near the Rue Bliss, are the serviced apartments. Also on this side of the terrace, at the Corniche, is the conference centre with its 2,000 seat auditorium, exhibition hall, cinemas, banqueting/meeting rooms and hotel ballroom. The form of the centre is like an unfurling book, opening to the sea.

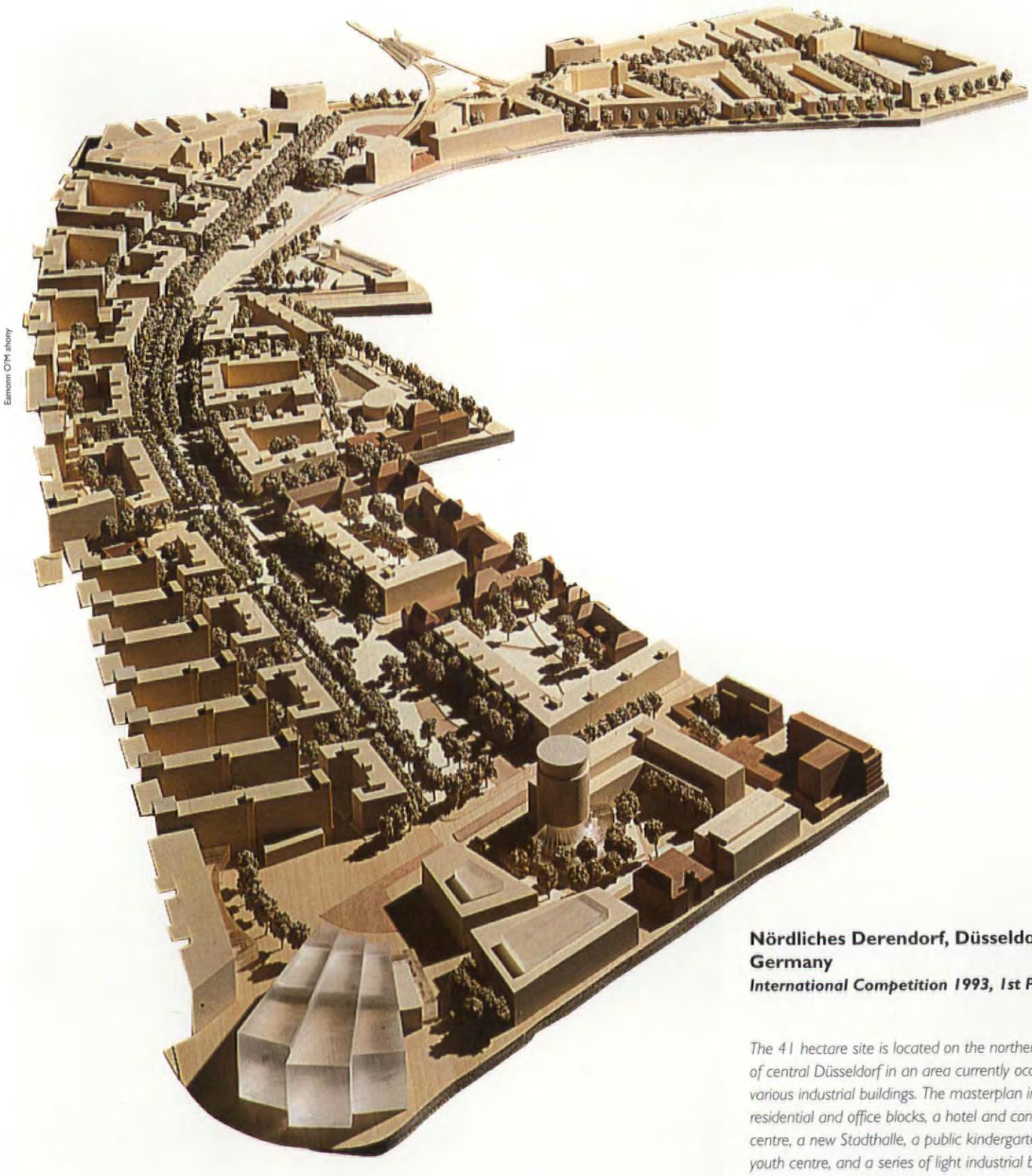
To the west of the passageway is the tower with 80 luxury apartments. A sinuous waterwall at the base of the tower contains an aquarium and museum linked to a tropical aquatic tank in the sea. Extending from the tower in a long low bar is the hotel, its jutting "prow" soaring out over the corner of the site.

On the opposite side of the Corniche and linked to the hotel are the beach club and marina. These low structures hug the coastline and create large public terraces on the redefined coastal promontory.

Low energy and environmental issues are a key ingredient of the design. Underground parking levels follow the site topography to minimise excavation while the excavated materials are re-used as infill for the marina and beach club.

The organisation and orientation of the buildings help minimise solar gain. Balconies, external screens and overhanging roofs shade the facades without impinging on sea views.





Eamonn O'Mahony

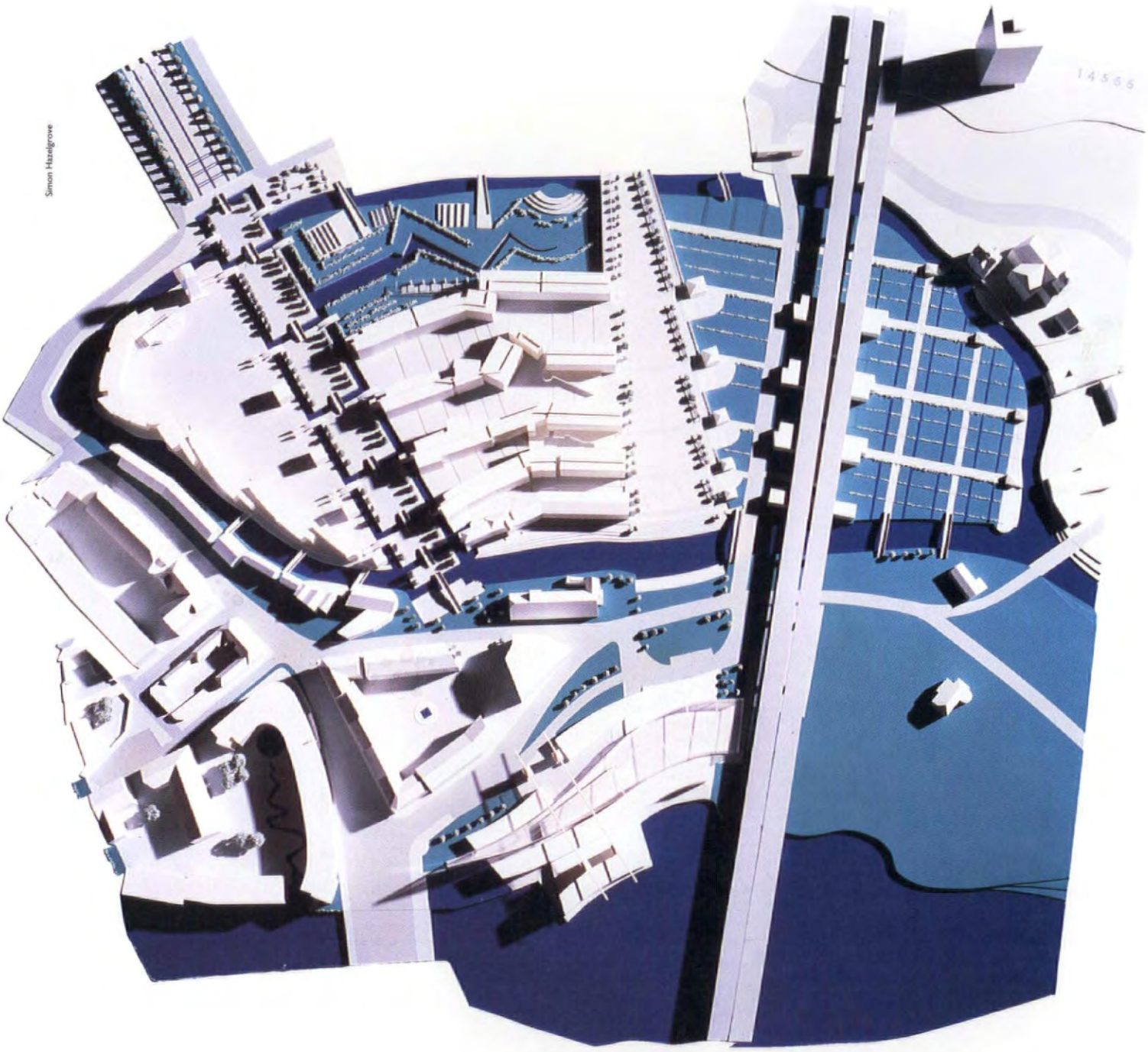
Nördliches Derendorf, Düsseldorf, Germany

International Competition 1993, 1st Prize

The 41 hectare site is located on the northern edge of central Düsseldorf in an area currently occupied by various industrial buildings. The masterplan includes residential and office blocks, a hotel and convention centre, a new Stadthalle, a public kindergarten and youth centre, and a series of light industrial buildings.

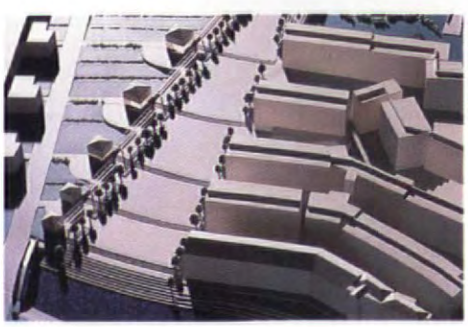
A central green belt unifies the entire scheme, connecting a plaza at the Stadthalle to a new bridge and trambahn stop over the S-Bahn tracks. A new tram line runs through the green belt connecting the City's S-Bahn and U-Bahn systems.

Simon Hazelgrove



Masterplan, Halle, Germany 1992

The site is adjacent to the old centre of Halle, the birthplace of George Frederick Handel. The design proposes an annual city-wide festival of Handel's music. The plan for the site was organised around two main axes emanating from the two landmark Baroque churches at the edge of the site. Strung between these axes are a series of inhabited terraces which create a dense urban fabric consistent with the old city.



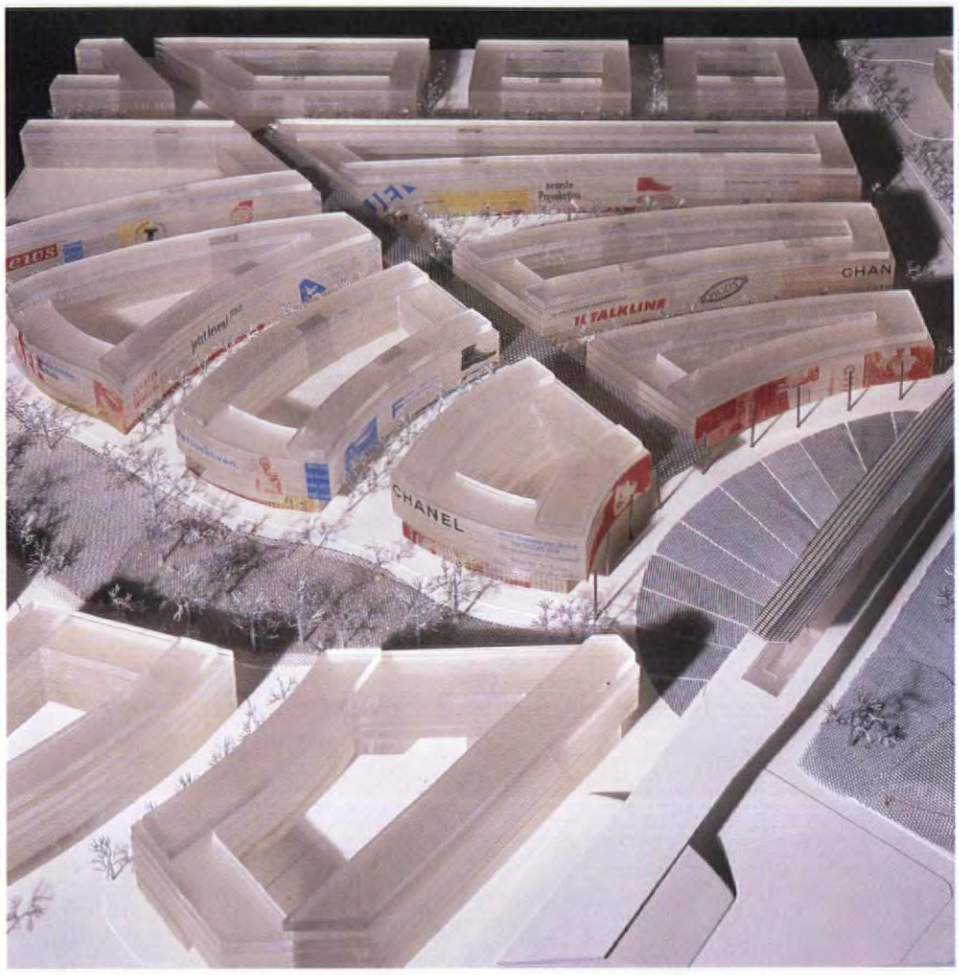
Simon Hazelgrove

Simon Hazelgrove

Biesdorf-Süd, Berlin, Germany 1994

The site is a 100 hectare plot of land virtually empty since World War II. The purpose of the design is to provide a planning guideline for free-market development in the former East German suburb of Berlin-Marzahn. The scheme proposes new green spaces which would connect surrounding parks to the newly established town centre. The block structures curve in response to existing landscape and infrastructure. As a result all streets lead to the new central park.

A retail galleria, skewering the blocks, connects the train station and station plaza with the town's medieval church. A mixture of uses including workshops and community cultural activities are introduced to help sustain an intimate scale of urban life.



Eamonn O'Mahony

Business Park Am See, Düsseldorf, Germany 1993

Located in Meerbush, a suburb of Düsseldorf, the site is bisected by a canal of the River Rhine. It was once the site of an old steel mill and as a result the land was contaminated. The ground is to be purified and a park-like central lake is to be established at the centre of the scheme as a symbol of the cleansing of the site.

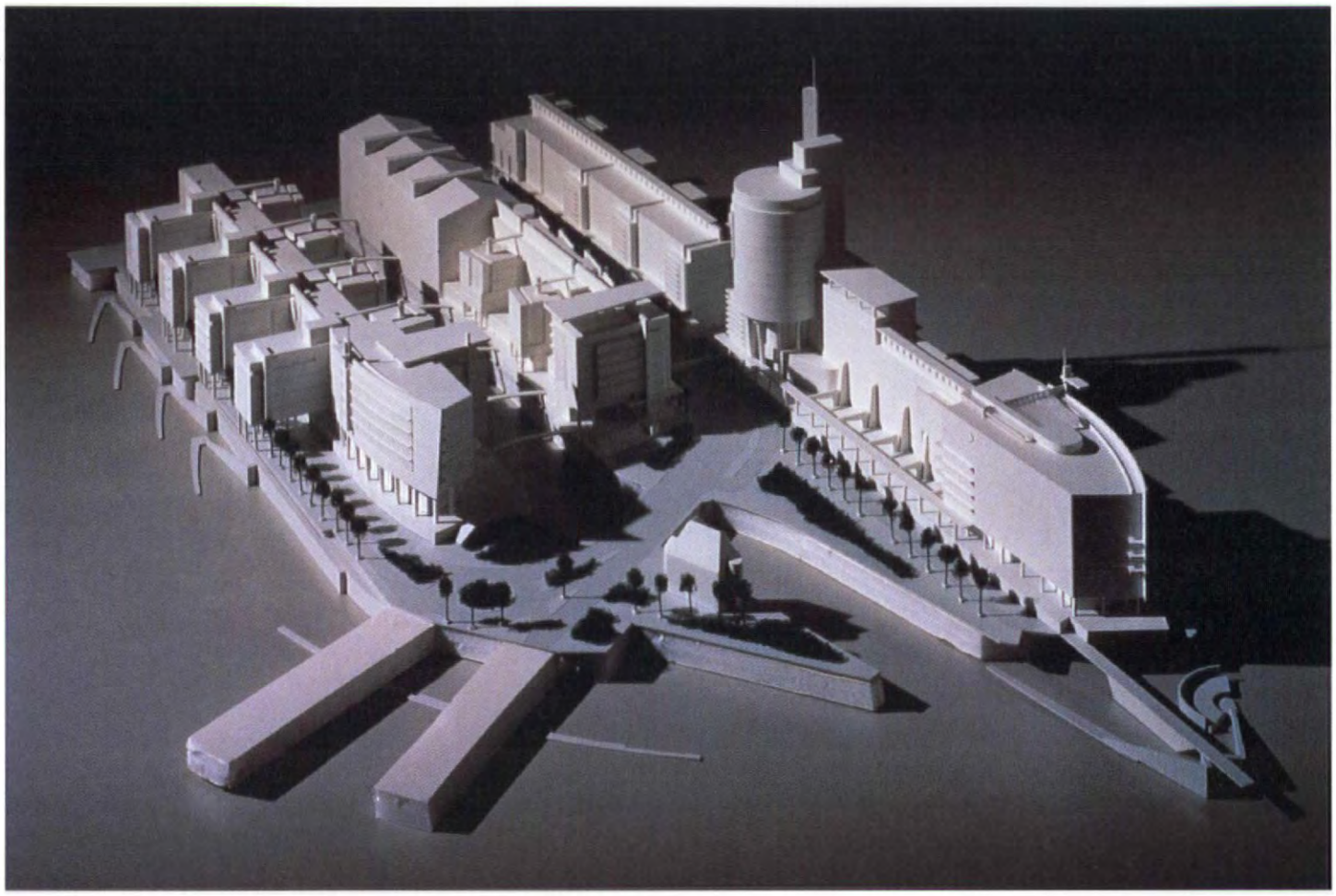
The lake is bounded on four sides by varying scales of office buildings and warehouses. An 18 storey tower, located at the important intersection of two highways, becomes a landmark along the network of roadways. At the edges of the site the offices are raised on pilotis to allow views of the lake for passing motorists.

A string of paths connects the surrounding suburban residential areas to the lake which becomes a public amenity and creates a new focus for this emerging district.

Eamonn O'Mahony

Eamonn O'Mahony

Jock Postle



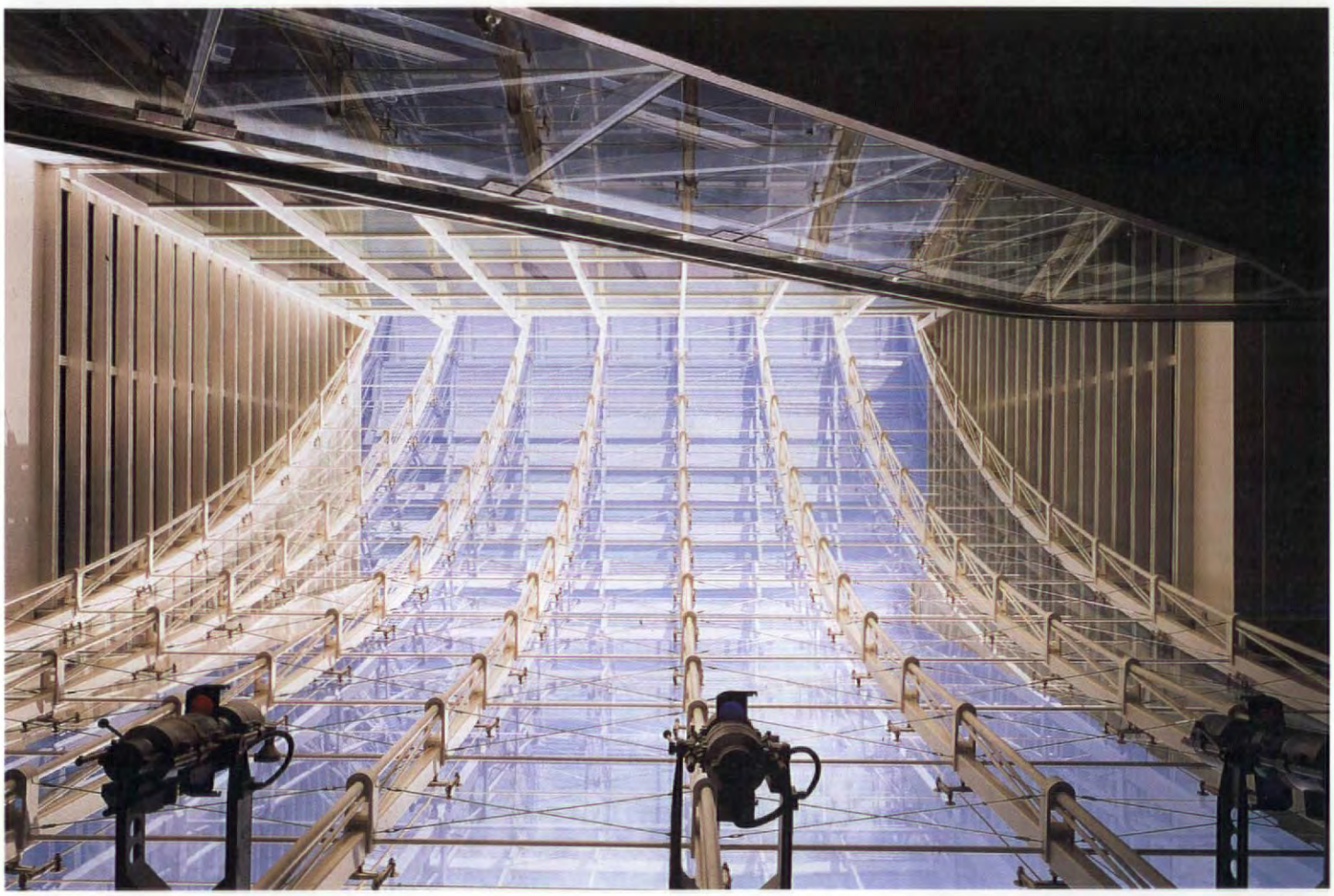
Inken Kuntze

Hanseatic Trade Centre, Hamburg, Germany 1989

International Competition 1989, 1st Prize

The site is located at the edge of the old city of Hamburg along the banks of the Elbe River. It marks the head of the so-called "Speicherstadt", a series of listed warehouses on two islands in the Elbe. The masterplan was first developed in 1988 to include 100,000 m² of office space in several low rise buildings and one 15-storey tower. In 1993 one of the low-rise structures was completed within the guidelines of the original plan. The building combines local traditional red glazed brick with modern stainless steel curtainwalls.

As the project is located within the flood zone of the harbour, the ground floor and the basement parking areas are sealed by floodgates. A walkway connects the project to the flood protected old town of Hamburg. This guarantees the uninterrupted use of the building even in the case of flooding.



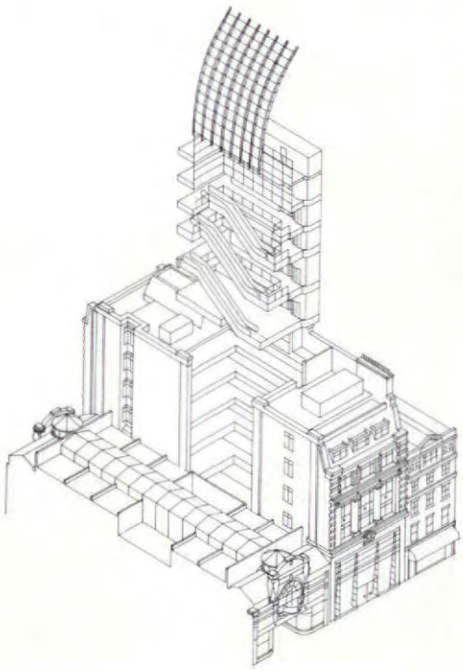
Eamonn O'Mahony

27 Old Bond Street, London, England 1993

The owner's brief was to renovate the former Gucci Building in Old Bond Street next to the Royal Arcade. The period facade was to be retained and the interior demolished.

The design creates a three storey vertical shopping arcade with two storeys of office space above. Light was brought into the middle of the plan through the bowed, south facing skylight which is a delicate tensile system pin-supported from above, tightly strung and directed towards the sun. The escalators rise within this glazed arc. A separate entrance on Albemarle Street services the upper two floors of speculative office space.

The shop has recently become the flagship store for DKNY, the retail outlet of American fashion designer Donna Karan.



Eamonn O'Mahony

Thames Court, London, England 1992

The development consists of two structures: a 22,000 m² building on the Thames which incorporates a listed structure and a 12,000 m² bridge building which spans neighbouring Upper Thames Street and links the development to the City of London's financial centre.

The project has been designed to accommodate a variety of business users. Large floorplates will function as trading floors. The extensive perimeter will provide both cellular and open plan offices with dramatic views of the river.

Between the two buildings is a landscaped public place. To the south this area will be linked to a series of spaces along the esplanade at the river's edge. A pedestrian passageway, incorporated into the bridge building, also connects this space to a series of plazas and parks to the north along Garlick Hill.

Eamonn O'Mahony

Eamonn O'Mahony

IFW Laboratory, Dresden, Germany 1993

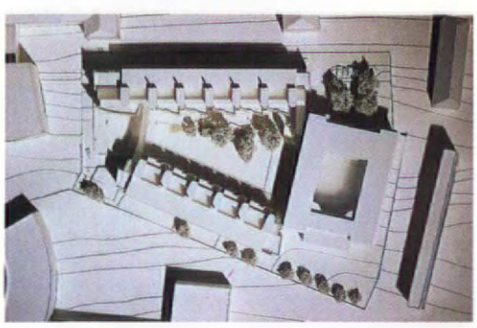
This is a competition entry for a new laboratory building at the Technical University in Dresden. It is located on a sloping site at the juncture of the existing campus and an area of future expansion. The project would be built in two phases and would house physics and chemical-physics laboratories, workshops, deep freeze labs, offices, meeting rooms, class rooms and a cafeteria.

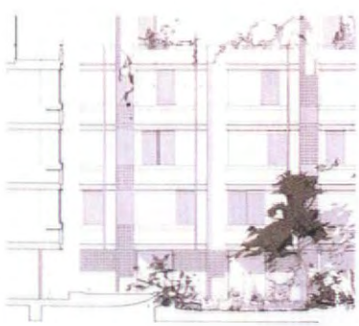
The design unites an existing courtyard building and two new long bars into a single complex. The three wings form the boundaries to a heavily landscaped open court. The fourth side is left open at ground floor but is bridged at an upper level to allow continuous circulation around the building. A stepped pathway passes through the courtyard linking the old and new campuses.

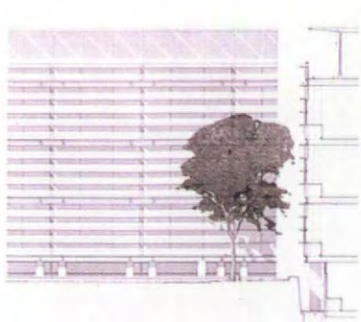
Fully glazed laboratories are placed on the outer perimeter inviting inspection from passers-by and maximising the use of natural daylight for study areas. Private offices line the inner court. Each of these spaces has an external movable screen providing solar protection and privacy.

Toxic fumes will be extracted from the laboratory through fume cupboards to roof-top flues which become a prominent element in the building silhouette.

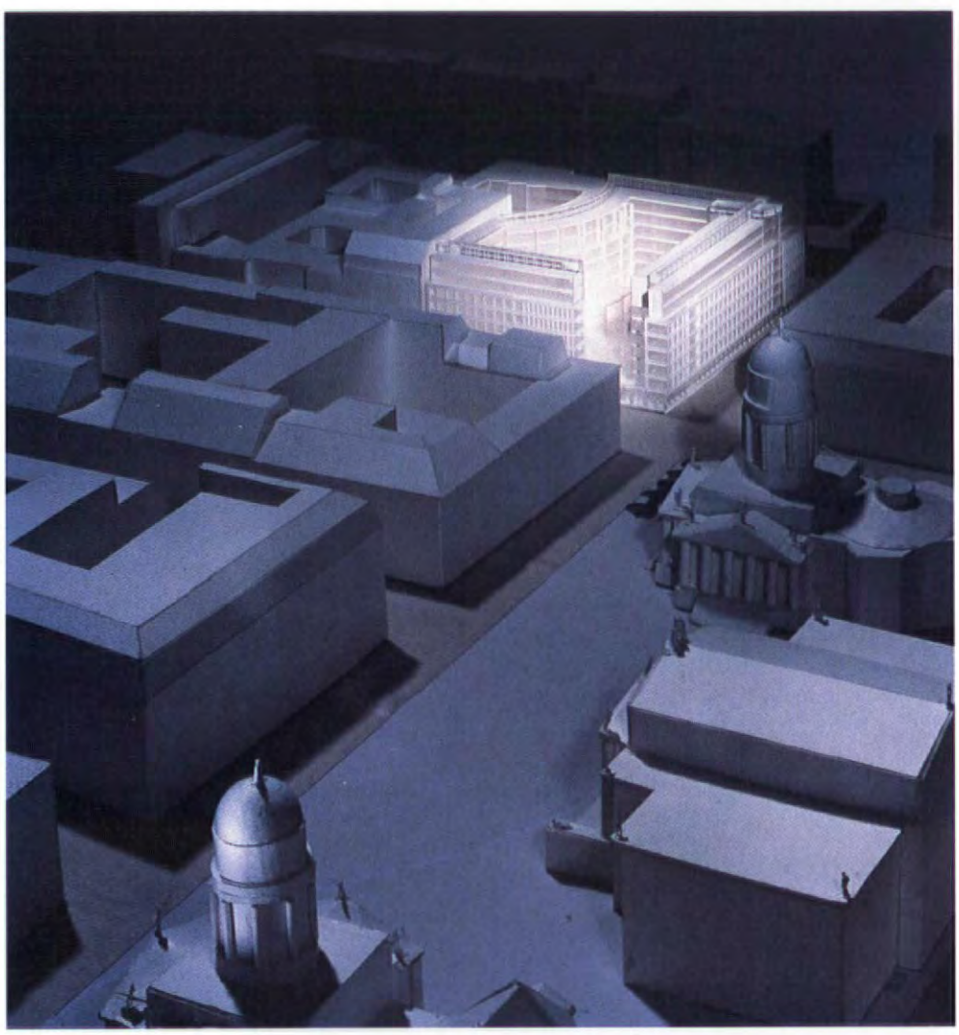
Eamonn O'Mahony







Simon Hazelgrove

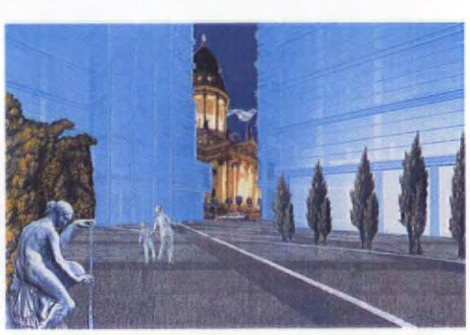


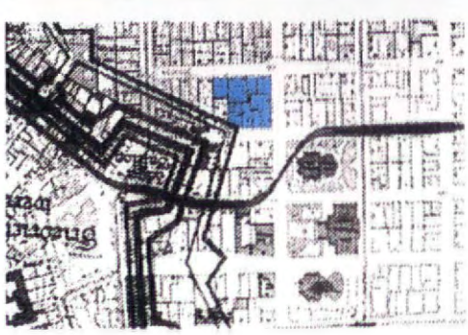
Quartier 30, Berlin, Germany 1992

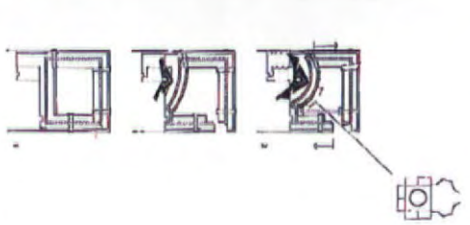
Block 30 is located on the south-east corner of Platz der Academie, the site of the Schinkel Schauspielhaus and two flanking 17th century churches. The programme for the new building includes offices, apartments, shops and parking.

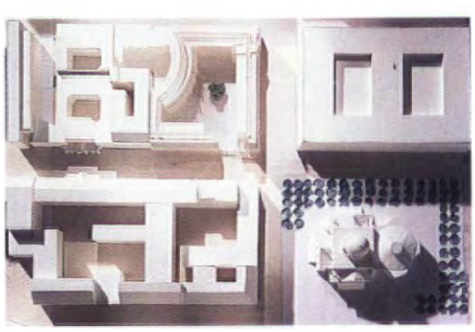
Early maps show that the prow of the city's Baroque ramparts once extended into this block. The shape of the prow can still be seen in the pattern of surrounding streets. The design of the new building responds to the "pressure" of the invading ramparts. One edge of the block gradually bows out while the north wall slides back. This sliding back of the perimeter wall establishes a connection between the Quartier 30 court and the Platz der Academie. The public is invited into the court. As in other parts of the city, walls have opened up, permitting a new freedom of movement.

The external curtain wall takes its cue from Schinkel's Schauspielhaus in its use of masonry and glass. The inner court walls are all glass. Elements such as stairs and elevators are placed in the courtyard to clearly reveal the lay-out of the plan.









Simon Hazelgrove

Bismarckstrasse 101, Berlin, Germany 1994

The site is on the corner of Weimarer Strasse and Bismarckstrasse, a main boulevard connecting the centres of east and west Berlin. The building is between the Deutsche Oper and Ernst-Reuter Platz in Charlottenburg, a prominent commercial zone. Offices are distributed over 5 levels with ground floor retail units and basement parking.

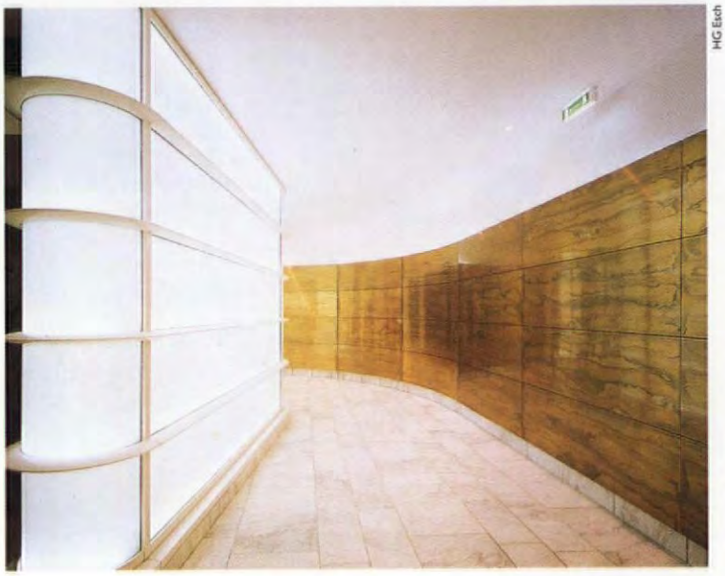
The character of the building derives from the dynamic of the busy street. The building facade starts at the line of the adjacent building and gathers momentum as it curves around the corner. It returns along the side street to form a long and uninterrupted elevation. Horizontal spandrels of formed aluminium define the floor levels and house external sunshades. The recessed top floor, with protruding roof canopy, further emphasises the horizontality of the single elevation.

Floor to ceiling glass provides open vistas over the city streets. The design responds to a rigorous planning module with vertical divisions every 1.35 metres. Every second module contains additional vertical profiles framing operable doors. These operable panels provide fresh air. This is supplemented by an underfloor ventilation system. External sunshades prevent heat gain and control glare in the offices. Exposed plastered concrete slabs are a thermal mass contributing to the heating and cooling of the building.

The ground floor glass walls bend in to become the lobby whose walls are clad in panels of oxidised bronze.

The back of the building is terraced to provide better daylight to the rear courtyard. Extensive planting improves the micro-environment of the residential neighbourhood behind.

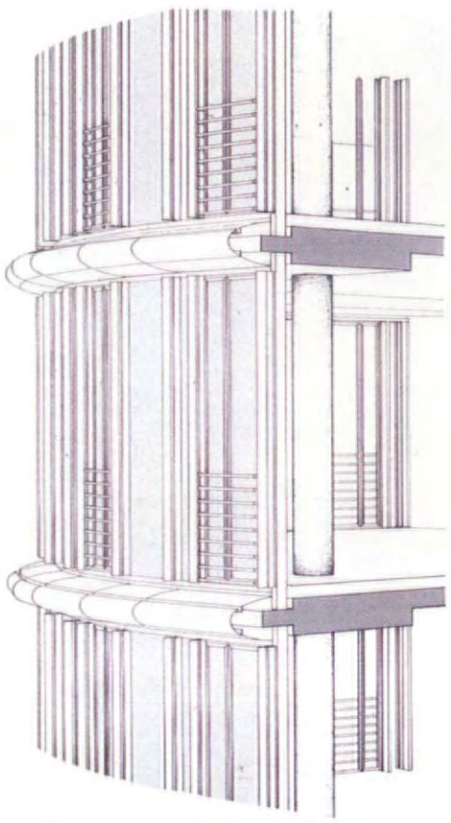
HG Esch



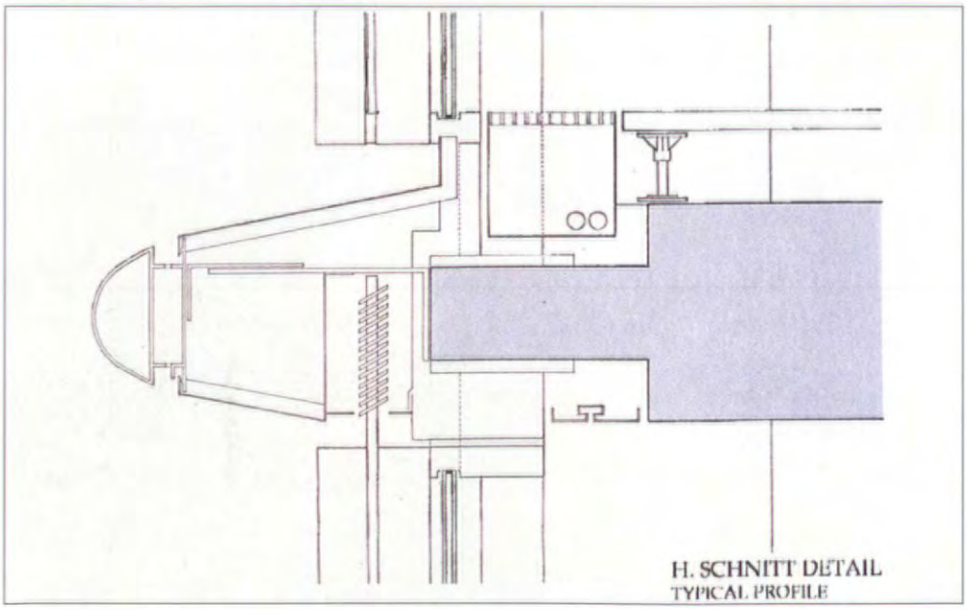
HG Esch

Karen Cook / Ron Bakker

HG Esch



Above, cutaway detail of facade



Left, section showing junction of floor slab and horizontal aluminium spandrel

HG Esch

Provinciehuis, The Hague, the Netherlands

International Competition 1994, 1st Prize

The Ministry of South Holland sought an addition to the Province Hall, the seat of the regional government. The existing buildings and the new additions are on a prominent site at the intersection of Zuid-Hollandlaan and Koningskade on the corner of The Hague's major park, the Malieveld.

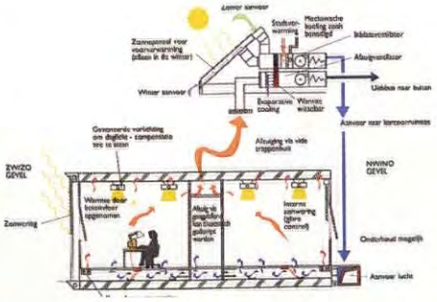
The site suggested a strategy of two building types: to the rear, a taller slab as backdrop, and in the front, a lower L-shaped building attached to the existing Province Hall. Together, these buildings create an inner courtyard. At the point where the two structures might have touched, they are instead held back, almost as if recoiling from each other. The result is a wide entrance welcoming pedestrians approaching from the city centre.

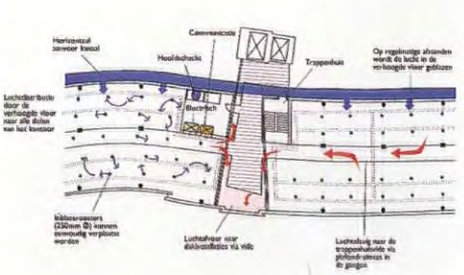
The ground floor of the project is raised 1.5 metres above the road so that views from the courtyard are possible towards the Malieveld. The new courtyard is subtly separated into dynamic and quiet areas, partly open and partly planted.

The facade along the main street derives from the dynamic character of the building form and from the conventions of early 20th century Dutch architecture. Strip windows set between horizontal bands of brick are modulated by the dynamic rhythm of the operable windows.

The concrete of the flat slab construction is exposed to take advantage of its thermal mass in heating and cooling the building. The structure is naturally ventilated by operable windows and a series of strategically placed social spaces which create a chimney effect. This application, combined with the Dutch tradition of utilising the sun and the wind as free energy sources, minimises the dependence upon non-renewable energy sources.

Eamonn O'Mahony





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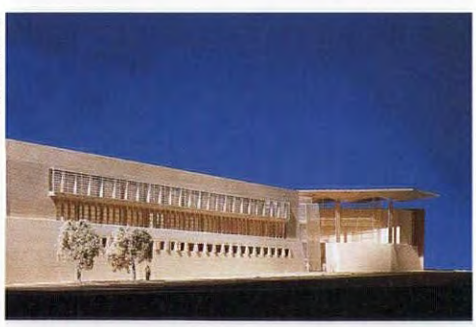
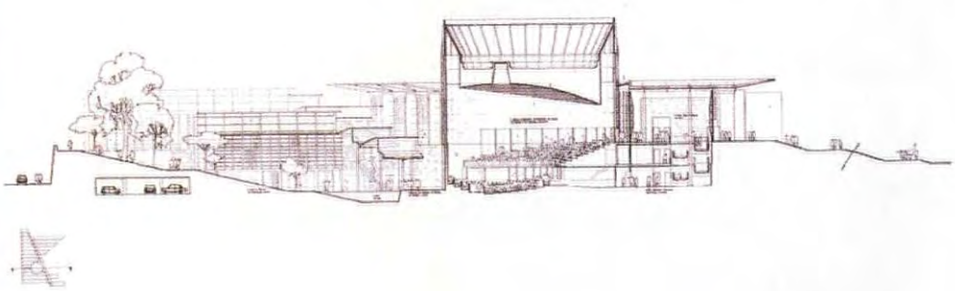
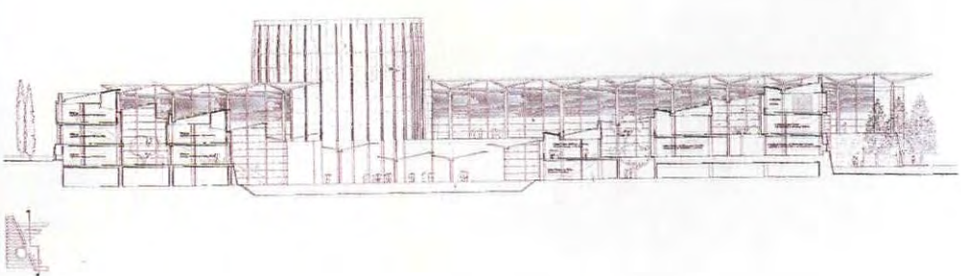
Below, section through north elevation. Bottom, section through east elevation

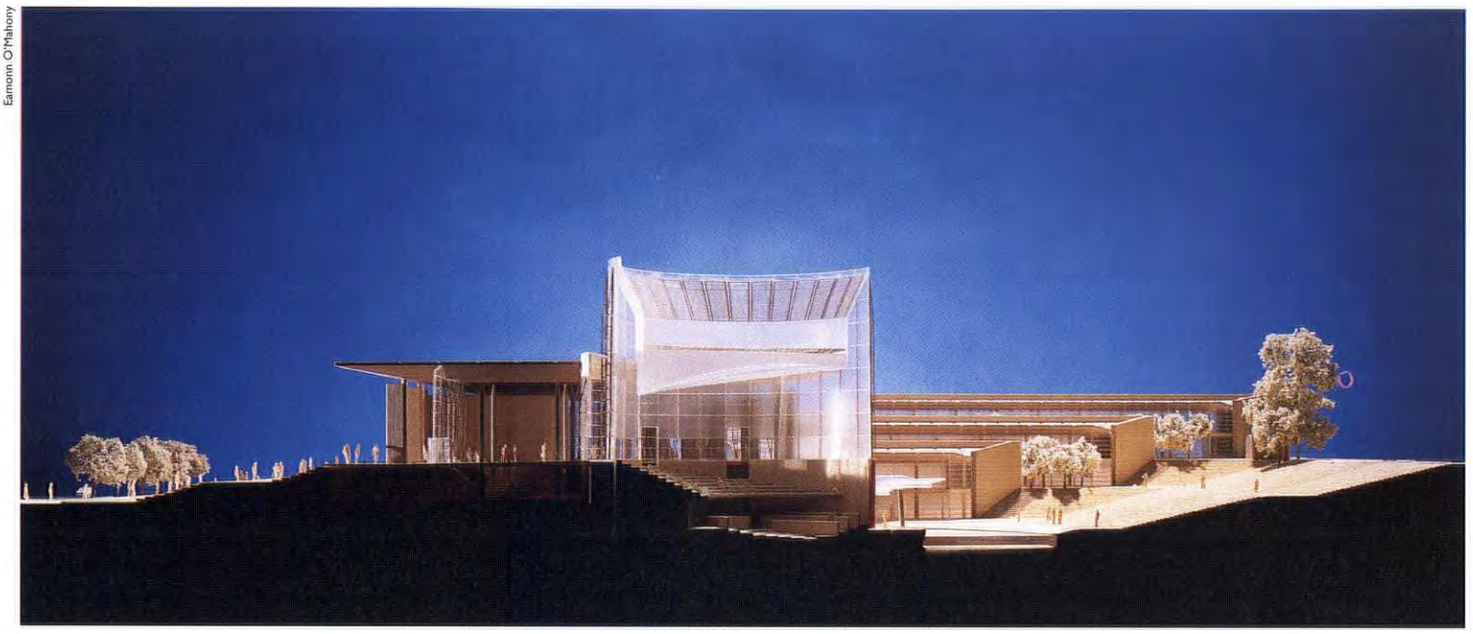


Eamonn O'Mahony



Eamonn O'Mahony




Eamonn O'Mahony

House of Representatives, Nicosia, Cyprus

International Competition 1995, 1st Prize

The building will be set on a low rise facing the processional route between the presidential palace and the old city.

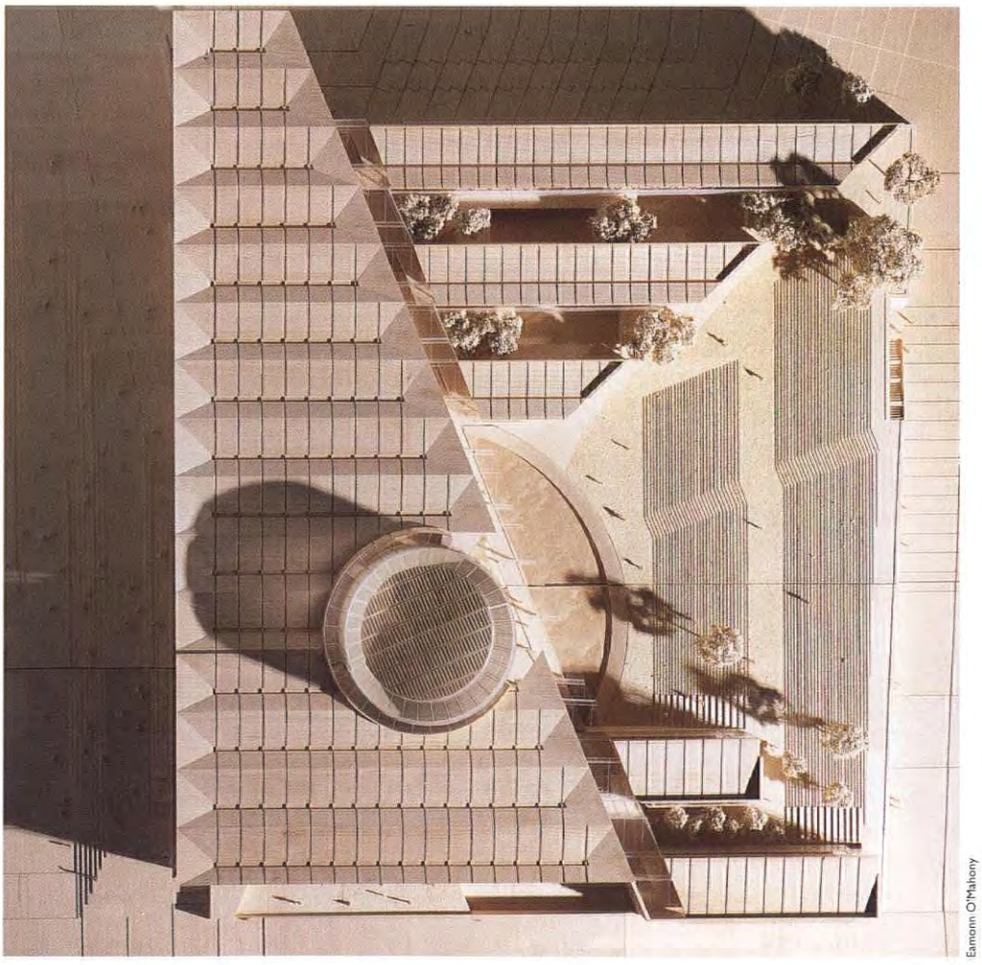
The primary role of the building is to encourage citizens to participate in the democratic process. To this end, the design places the public at the heart of the new complex and brings them into direct contact with the working spaces of the institution.

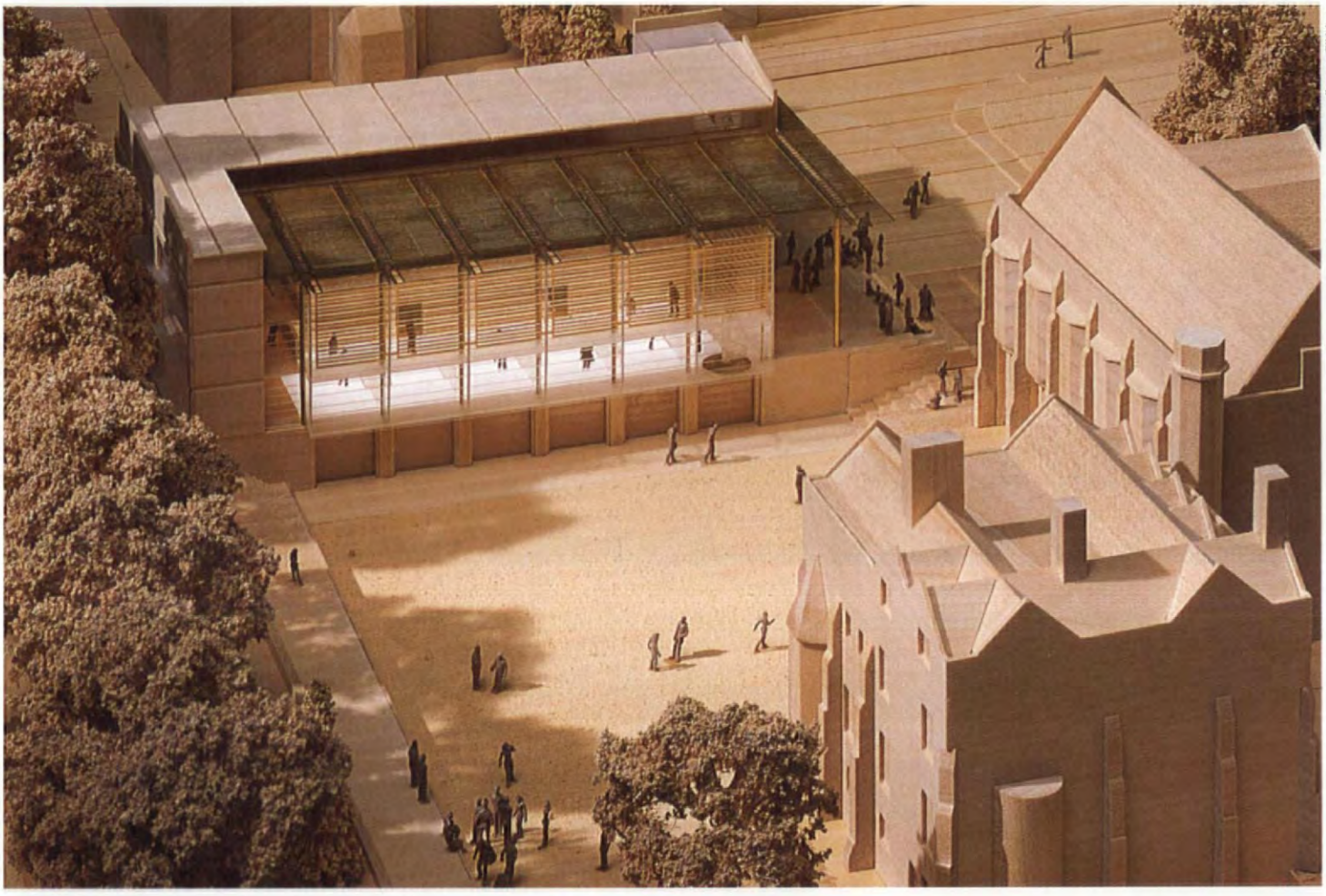
The public foyer surmounting the hill extends the open public spaces adjacent to the site. The foyer is a space of meeting and exchange between the public and their representatives: a contemporary Agora for a modern and dynamic democracy.

The foyer is lined by the committee and political meeting rooms. At the symbolic and functional centre of the building is the parliament chamber itself, a tall alabaster drum diffusing light into the foyer that surrounds it.

The hot dry climate of Nicosia informs the architecture of the building. Deep overhangs, massive construction and evaporative cooling reduce the heat built up during the day. At night, natural ventilation precools the structure.

The building is 13,000 m² on 4 levels. The basement provides parking for 160 cars. The construction of the building is due to start in 1996.


Eamonn O'Mahony

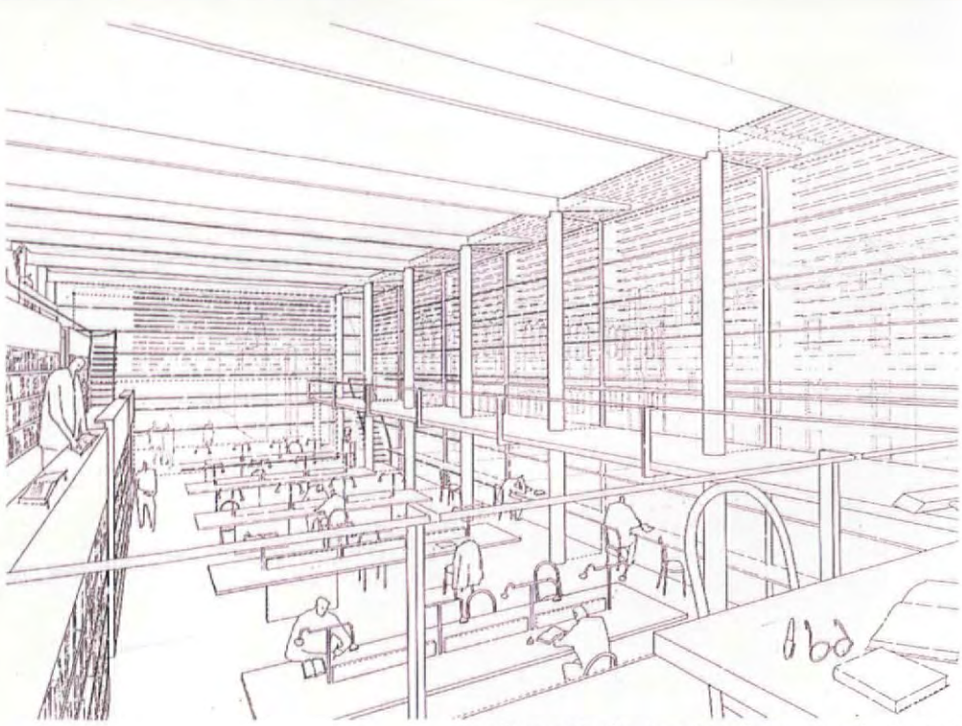


Eamonn O'Mahony

Oxford Institute for American Studies
Oxford, England
International Competition 1994, 1st Prize

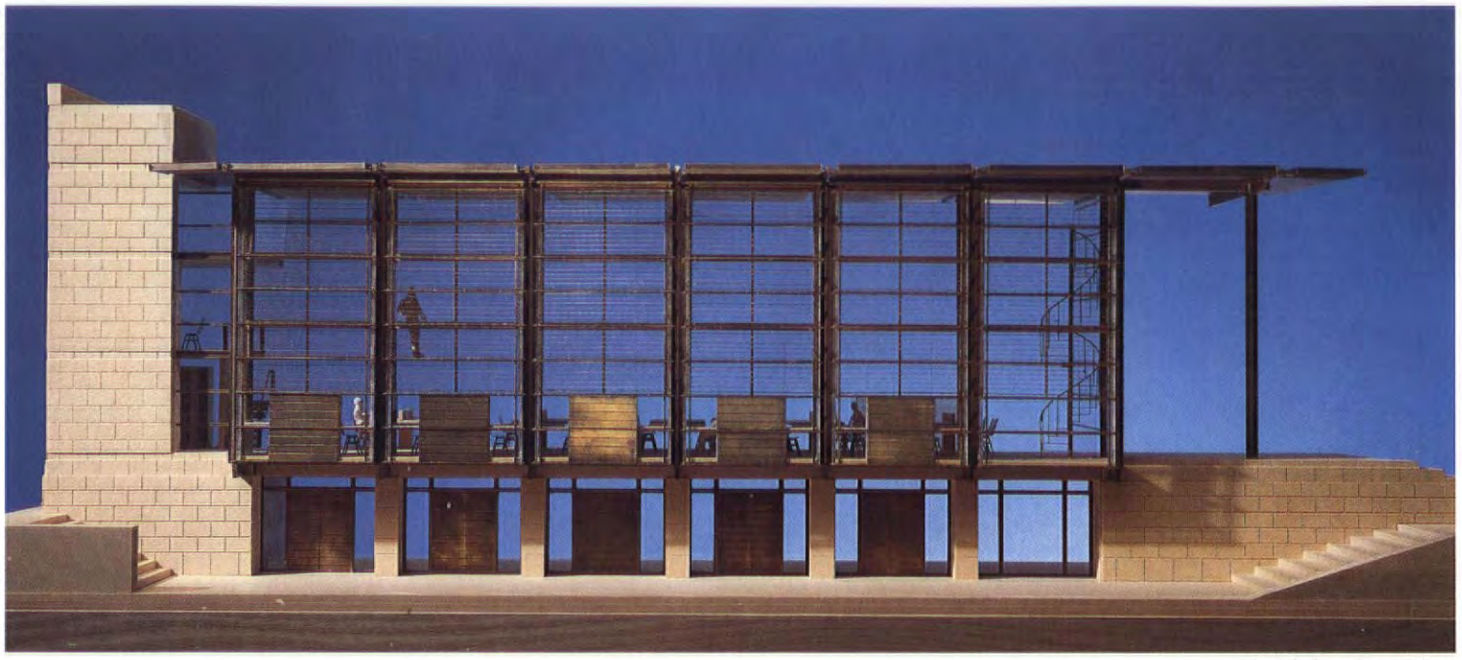
The Institute for American Studies at Oxford University is set in the centre of Oxford between two institutions with traditional links to the United States: Rhodes House and Mansfield College. The Institute will be a place of research, teaching and discussion: a forum for the exchange of ideas between visitors, academics and students.

The design arranges the accommodation in a compact pavilion addressing the relandscaped Mansfield College gardens. The library, which is to house the important collection of books at present in Rhodes House, is the heart of the building design. The reading room, a lofty light-filled volume overlooking the garden, serves both to identify the institute to the outside world and to provide a focus for the life within the building. The reading room is flanked by a wing of support spaces, book-stack areas and academic offices.



Perspective drawing of reading room at the Oxford Institute for American Studies

Eamonn O'Mahony



Model elevation of the Oxford Institute for American Studies

Kohn Pedersen Fox Associates (Int) PA 1989-1995

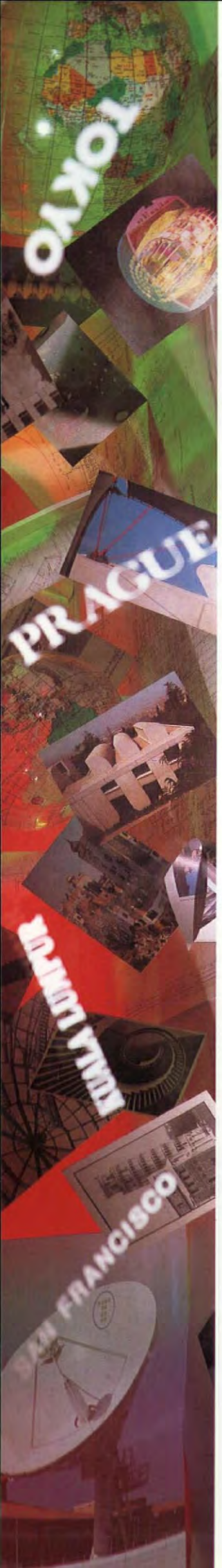
Partners - *A Eugene Kohn, William Pedersen, Sheldon Fox, Robert L Cioppa, William C Louie, Lee A Polisano, David M Leventhal, Gregory Clement*

Senior Associate Partners - *Peter Tao, Paul S King*

Associate Partners - *Karen Cook, William Davis, Kevin Flanagan, Andreas Hausler, Lars Hesselgren, Wolfgang Neumüller*

Present Team - *Simon Appleby, Roxana Asad, Ron Bakker, Scott Berry, Kieran Breen, Pat Bryan, Craig Burns, John Bushell, Bettina Dittemer, Gunter Dörr, Brigitte Duperray, Astrid Fuhrmeister, Edgar Gonzalez, Britta Greece, Willemina Hagenauw, Kai Hansen, Viktor Johansen, Mark Kelly, Steve King, Ursula Klein, Wolfgang Lechner, David Long, David Lukes, Melody Mason, Selina Mason, Robert Mathewson, Neil Merryweather, Suzanne Middleton, Luc Monsigny, Sybille Müller, Lucy O'Brien, Kia Pedersen, Fred Pilbrow, Tony Plaw, Eliseo Rabbi, Gerhard Rinkens, Marjorie Rodney, Marcus Springer, Sarah Sussman, Hans Peter Tschorn, Bernard Tulkens, Des Wright*

Former Employees - *Johanna Aichman, Yasmin Al-Ani, Tomas Alvarez, Shirley Barton, Sabine Begemann, Margaret Berry, Elise Bloss, Maik Buttler, Karl Clos, Mark Costandi, Courtney Coyne, David Daponte, Barry Docker, Louise Garland, Grant Garner, Susanne Geiger, David Gester, Graham Goymour, Alan Grant, Tracy Green, Annette Gröhmann, Lindsay Gwilliam, John Hunter, Jonathan Jacobs, Mark Johnston, Anna Joynt, Katherina Kanzler, Katherine Kennedy, Sorina Kopp, Cecilia Kramer, Grace La, Martha Lagess, Patrick Lynch, Roxanne Manser, Cindy Marshall, Chris McDonald, John McFarland, Michael McNamara, Evelyn Neumann, Natalie Newey, Kevin O'Leary, Elizabeth Parkes, Paul Pichardo, Erik Prochnik, Michael Regan, Francisco Rencoret, Russell Rocker, Michael Rose, Howard Rosenberg, Matthias Schlotmann, Pablo Seggiaro, Andrew Shields, Lloyd Sigal, Thomas Sontheimer, Jean Marc Soulas, Catherine Soulas, Alexander Strub, John Stuart, Randal Suttle, Richard Thomas, Kyle Tornow, Luz Vargas, Juan Vieira Pardo, Sally Webb, Megan Williams, Scott Wilson, Terry Wilson, Suzanne Woods, Klaus Zahn.*



GLOBAL REVIEW

THE REICHMANNS' RETURN

Two years on from the collapse of the Olympia and York empire, the Reichmann brothers, founders of the property empire, are looking to start afresh with a clutch of projects in Mexico.

Small? Fairly, by the standards of Battery Park City or Canary Wharf. But Reichmann International, as their new company is called, is in partnership with mega-financier George Soros, so small is relative. The team quickly identified Mexico as a highly important growth area, even without new trade agreements pending with the United States.

So: a $700m city centre complex in Santa Fé (hotel, offices, housing, shops); a $350m office tower in the business district of Mexico City; and a $700m restoration of the earthquake-damaged historic core, are all about to start.

To reduce their exposure at Santa Fé, the Reichmanns have struck a joint venture with Mexico's largest construction firm, ICA Sociedad Controladora. Industry commentators point out that, unlike the Canary Wharf venture in East London that brought down Olympia and York, Santa Fé is already served by a good road and already has financial institutions and a shopping centre based there. Moreover, the scheme will be phased to test demand rather than built all at once. For the Mexico City office tower, however, the old Reichmann rule of "Build it and they will come" applies. It will just be better, therefore people will go there, they say. You have to admire their chutzpah.

BELFAST PAYOFF

A "peace dividend" in the form of a construction boom is promised for Northern Ireland if the lid can be held down on sectarian hostilities long enough.

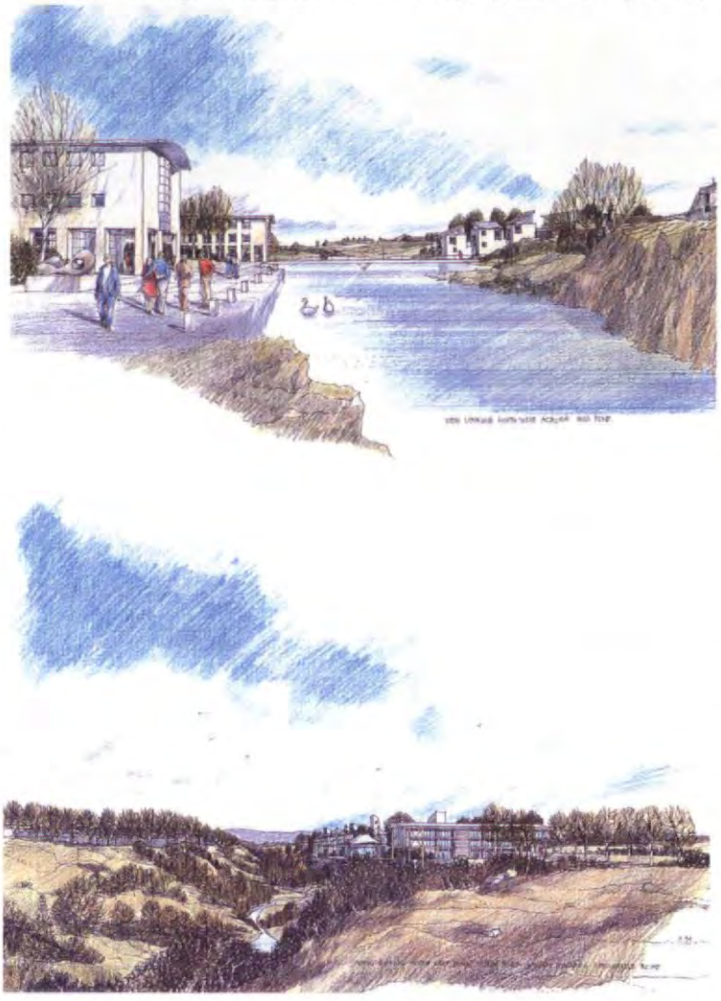
Belfast and Londonderry, the two most divided cities in the province, are to receive up to £200m of European Union aid over the next five years to regenerate the urban areas along what are euphemistically termed the "peace lines" between the warring Republican and Loyalist areas. There is, however, local scepticism about the effectiveness of such measures, and of government-backed schemes to regenerate the Laganside area, Belfast's docklands.

Unexpectedly, Northern Ireland has long been one of the most profitable regions for big retailers to set up shop - a by-product of depressed property values and high salaries for the very large civil service contingent based there, resulting in a higher spending power per government-employed head than any other part of the UK. Paradoxically, it is at the same time statistically one of Europe's poorest regions, with one of Europe's highest unemployment rates.

Should the virtual civil war in Northern Ireland really cease, then the already large tranche of European money earmarked for the province will increase markedly. Already £900m of "structural funds" have been set aside over six years, plus another £45m contribution to the International Fund for Ireland (most of which comes from the United States), plus an unspecified amount linked to co-operative ventures between the Republic of Ireland (a big recipient of EU aid) and the North. The new money comes on top of all that, making the area potentially one of the prime European development focuses.

Although to describe the Belfast Peace Line as a "Berlin Wall" is to exaggerate its physical and political effect, and

"Illustrative drawings" of RMJM's Peace Line Campus for the University of Ulster



although there is no comparison with the astonishing level of destruction in Beirut, nonetheless it has blighted areas through the city in a globally familiar way.

The mostly physical divide, sometimes of cleared ground and sometimes of screens and walls, runs between the city's Republican and Loyalist areas and was originally intended to protect each community from random fire from the other. As with Berlin and Beirut, Belfast will be the beneficiary of a number of schemes to regenerate the areas along the line, where development of any other than the military or the purely symbolic has been extremely difficult for two decades.

Nothing of the scale of regeneration suggested for Berlin's Potsdamerplatz, let alone central Beirut, is envisaged. The likeliest outcome is a succession of relatively low-key interventions into the city, several landscaped rather than built, but with the flagship of a wholly new campus for the University of Ulster. A feasibility study by accountants Touche Ross and architects RMJM has already been carried out for the campus, to be built on a derelict factory and housing site at Springvale, a hilly, waste- contaminated plot exactly on the line between the Republican and Loyalist ghettoes of West Belfast.

The £100m project, forming a fourth campus for the University of Ulster, would be the biggest university project in Ireland - north or south - since University College Dublin moved from the city centre to its Belfield campus. That was masterplanned in 1964 by the Polish practice of A & D Wejchert after an international competition. A competition, or series of competitions, is inevitable at Springvale also if - as now seems likely - the project receives the blessing of the EU.

Architects in the province - there are over 140 practices, not quite half of them, but all the major firms, in Belfast - are happier about their prospects now than they have been for some years. Commercial interest in Ulster is picking up: typical is a large plot of cleared land by the harbour, accessed by a new EU funded bridge, that is attracting great interest from retail-minded developers. However the Peace Line plans are not universally welcomed. "People will still be lobbing bricks at each other on the Peace Line," said one Belfast businessman. "You can't just dissolve centuries of conflict. There's a risk we'll get a nicely-landscaped battleground."

Barrie Todd, eponymous principal of the award-winning Todd Architects and Planners, based in Belfast and London, expects a surge of investment in the province. It will be needed, he says, to help fill the jobs left void both by the run-down of the state security presence and the rival terrorist groups. If not, he warns, the ex-terrorist runners have all the equipment and experience to turn to organised crime in an alarmingly big way.

For Todd, the big challenge is neither the Peace Line nor Laganside (which he dismisses as a mistimed urban gesture) but the city centre. "There are great gaps and cleared sites two minutes from the centre," he points out. "What Belfast needs is an international masterplanning competition for the core of the city. If that is got right, the rest will follow."

We will know when Ulster is finally accepted back into the development community. The signal will be when the big mainland and overseas-based pension funds start investing heavily. Then, it will be clear that a sea-change has occurred in the way Northern Ireland is perceived by the world at large.

WIDE OPEN LOUVRES

"How many visitors?" pondered the Louvre official vaguely. "Well, before we opened the Richelieu Wing it was 5 million a year. Now, maybe we're getting near 50 per cent more."

The figures are starting to emerge: Paris's grandest of all Grands Projets is turning out to be a copper-bottomed popular success, with three years to go before it is finally completed. True, the opening in late 1993 of the Richelieu Wing, formerly Edouard Balladur's Ministry of Finance, added 50 per cent to the capacity of the museum to display its collection - virtually nothing is now left hidden in vaults - but the exactly parallel increase in visitor numbers has still been startling.

Rather than being all overseas tourists, half of all visitors to the biggest gallery in the world (it is now officially larger than the Hermitage in St. Petersburg) are French. Before Ieoh Ming Pei and Jean-Michel Wilmotte completed Richelieu, the French accounted for just over a third of all visitors. As the official explained: "Les fidèles du musée sont de plus en plus nombreux." Only 44 per cent of visitors in 1988 (when total visitor numbers were a relatively select 3 million) had been to the Louvre before. But that was before 1989's Great Leap Forward: the

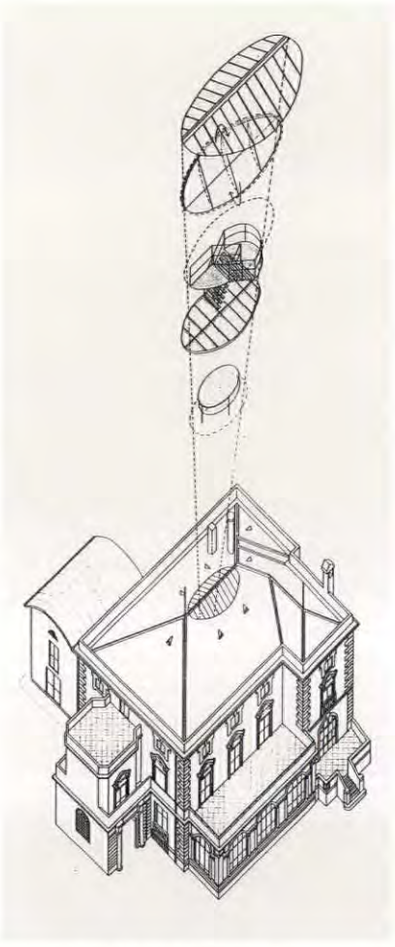
opening of Pei's pyramid in the central courtyard, with its huge circulation space beneath. The returning visitors figure is now 63 per cent and rising.

A year after the mad success of the Richelieu, the project continues at a less visible, but still impressive, scale. The Denon Wing has just opened 2,000 square metres of new sculpture galleries on two levels - one which was the old Gallerie Mollien, the other - not previously open to the public - having been first the stables of Napoleon III's 140 horses, later the service dock for the museum. Architects Catherine Bizouard and François Pin were responsible for both. At the same time, a new floodlighting scheme for the Louvre's courtyards was completed.

Competitions are now promised for the final phases of the gargantuan museum upgrading as the oldest galleries are brought into line with the crowd-pulling new ones. In 1997, the whole thing is symbolically brought to a close by the re-making of the eighteenth century Carrousel Gardens (beneath which lies Pei's underground shopping centre) with its mini Arc de Triomphe beginning the axis that shoots through the adjoining Tuileries Gardens - also being restored - on through the better-known Arc and right out to Spreckelsen's Grande Arche at La Défense. So ending about 50 years of grand planning. By which time there may be - what? Ten million visitors annually to the Grand Louvre?

BRITS IN MADRID

After its success employing Charles Correa to design its Indian headquarters (thus helping Correa to win the coveted Japan-funded Praemium Imperiale for architecture in 1994), the British Council has continued its reputation for architectural patronage with its new offices in Madrid.



The new lightwell for the British Council in Madrid, by Jestico & Whiles and Reid Fenwick

Number 31, Calle General Martinez Campos is the restoration of a "listed" 1907 villa to be the base of the council's cultural activities throughout Spain. Architects Jestico and Whiles, with Reid Fenwick Asociados, cleared away a clutter of outbuildings and inserted an elliptical, conical lightwell through the heart of the building, tilted slightly north-east to catch morning rather than hot afternoon sun. The contractors were Salconsa.

Jestico and Whiles are currently active in commercial projects in Prague, where three years ago they completed the British Council HQ with the help of Surpmo Atelier. Two other conversion jobs, the British Embassy in Latvia (formerly a KGB command post) and the ambassador's residence in Sofia, Yugoslavia, are near completion.

CRETAN LAIRS

Fed up with pumped-concrete shell huts taking over from traditional stone houses throughout the Mediterranean region? Fret no more: a means has been found, it is claimed, to speed up traditional construction, so making it cost-effective again.

The concrete house, usually made with insitu walls and precast floor panels, has spread from southern Spain - where, when painted white, it can pass muster among the rendered older dwellings of, in particular, Andalusia - into territories where it can claim no such useful precedents. The problem, as it was seen, had become so noticeable in Crete that an architect, Emmanuel Peponis, and a builder/engineer, Teodore Anagnostopoulos, have collaborated to develop an accelerated form of traditional stone building.

There is no great deal to it - simply the creation of stone cavity walls, using temporary formwork panels, that act both as services voids and a location for insulation. Thus when the walls are finished, so is much of the pipework and wiring.

Peponis claims that climate, as much as sentiment, is a reason to build again in thick stone in the Aegean - both to act as a thermal buffer and, visually, to create the appropriate play of light and shade in the strong sun. The method has to succeed in the

marketplace, which comes down entirely to a matter, not of aesthetics, but of labour costs and time. Hence the relentless spread of the pumped-concrete home. Peponis and his partner Maro Dayianti in Crete's Architect Design Group reckon their "accelerated traditional" housing method now matches the concrete-pourers on price and time, while still allowing local materials and forms to be used.

Details from: Architect Design Group, 1 K. Tavlas Str., Aghios Nicolaos, Crete, Greece. Tel/fax: Greece (+30) 841 28804.

PHILIPS FLASHBACKS

museum as toaster

A curious meeting of minds, in a curious place. There was Alessandro Mendini, the Milanese pope of post-Modernism. There was Alberto Alessi, the fun-loving head of the fashionable designer-name domestic products company that bears his family name. There was Stefano Marzano from Philips, the Dutch electrical white-goods maker. And there was Franz Haks, the diminutive designer-clad, bottle-brush haircut director of the new Groningen Museum.

The point of all this was to launch a range of electrical goods, made by Philips, which have been stylistically "breathed on" by Alessi and Mendini. Mendini, of course, is the lead architect on the New Groningen Museum, previewed in *WA* 29, an assemblage of pieces arranged as an archipelago in a canal basin that reminds one irresistibly of an expanded set of early 1980s Memphis group furniture. The launch was also by way of a preview of the Museum, which at that point was close to completion (it opened on October 28, 1994).

This was an appropriate choice, for it is very difficult to separate the philosophy of the "Philips- Alessi Line" of products, as it is called, from the design philosophy of the new museum. The products - jug kettle, toaster, juicer and coffee-maker - are functionally no different from the more normal products of Philips or a hundred other manufacturers. But with their curvaceous, vaguely 1950s, casings and pastel shades they can be sold for a great deal more money than the standard products - something that Philips, which has been making worrying losses in recent years, is keen to encourage.

Similarly the building is possibly the prime example of the museum for its own sake, the building as object of veneration rather than its contents. The Groninger Museum with its provincial collection already exists elsewhere in this agreeable city, but nobody ever pays it much attention. With the value-added casing of Mendini and his team (Starck, de Lucchi, Coop Himmelblau) it makes Haks, who commissioned it, something of a star, simultaneously improving the image of Groningen as a place of metropolitan resort rather than sleepy regional capital.

Welcome, then, to the final triumph of architecture as styling. Just as toast from a Mendini-Alessi- Philips toaster is dull stuff compared with the jolly object it pops out of, and orange juice tastes the same however it is squeezed, so what is in Haks' museum is largely irrelevant (good porcelain and some reasonable American Pop Art, when *WA* peeked in a month before opening). To believe in all this, you have to believe in the myths that its creators like to spin around it. Regarded coldly, it is no more than an instant period piece.

DISNEY IMPASSE

"There's a lot of money going into Disney's America, and when you invest that much in a project, the image of people standing round with picket signs on the day you open doesn't sit well." Thus spake Robert Stern, noted post-Modern architect and Disney board member, of the brouhaha that led to the embarrassing cancellation of Walt Disney Co's latest project, an American history theme park outside Washington.

"Disney's America" has not been abandoned, mind you. According to the company's chairman Michael D. Eisner, the US$625m project in rural Prince William county, Virginia, close to the famous Civil War battlefields of Manassas, will be relocated.

What is intriguing about the affair is the way that American protestors were lining up to oppose the scheme in a manner not wholly unreminiscent of the coming of EuroDisney to the Parisian hinterland. In both instances, the theme park was given enthusiastic backing by the local government on the grounds of the jobs and spin-off consumer spending involved. The state of

"Philips-Alessi" products. Back to the future

Managua Cathedral by Ricardo Legorreta. A dramatic new focus for the rebuilt city

Lourdes Legorreta

Lourdes Legorreta

Virginia was prepared to finance a lot of new infrastructure to make things easy for Disney. However, the fact that Disney was getting a lot of bad publicity simply by wanting to put a theme park near some battlegrounds was enough. Not only would it cost serious money to fight such protestors as the National Trust for Historic Preservation, Eisner decided, but such a battle would harm his organisation's "family friendly" image.

Interesting that Disney could even contemplate such a project when EuroDisney is doing so badly. As one un-named entertainment industry critic commented in *The Washington Post*: "This is simply another monumental blunder in the tradition of EuroDisney...there's a certain kind of arrogance that comes from Eisner even calling it Disney's America."

Disney now has a different problem, if it really does want to proceed. Assembling the packages of land near Manassas was done in conditions of extreme secrecy, lest rumours of the project drive up land prices. With the states of Maryland and North Carolina now eager to win what is still seen as the economic plum of Disney's America instead, such secrecy will be near impossible to maintain.

RECYCLING WINDOWS

Windows used to be long-lifespan things that nobody seriously considered for scrap value. But the boom in plastic-framed UPVC windows and doors has produced a new weapon in the recycling armoury.

Germany, where domestic waste recycling has been conducted with near-religious fervour for the past several years, will shortly forbid the dumping of glass and plastics in landfill sites. As a result a complete new UPVC window and door recycling plant, costing DM30m, has been set up in Behringen. The plant claims to be able to recover all UPVC and 97.5 per cent of everything else making up these building components - glass, metal, and rubber.

Given that around 100,000 such windows are dumped in Germany every year - and that from January 1996 this will be illegal - the plant has been set up by one window manufacturer, Veka, with the agreement of its commercial rivals that they too will use it.

Keeping such a plant supplied would seem to be a logistical nightmare, but Behringen hopes to become a Europe-wide centre, and has a relatively low break-even point of 7,000 tonnes of waste per year. Unlike glass, which degrades with recycling, UPVC is supposedly 100 per cent re-usable. As it makes up one-fifth of global plastics production, this is perhaps just as well.

What is unclear is whether the perceived environmental benefits are as total: how, for instance, the amount of energy needed to reclaim the material and the wastes produced in the reclamation process, compare with the energy consumed and wastes produced when making the stuff in the first place. Scrap wood sub-frames to plastic windows, for instance, will be minced to make particleboard, a material requiring a heavy input of new chemicals. Closing what is called the "ecological loop" is rather like trying to discover perpetual motion.

FOUL

Privatisation of state industries - one of the spurs to development in former Eastern Europe - is hitting problems caused by lack of pollution control in earlier years.

Many new developments, particularly factories built by Western companies, are put up on or near the sites of former industries that were careless, to say the least, about toxic waste. But the state agencies doing the selling are unlikely to advertise the fact, or even know about it.

An overseas investor is likely to hit two costly glitches straight away: the cost of cleaning up the site and possibly its surroundings, and legal action from citizens who were unable to secure any redress from the state previously. It's another version of the widespread problem of not knowing what happened to a parcel of land in earlier years: as with land confiscated from Jewish owners by the German Nazis and subsequently taken over by the East German state. That legal and emotional tangle is still delaying development in Berlin and elsewhere.

Countries with the severest pollution-related problems tend to be Poland, Romania, Russia (where inward investment is also being hit by the wave of organised crime) and Hungary. You can, if the problem is discovered soon enough, negotiate a lower price: but in some cases the costs of cleaning-up and compensation would give some land being sold off a negative value. It is revealing that a survey carried out by the World Bank with the OECD makes "environmental liability" a bigger worry for western firms than either political uncertainty or insufficient infrastructure.

The rule of "Let the Buyer Beware" seems appropriate. However the problem is not unknown in the West. Ultra-pol-

luted land with negative values were commonly encountered in the early years of Britain's attempts to redevelop its derelict docklands areas. In the end, the state had to pay to prepare the land before private developers would take the risk.

HONG KONG EXTENSION

An unusually low-rise, horizontal structure is soon to make an appearance alongside its high-rise neighbours on Hong Kong island. By mid 1997 the extension to the Hong Kong Convention and Exhibition Centre will be opened directly in front of the existing centre on the Wanchai waterfront. The dramatic new landmark which is to be sited on an island being reclaimed from Victoria Harbour, is being built by Wong and Ouyang Hong Kong Ltd in association with Skidmore, Owings and Merrill of Chicago. The architects were chosen from more than 61 companies wordwide.

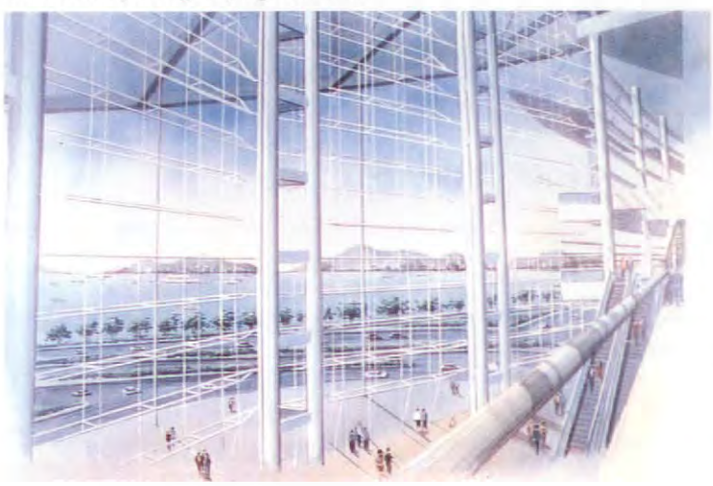
The new atrium link spans a 75 metre water channel, and connects with the existing building at three levels. Its intended use is for light exhibitions and displays. The multi-level western concourse runs north to south along the length of the building and has a glass facade averaging 40 metres in height, with zones of varying transparency and tints to provide a sequence of views and to achieve energy efficiency. The grand foyer houses the principal reception area with a glass facade facing Kowloon. It commands an impressive 180 degree view of Victoria harbour and provides a dramatic entrance to the conference hall. The dominant sculptured roof unites all these features and gives credence to the architects' inspiration of a bird taking off over water.

TO RUSSIA WITH RTKL

Tver Universal Bank is, if this is not a contradiction in terms, one of Russia's fastest growing financial institutions. Construction for their new headquarters is now underway, designed by RTKL Associates Inc., an international architectural firm based in Baltimore, Maryland, with seven offices and a further six affiliated offices worldwide. The company are working in a design and build consortium led by Hudson Partners, Chicago, with the aim of incorporating western building techniques and technologies into the design and build process. The local architects for the project are Architectura Perspektive in Tver. RTKL claim to have "learned as much from the Russians as they have from us". This might have something to do with patience and humour, but they don't go into the details!

The industrial city of Tver has gradually been stripped of its architectural heritage by successive political and military turbulence. The internally illuminated tower which will act as a beacon on the top of the eight storey building is intended as an eternal symbol for new hope and aspiration for the city fathers. RTKL have also been working with project managers from Archinomics Group, Chicago and Moscow, as well as Diebold International, security consultants.

Epic scale. The proposed extension to the Hong Kong Convention and Exhibition Centre by Wong Ouyang and SOM



TALLEST BUILDINGS

There is a man called Alfred McNeill who has built 19 of the 100 tallest buildings in the world today. McNeill, a developer, is chairman of America's Turner Corporation. He is one of the less well known names speaking at the fifth world congress on "Habitat and the High Rise: Tradition and Innovation" taking place in Amsterdam in May 1995.

Other names include architects Aldo van Eyck, Kiyonori Kikutake, Rem Koolhaas, Cesar Pelli and Sir Richard Rogers. Not to mention construction experts, sociologists and anti-high rise campaigners. The idea of the congress is the difficult one of maintaining cultural traditions in the face of technological innovation in buildings - presumably tall ones.

The organisations behind the congress are the United States-based Council on Tall Buildings and Urban Habitat, and the Dutch Council on Tall Buildings.

It is a five-day event, held from May 14-19, 1995. Details from Council Headquarters, Lehigh University, 13 East Packer Avenue, Bethlehem, PA 18015, USA. Telephone: 610/758-3515. Fax: 610/758-4522.

SETBACK FOR HISTORY

Increasing concern is being expressed in Britain over the growing incidence of lead corrosion in new buildings. The use of lead sheeting has become very popular as a result of the growing power of conservationist interests and the revival of pitched roofing for new buildings after numerous flat roof failures. Fuelled by the historically low price of lead products, the craze for lead roofing gathered strength throughout the eighties and was taken up first by so-called Classical Revivalist architects, seeking to recreate ancient building methods, and later by a number of formerly mainstream Modern architects, notably Michael Hopkins and Partners, designers of such award-winning structures as Bracken House, two David Mellor cutlery buildings, the new Glyndebourne Opera House and the forthcoming New Parliamentary Building in London's governmental Westminster district.

The pattern of roof failure that has been detected in England involves severe corrosion on the underside of lead sheets leading to hairline fracturing caused by diurnal temperature variations followed by leaking. This has been occurring in buildings less than ten years old. The British Building Research Establishment has been investigating this unexpected pattern of failure but thus far has reached no conclusion as to its cause. Replacement of "modern" large-area lead roofs, once thought to be maintenance-free, could cost the lead roofing industry up to £1 billion ($1.6bn). □

BUILDING IN THE USA

The United States of America (USA) is located on the North American continent with three separate land areas. The major continental area is bounded on the north by Canada, the east by the Atlantic Ocean, the south by the Gulf of Mexico and Mexico and the west by the Pacific Ocean. The Hawaiian Islands are surrounded by the Pacific Ocean. Total area of the USA is 3,618,770 square miles (9,372,571 sq km), not including the north mid-western Great Lakes.

The country has a varied geography. The northern east coast is rocky but the southern coast has a wide coastal plain gradually rising to the Appalachian Mountains which run north-south. Between the Appalachian Mountains and the Rocky Mountains is a wide interior plain.

Climate: The United States encompasses almost every climatic zone there is from tropical in Florida, to arctic in Alaska, deserts in the southwest region, and temperate zones along the coasts.

The frost free period is greater in the southern USA. There are over 240 days along the Gulf of Mexico, to under 120 days along the Canadian border. In general, the climate is milder along both Oceanic coasts than the interior.

Population: 245 million.

America is a highly mobile country, as 10% of the population relocates annually.

Language: Predominate language spoken is English although there is no official language. A minority of the population speak Spanish.

Ethnic Composition: Whites (83%), Blacks (12%), Hispanic (7%), Asians, Pacific Islanders, American Indians, Eskimo Inuits and Aluet (3%).

Capital: Washington, District of Columbia.

TRAVEL INFORMATION

Time Difference: There are seven time zones in the USA.

	Eastern	Central	Mountain	Pacific
GMT	-5	-6	-7	-8

(Alaska is 9 hours behind, and Hawaii is 10 hours behind GMT)

Currency: US dollar ($) divided into 100 cents.

Business Hours:

Government: 9.00-5.00, Monday-Friday
Office: Generally 8.30-5.30, Monday-Friday
Banks: 9.00-2.00 or 4.00, Monday-Friday;
9.00-12.00, Saturday (occasionally)

National Holidays:

New Years Day	January 1
Independence Day	July 4
Christmas Day	December 25

Most other annual holidays fall on a Monday, except for Thanksgiving which is the 4th Thursday in November.

Airport Information: Major cities have an international airport, and a vast number of domestic flights make local travel readily accessible.

Dialling Code: America's country code is 1, and the dialling out access code for an international call from the US is 011.

GENERAL CONSTRUCTION INFORMATION

Construction Outlook: The recession of the early 1990s severely affected the construction industry. It lingers in some regions of the USA, while other areas are experiencing some growth.

The Chicago market is still competitive. Existing major projects are complete or well into construction with no new major projects in the planning stage. Nor is any new office or high rise work in progress. Office vacancy rate is high with a lot of movement to the suburbs. There is a lot of tenant work, refit and rehabilitation work.

ECONOMIC DATA

Consumer Index: 1980=100

1990	1991	1992	1993	1994(est)
159	165	170	175	180

Exchange Rates: US$ - 1.00

	UK	FGR	Japan
	£	DM	¥
1990	0.519	1.49	134
1991	0.535	1.52	125
1992	0.661	1.61	125
1993	0.675	1.73	112
1994 (Nov)	0.612	1.49	97

As with the rest of the Northeast, the construction market in New York City is beginning to pick up. This is reducing competition and raising prices. For the past several years it has been a buyer's market with sub-contractors keeping prices almost at cost to survive. Now the industry is becoming busier, material prices are beginning to be priced more realistically and sub-contractors are slowly "correcting" their prices accordingly. We expect construction costs to escalate four to five per cent in the next calendar year.

In Atlanta and most of the Southeast, the recent recession brought very low levels of construction prices in the face of ferocious competition in a shrinking market. Prices during this period fell to levels experienced in the early 1980s. Prices appear to have reached bottom around the middle of 1993 and now prices are increasing to what most in the industry would regard as more reasonable levels. Atlanta prices have risen 10 to 25% in 1994. The rapid price increases experienced in the past year should not continue much longer. Price increases may continue through the 1996 Olympics.

Rates of Inflation: The rate of inflation for the building industry is estimated at between 3-5% per annum.

Forms of Contract: There is very little regulation of processes used in the US building industry and, as a result, there is a great deal of flexibility and many choices facing building owners. At the risk of over-simplification, there are three "families" of ways that a project can be put together:

1. Traditional – where an Owner hires a firm of Architects and/or Engineers to design the project. Designs are taken to a complete level of detail including specifications. Bids (tenders) are then sought from a selected range of General Contractors (or in the public sector, openly advertised), who submit a lump sum price to carry out the work indicated in the drawings and specifications. A contract is signed and the work put in hand.

2. Construction Management – as many Owners cannot wait for designs to be fully complete before a Contractor is selected and work begins on site, there is a wide variety of methods for advancing the start of construction while at the same time introducing competition and assuming a reasonably firm price, before design is complete. These invariably involve an Owner in retaining a construction manager who may be a construction company or a professional CM

firm, during the design phase. There will then be a wide range of contractual alternatives for getting the work started.

3. Design-Build/Turn-key – this is a very common approach that is used for relatively simple industrial facilities which involves negotiating or bidding from a statement of Owner requirements which may be accompanied by very rough schematic designs, with a single company to take responsibility for both design and construction. Again there are many variations to this approach.

It is important to note that:

- The U.S. is a very large country and, while the industry has become more mobile and nationally oriented than in the past, architects, engineers, and contractors still tend to operate regionally.
- Bills of Quantities are not used in the United States for building construction although Schedules of Quantities are used as the preferred method of bidding for civil engineering work.

Design Professions: There are some 15,000 architectural design firms in the United States and 35,000 consulting engineers. Most of these are small one to five man practices. At the other end of the spectrum there are however some very large companies. The latter include Architects/Engineers, Engineer/Architects and a wide variety of engineering design combinations. Some Architects include interior design services, but there is a strong independent profession in this area.

Contractors: The American construction industry is dominated by the General Contractor, some of whom are on a huge scale. There are however over one million contracting entities in the country from the very large General Contractors to one-man subcontracting entities. Unlike many parts of Europe, the general contracting approach is preferred by Owners, rather than deal individually with separate trade contractors.

General contractors sub-contract much of the work on a project. There will be regional variations in the amount of work sub-contracted. Work in the following trades may be performed by the general contractor:

- Concrete (poured in place)
- Masonry
- Excavation.

Currently, overhead and profit markup for general contractors may be expected to be in the range of 10-15% of direct costs. Insurance and bonds may be 1-2% (of bid price) per year.

Governing Codes and Standards: Building codes are adopted by local governments, so there is no single national building code. Major building codes include the Uniform Building Code, Southern Building Code, and National Building Code.

CONSTRUCTION METHODS AND MATERIALS

Material Availability: Most building products are produced and readily available within the USA. Some building products are imported from other countries with Canada being a major supplier (eg plywood, lumber, gypsum products etc).

Labour Availability: Generally, there is a good supply of construction labour for all trades. There may be regional variations. However, the construction work force is reasonably mobile and short supply of any trade in one area will attract other workers.

Labour in the construction industry may be unionised or non-unionised depending upon the region of the country. Many contractors operate two companies: one for union and one for non-union projects.

Equipment Availability: All types of equipment for general construction are available. Most major items of equipment are rented.

Pricing Manuals: RS Means is a leading publisher of construction cost data in the USA. They publish numerous construction cost guides annually and a quarterly index.

USEFUL ADDRESSES

American Institute of Architects
1735 New York Ave, NW
Washington, DC 20006
Phone: (202) 626-7300
Fax: (202) 626-7518

American Association of Cost Engineers
209 Prairie Avenue, Suite 100
PO Box 1557
Morgantown, West Virginia 26507-1557
Phone: (304) 296-8444
Fax: (304) 291-5728

Associated Building Contractors
1300 N 17th Street
Rosslyn, VA 22209
Phone: (703) 812-2000
Fax: (703) 812-8203

Associated General Contractors of America
1957 E Street, NW
Washington DC 20006-5199
Phone: (202) 393-2040
Fax: (202) 347-4004
Telex: 279-354 AGC WSH

Building Officials and Code Administrators International, Inc
4051 West Flossmoor Road
Country Club Hills, IL 60478-5795
Phone: (312) 799-2300

Building Research Board
National Academy of Sciences
2101 Constitution Ave, NW
Washington, DC 20418
Phone: (202) 334-3378
Fax: (202) 334-2620

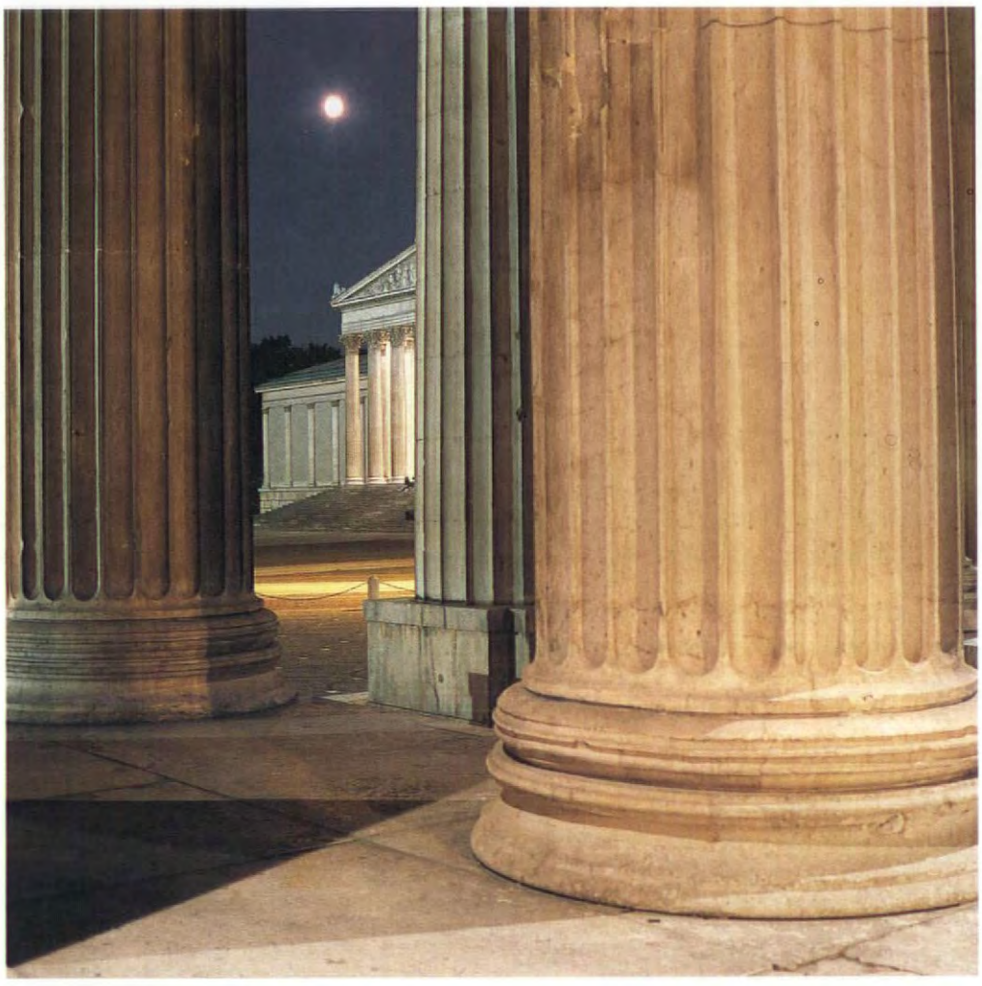
Construction Management Association of America
12355 Sunrise Valley Drive
Reston, VA 22091
Phone: (703) 391-1200
Fax: (703) 391-9323

The Construction Specifications Institute
601 Madison Street
Alexandria, Virginia 22314-1791
Phone: (703) 684-0300
Fax: (703) 684-0465

Society of American Value Engineers
60 Revere Drive, Suite 500
Northbrook, IL 60062
Phone: (312) 480-1730
Fax: (312) 480-9282
Telex: 910-221-5870

Approximate Construction Costs:
The following square foot unit rates are provided for rough comparison purposes. The costs are typical for the Chicago, Illinois area.

	$/m²
Warehouse – with offices	$540-$645/m²
Suburban Office Building, Speculative Shell and Core	$700 - $760/m²
Mid-rise Apartment Building, 1 & 2 Bedroom Units	$800 - $915/m²
Public Library	$1,000 - $1,075/m²



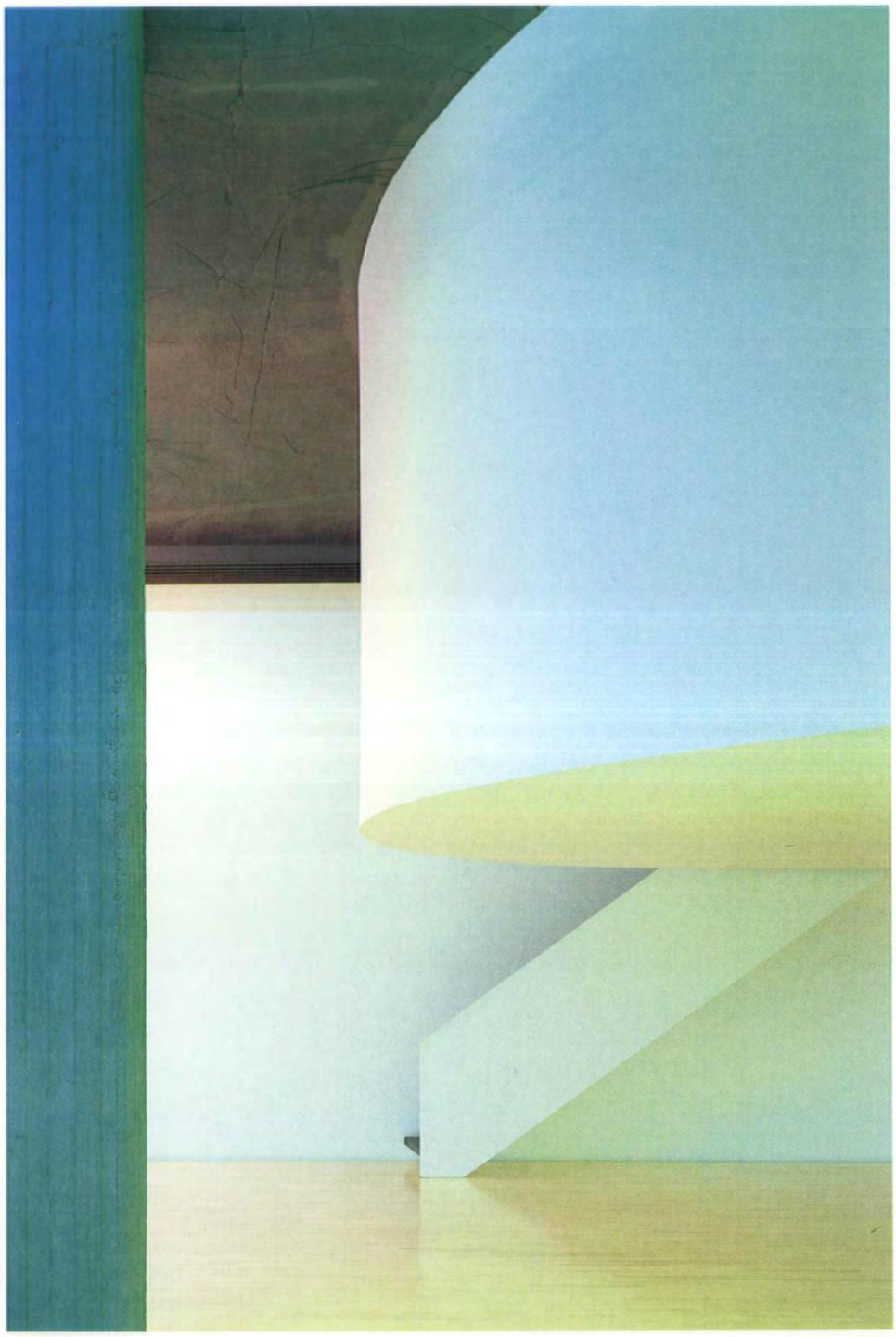
PETER BONFIG

As an architect I perceive the historical, spatial, functional and technical context of buildings beyond their manifest dimensions and atmosphere.

The challenge of architectural photography for me is to overlay this inherent professional bias with purely intuitive and visual forms of perception and to freeze the result in photographic images, using no-compromise equipment.

In the final analysis, of course, it is only the result which counts: the composition observes the laws of photography and is therefore able to speak for itself.

Nymphenburger Str. 90 c - D-80636 München, Germany.
Telephone 89/180386, fax: 89/7251182.



CEPEZED - DELFT'S PROTOTYPICAL PRACTICE

CEPEZED, originally a conventional architectural practice, have enthusiastically embraced the concept of design and build, a new idea in their country, the Netherlands. Unlike their British design and build counterparts CEPEZED stress that their solution lies in de-prototyping. Peter Wislocki examines their work in the light of the Hoek van Holland Harbour Expo pavilion.

Hoek van Holland Harbour Expo pavilion 1994

Appearances can be deceptive. The recently completed Hoek van Holland Harbour Expo pavilion by Delft-based CEPEZED architects stands as a dramatic formal gesture, detailed with uncompromising zeal for exposed structure and industrial components. The building's triangular wedge shape is not arbitrary, but a response to its unique setting. Lightweight in construction, modest in programme, the pavilion nevertheless has the physical presence to command the expanse of windswept landscape around it. Daylight filters into the generous interior through louvred glazing. Spaces overlap and overlook each other, breaking down unnecessary division between public and private realms. Visiting architects might easily conclude that the pavilion represents a Dutch equivalent to their own country's hi-tech design idiom, albeit delivered with somewhat less reticence and formal restraint.

But to discuss the Hoek pavilion in purely formal, spatial, aesthetic or constructional terms would be to overlook its significance - and that of CEPEZED's other work over the last 20 years - in wider building industry terms. This product cannot be appraised without reference to its generating process.

CEPEZED was established in 1973 by Michiel Cohen, Jan Pesman and Rob Zee, initially to work on the design of a prefabricated bathroom capsule. To Cohen, who had previously set up a kitchen cabinet-making factory in Australia, the Bauhaus ideal of industrial fabrication of building components, allowing the architect freedom to design with the security of controlled, systematic production, was but an unrealised dream. Without the benefits of sufficient research and development within the construction industry, modern buildings remained technologically primitive and notoriously unreliable. Each new design, as has so often been said before, remained an untested - hence costly and unproven - prototype.

The answer, Cohen and Pesman consistently argue, lies in de-prototyping. The cyclic replication - and gradual evolution - of component design is an intrinsic aspect of any design practice. All architects draw on their previous experience, and fall back on tried and tested solutions when the need arises. The objective of making design more systematic, even if less individually expressive, is common to many hi-tech inheritors of the Bauhaus legacy. In CEPEZED's work, however, the roles of industrial designer and architect become almost inseparable. These "industrial architects" have designed numerous components and products which have gone into production - and been specified by many other architects. CEPEZED's commitment to these cross-disciplinary activities exceeds that of Sir Norman Foster and Michael Hopkins, who have explored similar territories but have generally returned to their roots in conventional architectural practice.

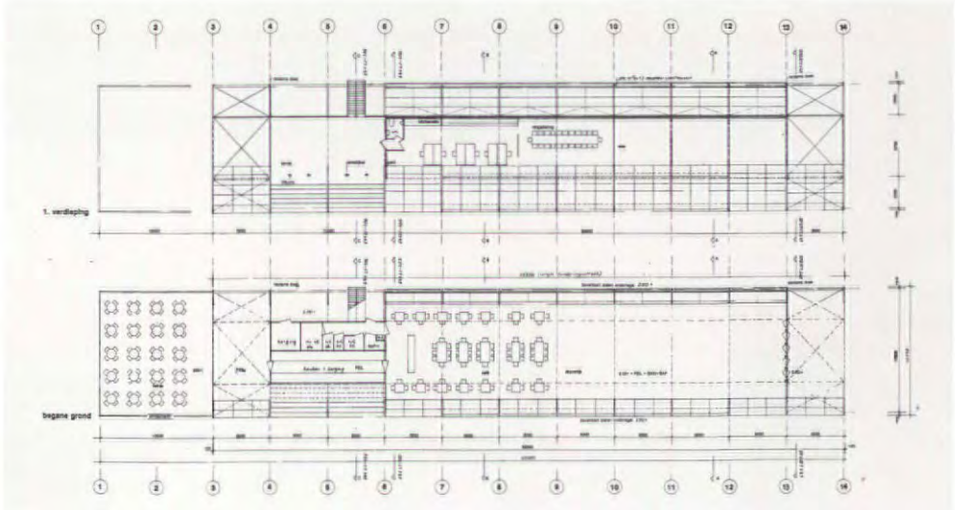
The materials and techniques employed in CEPEZED's buildings and products have not always been steel and glass. Some of their early expertise evolved from Cohen's knowledge of furniture design. Following in the footsteps of Gerrit Rietveld, another Dutch furniture-maker-cum-architect who designed mass-produced integrated service modules for unrealised public housing projects, Pesman and Cohen have applied their knowledge to schemes of increasing size and sophistication, with epoxy-bonded plywood technology, first employed in domestic fittings and artifacts, becoming a key element in successive building systems. Among the latter is Heiwo, a room-sized component system which was evolved through the experience of the firm's 1981 Wetering Port Repair extension in Rotterdam. These larger-scale products have remained commercial disappointments, the Dutch construction industry being sceptical of such off the peg building systems. By contrast, a steel flooring system designed by CEPEZED and

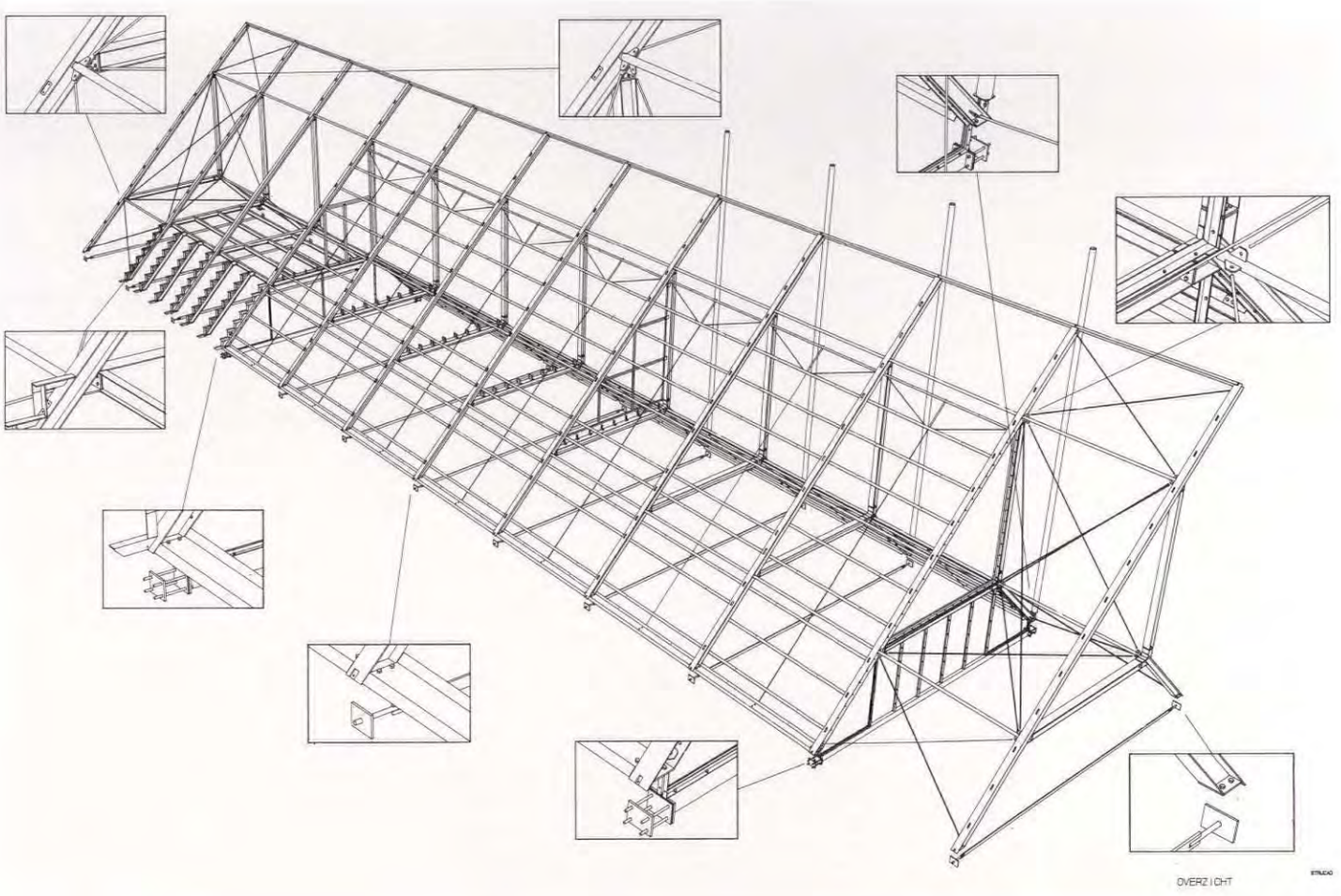
manufactured by Von Dam has proved commercially successful. Other products originating from CEPEZED's office include facade cladding systems, and extruded aluminium shower and changing cubicles.

De-prototyping, whilst addressing the issue of dependability in component design, still does not offer the designer the degree of control over the overall building process which guarantees the client best quality at lowest prices. The convergence of CEPEZED's roles as designers and industrial operatives culminated in the firm's decision to become a general contractor. Like JT in England, CEPEZED - originally a conventional architectural practice - has embraced design and build, offering identical benefits to clients on either side of the North Sea. As in the case of Britain's best known design-builders, CEPEZED accepts single-point responsibility, guaranteeing both costs and programmes. Like JT, the Delft practice claims price advantages over more conventional competitors: arguably 20-25 per cent cheaper buildings than those delivered by "traditional" routes.

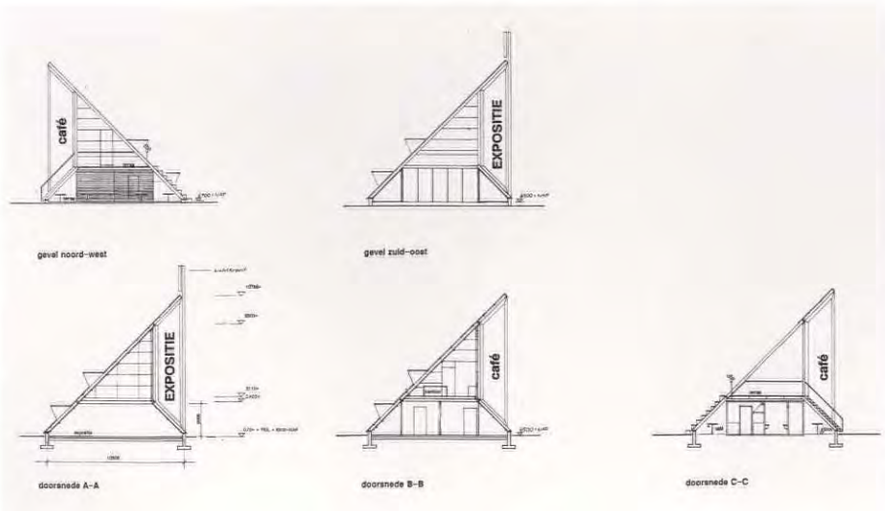
But the contexts in which CEPEZED and JT operate are entirely different; as are popular and professional perceptions of the merits of their products. Whereas in the UK design-build accounts for something rapidly approaching half of the industry's total output measured by contract value, in the Netherlands it is a new, and still rather rare, phenomenon. Of 31 billion Florins spent on new housing last year, 29 million was certified by independent architectural practices. A possible reason for the limited impact of Dutch design and build contractors is the relatively low cost of construction generally: only a third of UK costs, measured by some yardsticks.

If CEPEZED stand distinct from most of their national colleagues in terms of their preferred procurement methods, they cannot be described as purveyors of run-of-the-mill design solutions. In the UK, design-build presents its greatest benefits in the most banal of building categories: industrial sheds, the crudest of speculative offices, and much housing. Only the most distinguished of design-builders (such as JT, the "Rolls Royce" of British contractors) even make serious attempts to deal with more complex building types in more sensitive or challenging settings. CEPEZED, by contrast, exude confidence - and a high level of competence - given any site and brief.

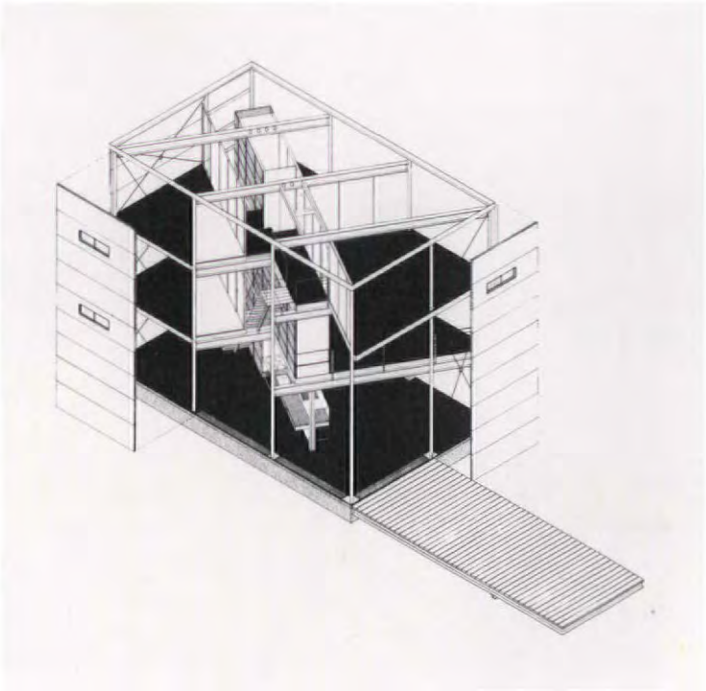




Primary steel structure supports angled "sail" (opposite page top). Deceptively conventional plan with restaurant and exhibition area (opposite page bottom) leaps into life in section and perspective (above and below left). Interior shot (below) shows elaborate sunshading and view of harbour



The Pesman house, Delft, features a diagonal servicing wall within a rectangular plan (this page) with alternate glazed and pressed metal cladding panels. 1987 Nieuwegein Technology Centre (opposite page) uses same technique on larger scale



Far from being labelled as professionally compromised or aesthetically philistine, Delft's prototypical practice has consistently produced buildings which are formally striking and technologically progressive. Their buildings are regularly published by glossy magazines which have little interest in the more narrowly professional aspects of architecture.

The Hoek van Holland pavilion, arguably more gestural and less pragmatic than most of the firm's output, none the less provides a good case study. Designed largely through sketch models (both physical and CAD), the structure is elegant and legible. Each component is articulated, making both its function and process of fabrication as explicit as possible. The graphic techniques favoured by the designers to present their work - exploded axonometrics, showing component assemblies but no context - are indicative of both the working method and its underlying technical and economic rationale.

For the Expo building CEPEZED acted as main contractors, and employed seven subcontractors to supply and erect self-contained and well defined packages of work. Individual specialists were responsible for the foundations, the primary steel structure, the facade and cladding packages, electrical services, heating, raised access flooring and interior finishes. Naturally, the design of each and every component represents the latest stage in the practice's continuing evolution of building technologies - an evolutionary process pursued in partnership with a limited number of trusted industrial collaborators. CEPEZED's reluctance to expose themselves to the uncertainties of too much competitive tendering for individual components - undermining established relationships with industrial partners - cannot be questioned by a client who has already been guaranteed a low, and above all fixed, total contract sum. By keeping the overall design simple, but insisting on the integrity of each substantial element of the building enclosure, the number of contractors involved in any one project seldom exceeds a dozen. Design clarity is married to administrative logic.

Whilst uniquely eye-catching, the Hoek van Holland Expo design is certainly not an isolated example of formal inventiveness and panache in the CEPEZED oeuvre. Jan Pesman's house, one of a pair of semis on the outskirts of Delft, inserts a dynamically skewed structural geometry into a rationally pure envelope. A service core approaching existenzminimum spatial standards articulates all of the dwelling's public areas on the open-plan ground floor. By contrast, a less personal brief for the High Tech Centre at Nieuwegein, completed in 1987, resulted in a more rigidly orthogonal building. But CEPEZED's buildings are seldom dumb boxes. The office has successfully designed small, highly individual buildings on complex urban infill sites.

CEPEZED is a small firm compared with some British design and build contractors and major hi-tech architectural practices. Currently employing about 20 staff, Cohen and Pesman are not anxious to expand in size, preferring to consolidate existing design, technical and managerial skills. The practice appears to exude confidence, and will soon be moving into new, more salubrious premises. Seen from within, CEPEZED appears to have proved a success story. Seen by outsiders - particularly British or American outsiders - CEPEZED's achievements, whilst still limited in terms of the number of major completed buildings and successfully marketed industrial products, are refreshing and challenging. The office demonstrates that hi-tech can be both cost effective and architecturally satisfying. More uniquely, CEPEZED offer a prototype of a design and build contractor whose commitment to de-prototyping of industrial components offers technical and economic benefits without spatial, functional or aesthetic penalties. This, surely, is the realisation of Gropius' ideal of using a minimum number of components (and presumably contractors) compatible with producing the maximum possible formal variety and flexibility. It seems that some twenties ideals can, with due sensitivity and inventiveness, do much to inspire architects seven decades on. □

MUSIC AND METAPHOR

The world admires the lavishness and spectacle of the French Grands Projets, a sequence of huge public works now drawing to a close. Here Peter Wislocki investigates Christian de Portzamparc's Cité de la Musique *at La Villette, a long running and complex saga that has culminated in one of the most elaborate academies of music in the world.*

The era of the Grands Projets is all but over. Notoriously unpopular with the general public, if much admired by architectural tourists and *cognoscenti*, few of the products of the French President's personal obsession with urban monuments have been subject to such heated debate as the Cité de la Musique at La Villette. Whilst work on Perrault's library will continue for some years yet, Christian de Portzamparc's populist and experimental music centre opened for public performances in January. The adjoining museum is being fitted out, by Franck Hammoutène, and is scheduled to open by May this year. The completion of the complex marks a milestone along a road embarked on by Mitterand in 1982, when the Cité was first proposed. Its brief was defined a year later, and de Portzamparc won the competition for its design in January 1985. By then it had been established that the realisation of the project would have to be phased; and many more revisions to the competition-winning design were imposed over the next decade, without challenging its fundamental strategy and most conspicuous formal gestures. The Conservatoire was opened in 1990. The more public parts of the proposals have taken five more years to execute, with the cumulative project construction cost of 568 million FF considerably exceeding original estimates.

Christian de Portzamparc was born in 1944, studied at the Beaux Arts in Paris, and went to New York in 1966 to study issues related to contemporary urbanism. His practice was established in 1971, and achieved international recognition in 1983, being one of six finalists in the Bastille Opera competition, and completing the dance school at Nanterre. His work through the eighties has earned the 1994 Prizker Prize-winner a reputation as a master form-maker. All of de Portzamparc's public buildings are recognisably skilful collages of flamboyant sculptural objects, each accommodating distinct functions. His architecture has become highly influential amongst the younger generation of French designers and students.

In the case of La Villette's Conservatoire, the building's form articulates a clear institutional programme, ranged about a central courtyard. Along the major frontage onto Avenue Jean-Jaurès, 70 teaching rooms facilitate the instruction of about 1200 students in 50 musical disciplines. The school's western flank – facing a characteristically sombre housing block designed by Aldo Rossi – accommodates a mixture of student residences, together with the mediathèque and gymnasium. The northern end of the courtyard is marked by the (almost) orthogonal volume of a 400-place performance space; and the south-eastern corner is defined by the equally differentiated dance department, containing five studios of 140-180 square metres. Right at the heart of the ensemble, the conical recital space – within which an audience of just 250 is confronted with the might of a fully-fledged symphonic organ – acts as a pivot and a focus for the formal composition.

The organisation of the recently completed eastern part of the Cité revolves around the major concert hall, which provides unprecedented flexibility in seating 800-1200 people in a variety of configurations related to a

The Western group of buildings is principally academic. View of entrance to mediathèque, restaurant and gymnasium beneath undulating perforated roof (opposite page). Teaching rooms and studios (below).

Organ auditorium (top). Opposite view of teaching block in reality (centre) and in model form (bottom)

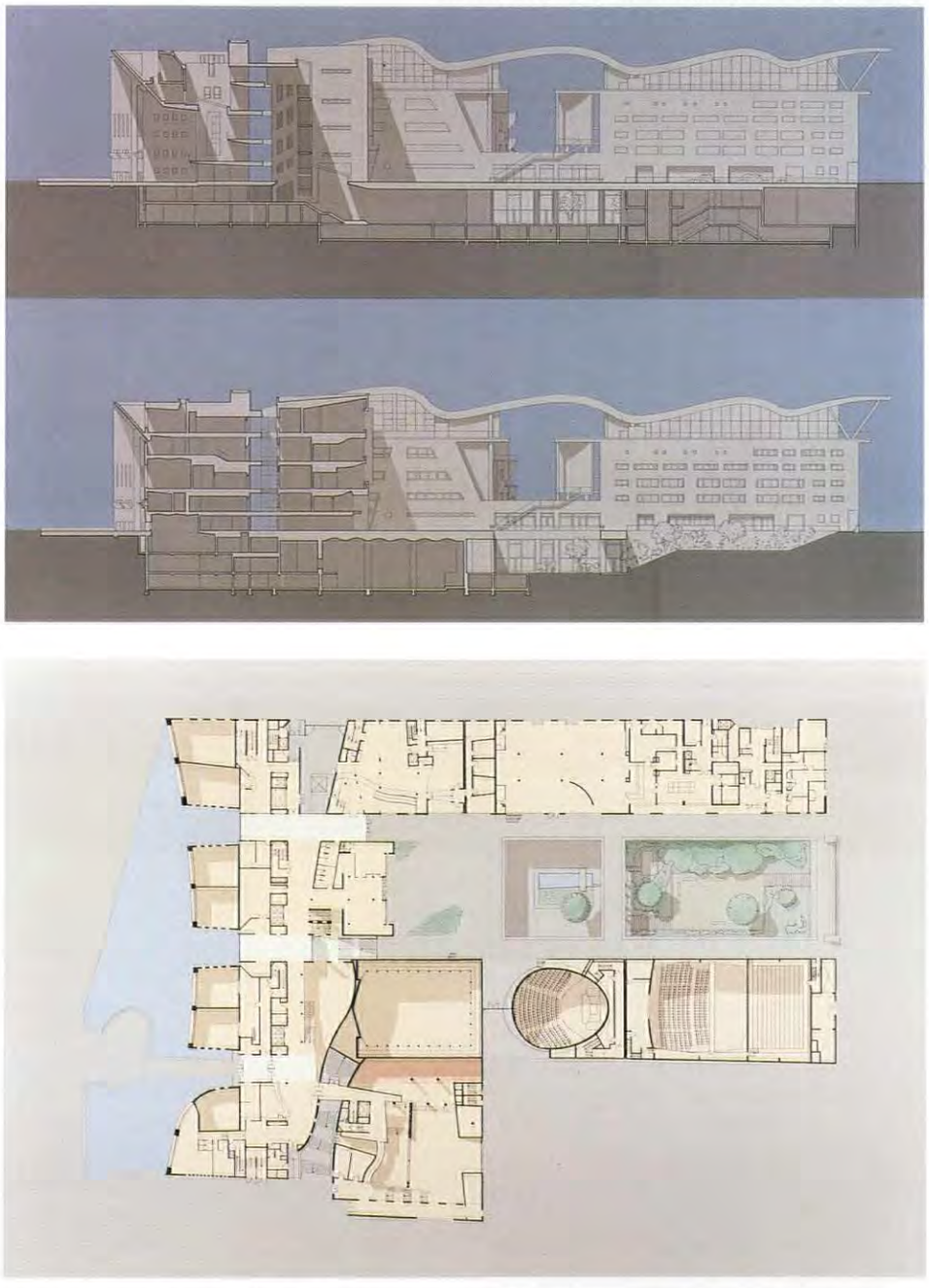
diverse range of musical traditions. Spiralling around this oval volume is an internal street, flanked by buildings accommodating the institut de Pédagogie Musicale et Choréographique, the SACEM (Société des Auteurs et Compositeurs de Musique – an organisation protecting authorship and copyright interests of musicians), administrative offices and student lodgings. Behind the mostly imperforate north-western elevation, facing the park, lies the still incomplete National Museum of Musical Instruments, and at the south-western apex, a restaurant and bar. The entire composition is skewered by a monumental truss, defining a continuation of Bernard Tschumi's grid of follies as a circulation spine within the building.

The shape of music

According to the architect, the Cité's formal complexity is defined principally in terms of movement and lyricism. Adopting a direct musical analogy, the buildings are said to offer a dynamic experience of space akin to that of the intrinsically transient nature of music. At one level, the metaphor of musical composition applied to architectural design provides a convenient vocabulary to describe such organising principles as regular grid (rhythms), irregular alignments of elements (syncopation) and overlaid formal gestures (melody). Beyond this superficial understanding, the design's dynamism – its general rejection of formal symmetries and preferred perspectival viewpoints – refers to the more profound twentieth century concern with participatory experience of space through movement. Seen in plan or section, de Portzamparc's architecture, consisting of bold superimpositions of generically simple forms, can be compared to a Cubist collage. More significantly, the deliberate avoidance of frontalities in circulation spaces – their deliberate compositional restlessness, understood in plans, and directly experienced in the completed building – reaffirms principles of cubist space elucidated by Sigfried Giedion in his seminal book *Space, Time and Architecture*. Despite its overtly representational qualities, this is most definitely an anti-Classical, post-Cubist project.

The restlessness of the circulation spaces is relieved, appropriately, in the formal clarity of the main performance venues. The central auditorium resolves oval and orthogonal geometries – whose superimposition recalls Baroque precedents – in a space combining intimacy with a sense of occasion. The planning of the *salle de concert* was developed by de Portzamparc in collaboration with Pierre Boulez (President of the Ensemble InterContemporaine, La Villette's resident orchestra) and allows for almost infinitely variable configurations ranging from those of traditional Italian concert halls – appropriate for the performance of Renaissance pieces – to the more intimate and experimental seating arrangements favoured for jazz and contemporary avant- garde players. The design of this unusually versatile space – which can be used as a recording studio – was tested in full-size mock-ups, measuring 27 x 21 metres. Electrically adjusted, acoustically absorbent curtains render the auditorium's reverberation time as variable as its seating.

Sections and plan of Western group of teaching buildings



The synaesthetic potential of architecture working in unison with live music is pursued through the use of vividly colourful lighting throughout the space. The use of dramatic lighting effects – long a feature of rock concerts – will come to be applied in the public performance of music of all periods.

The intrinsic fragmentation of the Cité de la Musique has made it easier to provide acoustic isolation, a clear requirement in many areas of the complex. The articulation of individual elements undoubtedly makes the building more comprehensible to visitors, students and staff, and provides numerous points of orientation and glimpses of the outside world from deep within the building's interiors. Above all, however, de Portzamparc argues that the "plurality" of his architectural language represents directly the plural and populist programme of the Cité: one in which music of every age and (mostly western) culture is performed, taught, studied, researched and experimented with.

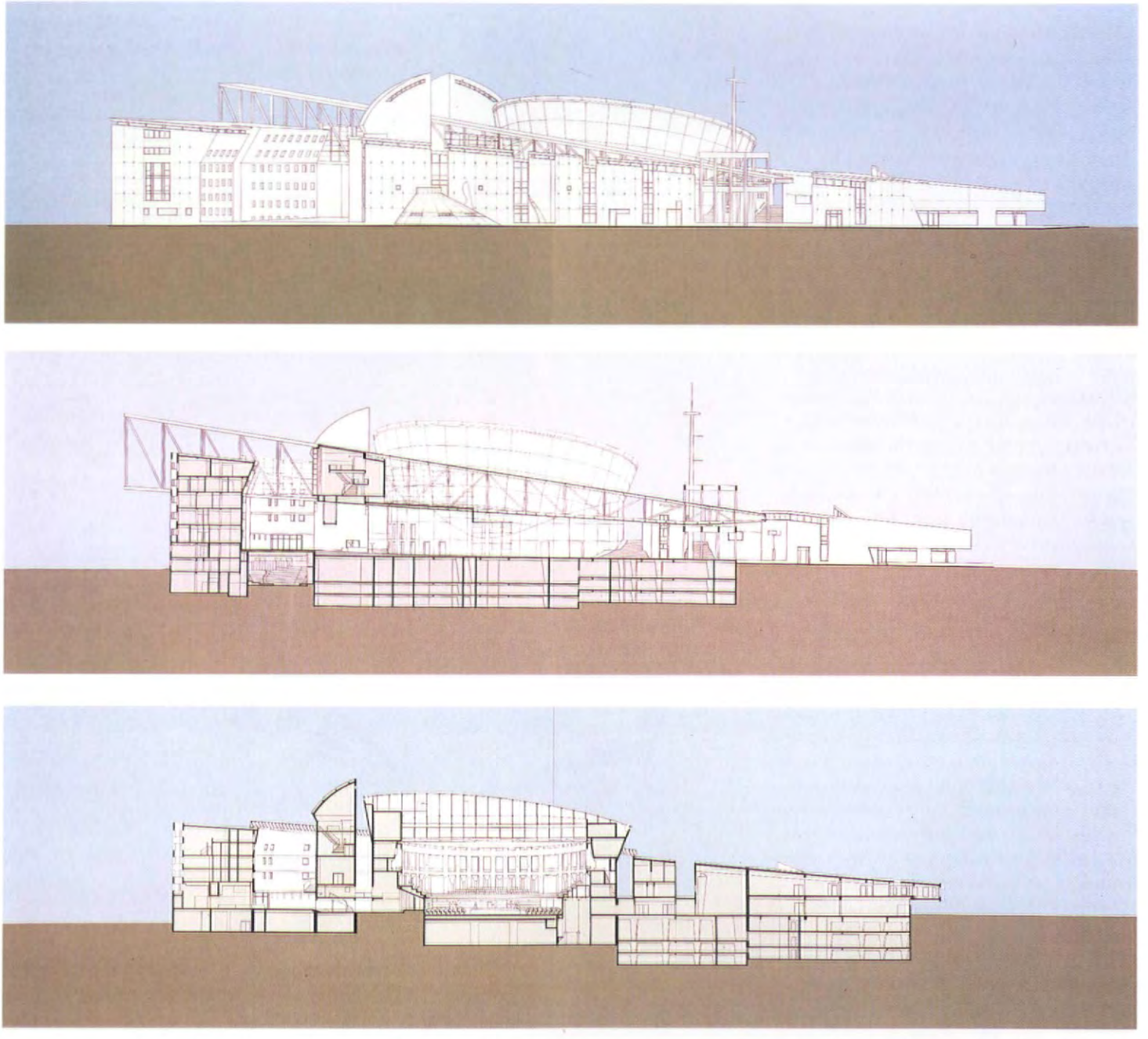
Shapes and the city

La Villette's new park and Cité de Musique – both with post-Modern cultural sensibilities – offer two, highly contrasting, reinterpretations of the contemporary city. Whereas Bernard Tschumi's design is wilfully ambivalent to commonplace functionalist generators and the more ubiquitous notions of urban space, de Portzamparc abstracts the essential characteristics of multiplicity and heterogeneity of the city, reapplying them as compositional generators. Respect for the scale of the traditional European city is implicit in this strategy – but not direct imitation of precedents, or even typologies. The Cité de la Musique thus attempts to become a fragment of the French capital – and a metaphor for the city as a whole – by simulating the experimental rhythm, counterpoint and intensity of urban forms. Without becoming in any sense Classical, de Portzamparc's Cité respects Baroque Paris.

These buildings are, of course, in many more conventional senses contextual. The relative formality of the Conservatoire responds directly to the sternly regular mass of Rossi's apartments, and other neo-Classical neighbours, all orthogonally aligned. The music school is also relatively introspective, being essentially an educational institution with only occasional public access. By contrast, the eastern part of the Cité is situated on a site severely restricted by clashing geometries and alignments, with which it attempts to resolve and interact. One face of the building looks out on a busy, but unremarkable boulevard. The eastern elevation looks across a sunken service yard and access ramp to the always congested, elevated Peripherique. The park facade attempts to present intelligible fragments of built fabric, from which the Cité's programme can be discerned, but is also constrained by the intrinsically introverted nature of the museum which it houses, with few windows possible due to the environmental exigencies imposed by curators and instrument conservationists. Christian de Portzamparc's scheme has been conceived of as a gateway to the park from Avenue Jean-Jaurès; to which end it has been planned within a triangular perimeter, opening up the major part of the public open space, to the east of the old market halls, directly to the boulevard.

Within each part of the complex, formal

Elevation (top) and sections through Eastern auditorium complex



axes and vistas align with neighbouring structures and routes. For example, the conical recital room of the Conservatoire falls on an axis passing through a sculptural fissure in de Portzamparc's building's western wing, then bisecting Rossi's apartments. More overtly still, Bernard Tschumi's grid of follies crashes through the Cité de la Musique, emphasising both the former's arbitrary – but implicitly unbounded – continuity, and the latter's permeability and transparency towards the public domain.

Shapes for shapes' sake

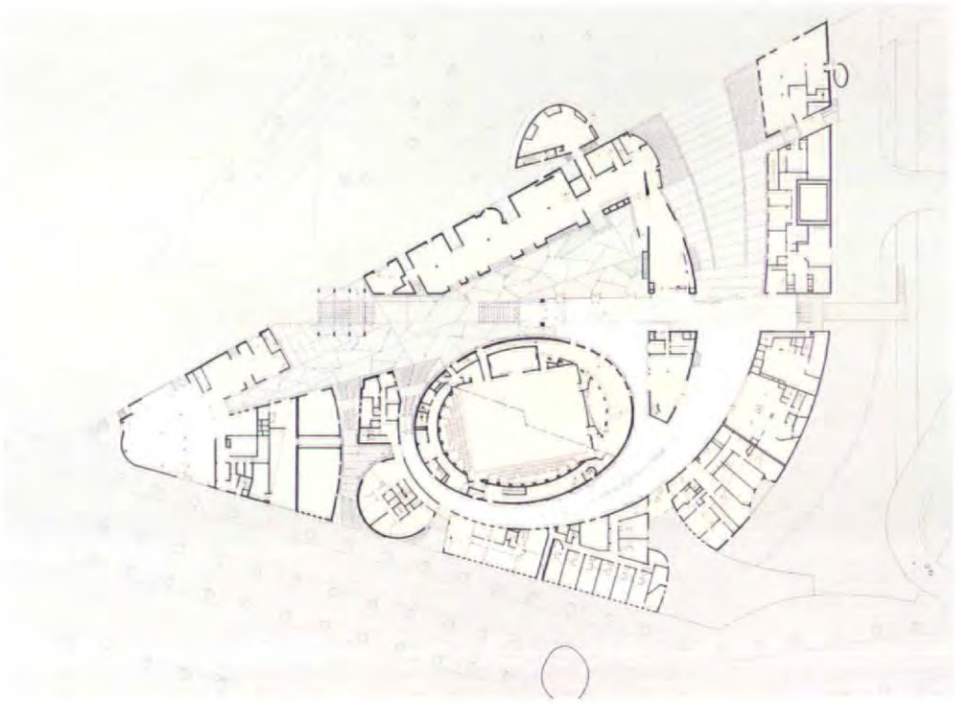
Such are the theories advanced by the Prizker Prize-winning Frenchman. The visitor's experience of the Cité is urbane, in the sense that the scale and material quality of its principal spaces is recognisably that of the city. The permeability of the buildings – particularly that of the more public, eastern parts – also simulates the pedestrian alleyways encountered in central Paris, if not frequently in the more brutal outer *arrondisements*. Situated in the specific context of La Villette, Portzamparc's plan is uncharacteristically perforated by a great multiplicity of routes and interstices: far greater in number than the buildings' programme would appear to require. Only time will tell whether there will be sufficient pedestrian traffic through these spaces to animate them, and make all of them genuinely successful urban thoroughfares.

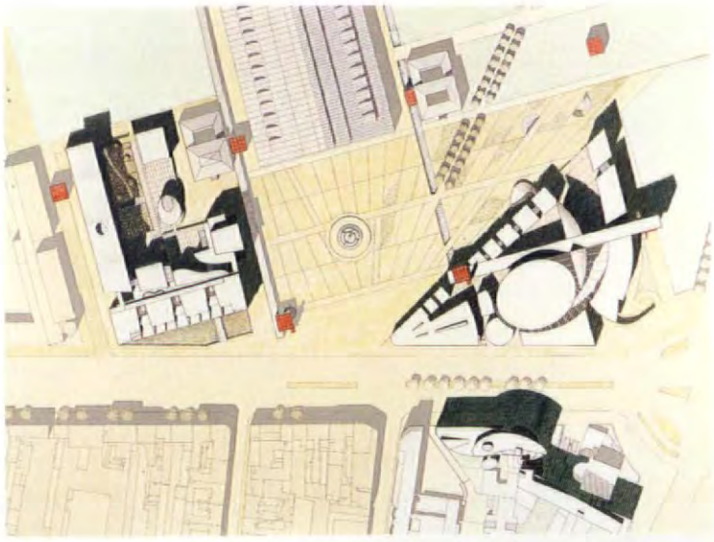
De Portzamparc's attitude to such questions is empirical, and rejects determinism. The forms used, it is argued, facilitate potential uses, none of which can be fully predicted

or understood until the building is occupied, and the public learn to inhabit it. For this very reason, typological archetypes are explicitly avoided in the design; their use being too suggestive and prescriptive with respect to subsequent habitation. These ideas differ little, at a theoretical level, to the notions of reciprocity between form and function advanced by Aldo van Eyck and Herman Herzberger; or the participatory order of representation which Dallbor Vesely has spoken of. As we all know from a multitude of precedents, strange things begin to happen in cities – particularly where spaces have sufficient individuality to become appreciated as places offering intrinsic interest, and orientation, to the wider mass of the public.

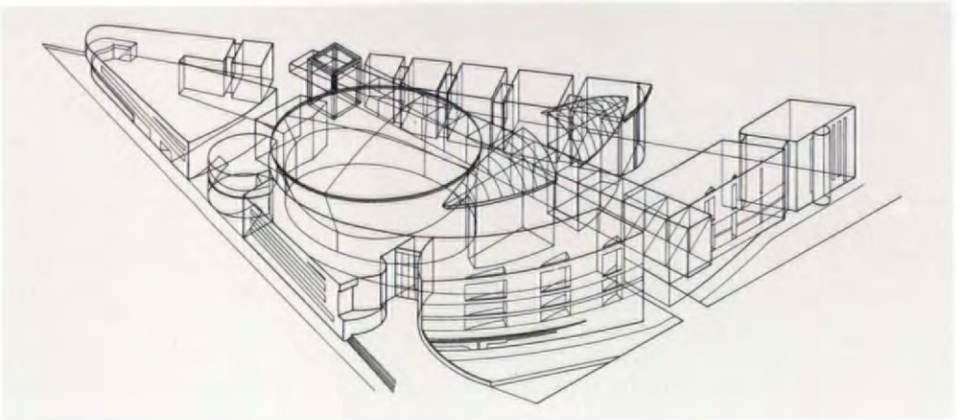
The management of the Cité de la Musique hope that the generous circulation spaces around the central concert hall will, in time, come to be used for informal – if not entirely spontaneous – performances. These street-like spaces are intended to be filled with something resembling traditional street life. However, whilst La Villette's internal streets exhibit a healthy robustness – right down to relentlessly hard wall finishes and asphalted floors – using the constructional details of the street hardly guarantees "street life". Likewise, whilst in every formal detail – proportions, scale, fragmentation – de Portzamparc's building presents an accurate, if abstract, reinterpretation of traditional urban forms, the mix of activities which are juxtaposed in any one area is less intense and varied. In the final analysis, de Portzamparc's refusal to prescribe specific activities for many spaces amounts to a strategy for certain success. The building can cope with anything: if it fails to buzz with a carnival atmosphere throughout its opening hours, this will merely be a just victory of life over architectural determinism.

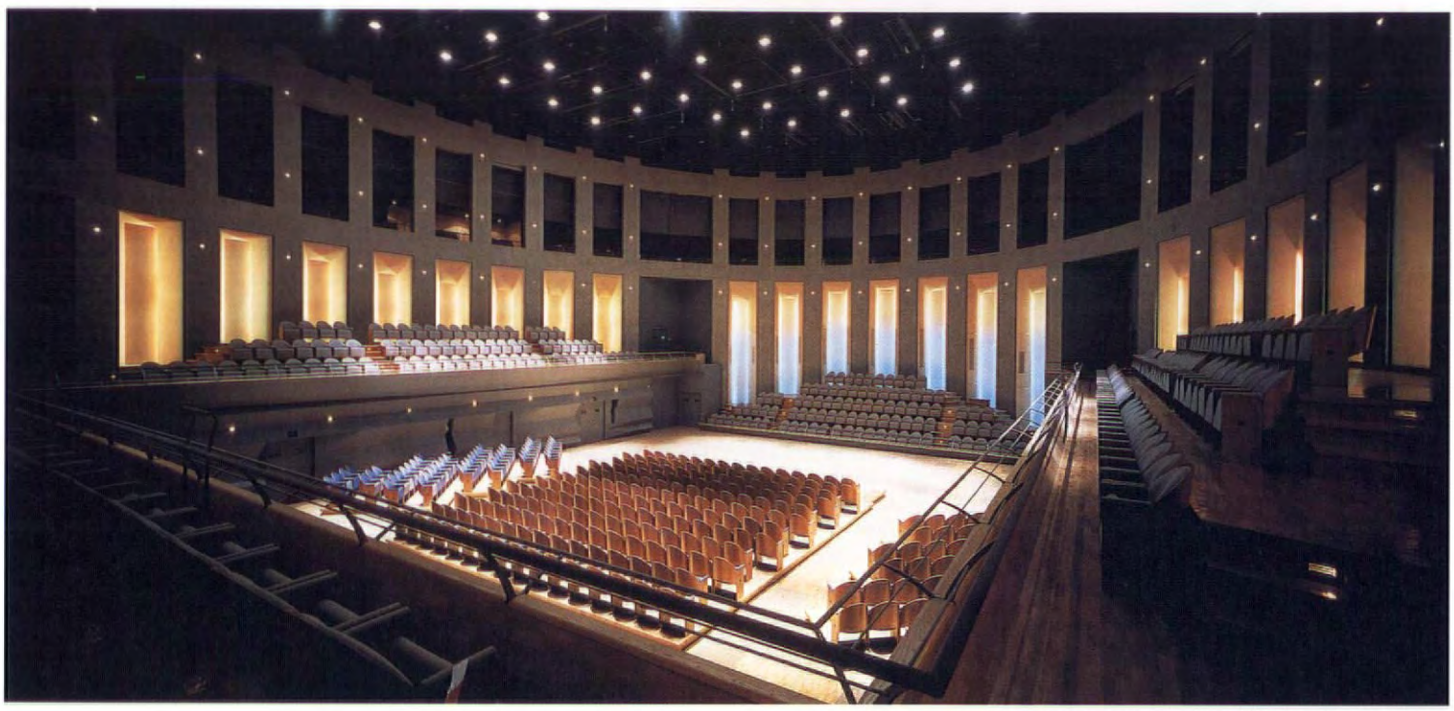
Whilst its formalism renders the Cité de la Musique susceptible to condemnation as a self-indulgent creation of an idiosyncratic talent, sponsored by a megalomaniac patron, there is a sophisticated social – and architectural – agenda behind de Portzamparc's work. Like the Cité itself, which seeks to explore the uncharted waters of contemporary music through public participation, the buildings in which it is housed tentatively await the public's interpretation of their many latent possibilities, without any prescribed – and therefore potentially unattainable – expectations. □



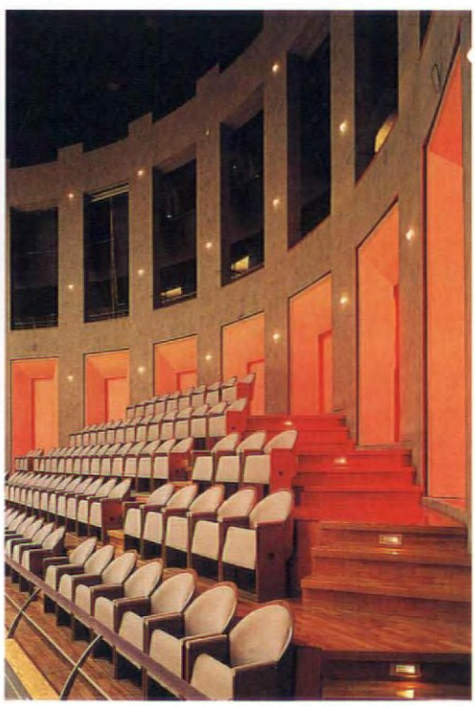


Plan of auditorium complex (above). Site plan (left) and wire frame computer drawing (below). All show central auditorium





Interior of main auditorium (above and below right). Recital room and conical organ chamber (below left)



Rob Fraser

BUILDING WITH LIQUID ROCK

Concrete has triumphed over decades of misuse and exile thanks to the innovations of such "concrete giants" as Santiago Calatrava, Tadao Ando, and Zaha Hadid. Here, Timothy Ostler charts its history from the excesses of late Brutalism to the inspiration of today's big names.

Concrete is the very stuff of architecture. It is also the glue that holds it together: the universal building component, used in some form in every building, whatever its form of construction. It is a form of artificial rock that symbolises – and delivers – stability and permanence.

Just as in the human body skin, nails and hair are all made of the same material, keratin, so in a building concrete takes on many guises. Except for the glass in its windows, a building could theoretically be made completely out of various forms of cement or concrete without monotony, from concrete roof-tiles or fibre-cement slates through pre-stressed lintels and concrete blocks down to autoclave-cured paving slabs and polyester-concrete drains. Even the key in the door and the springs in the lock could be made of some of ICI's experimental high density cement. In some countries however - notably Britain - this triumph of diversity has been matched by unpopularity when allowed to express its own essential character. But even there, there are signs of a return to favour.

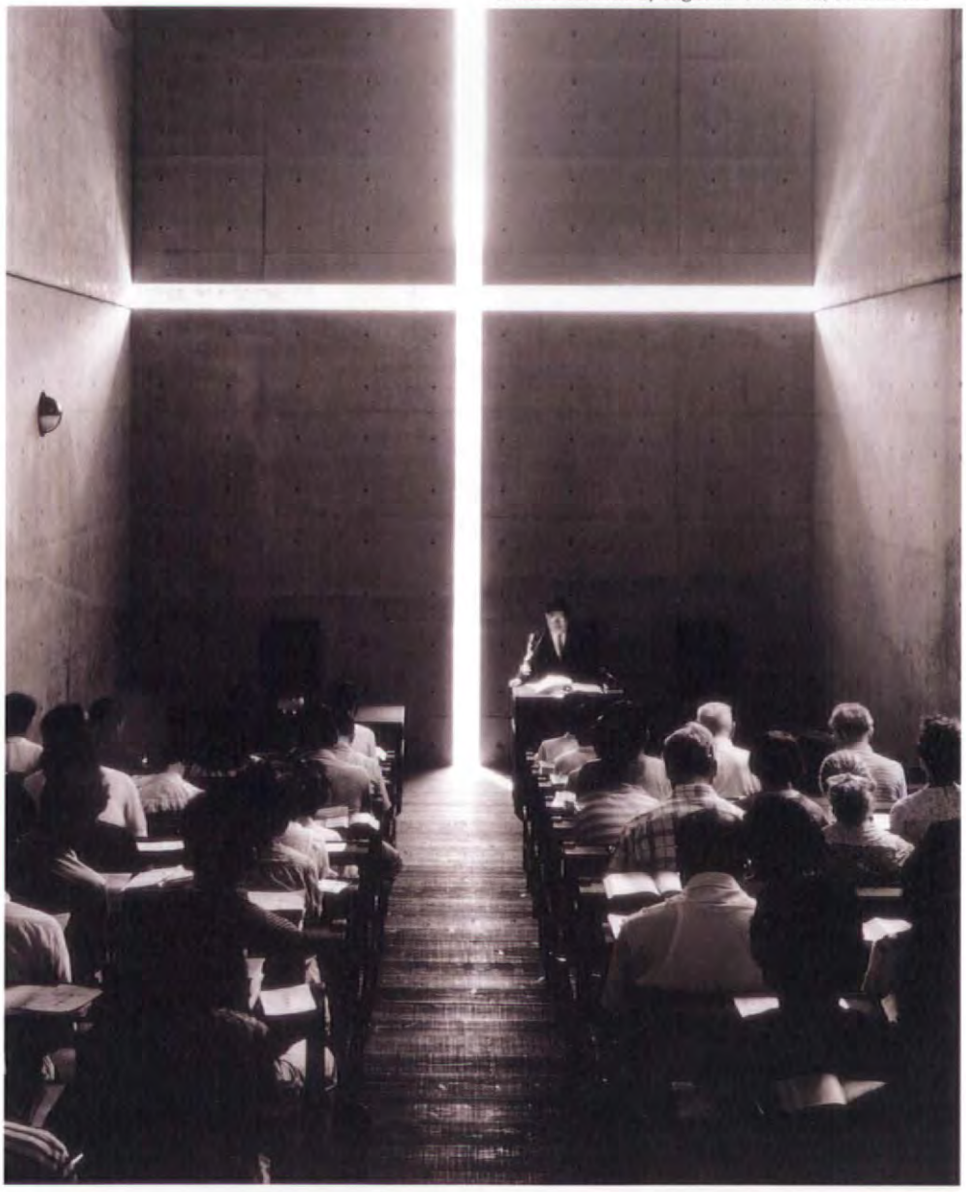
Partly responsible is the high quality of finish achieved by technologically-driven architects, for whom coming to terms with concrete has been a natural consequence of receiving more "establishment" commissions. Partly responsible, too, has been influential work by architects working in countries where concrete never did fall from favour.

Concrete companies would do well to stay on their mettle, however. In Britain at least, the roots of concrete's long spell in the deep freeze were planted during its last period as a chic material, when it was overused and abused by architects who did not fully understand the material.

Contrary to common belief, concrete need not age disgracefully. Staining, for instance, depends primarily on the level of porosity, and this in turn can be controlled by careful attention to workmanship and mix design. Similarly, variations in colour between lifts and the factors that lead to them are now well understood and consequently avoidable.

The problem is the character of the raw material itself. If wet concrete were not naturally grey and lumpy with a tendency to splatter, designers of concrete mixes might enjoy comparison with the white-coated creators of designer plastics and look forward to regular features in TV programmes on

(Opposite page) The elegant exterior of the award winning Cable and Wireless building in Coventry, England, by MacCormac, Jamieson, Prichard (Below) Product of a "concrete hero". Tadao Ando's Church of Light in Tomamu, Hikkaaido



popular science. In both cases a detailed understanding of components' properties and their interaction goes to produce a new cocktail, custom-made to satisfy a given set of criteria.

In fact in the seventies and eighties, ICI's New Organic Materials project was set up with the specific aim of finding substitutes for plastics whose price, thanks to the oil crisis, looked set to continue to rise. As part of this exercise ICI's scientists looked at the effect of forcing the cement grains very close together, with startling results – hence the much-publicised cement springs, bottle-openers and bullet-proof vests. Not least, says Bob Cather, concrete specialist at International engineers Ove Arup, it affected architects' expectations of concrete. "We used to get architects asking 'Can we have it in our columns?'"

With the collapse of the oil cartel, ICI's proposals were abandoned as uneconomic. Their power as concepts derives from the fact that they contradict all the popular connotations of cement and concrete. Concrete is one of our culture's most powerful and enduring metaphors, evoking images of mass, weight and fixity. By "set in concrete" we mean something's unchangeable. The fact that Reactor 3 at Chernobyl is encased in a "concrete sarcophagus" is somehow rather more comforting than if it were contained in a "plastic bag" – despite the fact that it is already in danger of collapse.

Until the development of reinforced concrete in France and Germany during the last century, structures of architectural scale had always had to be assembled out of discrete units. With the innovations of Joseph Monier, GA Wayss and François Hennebique, the scene was set for the casting of structures without a natural scale, crystallised it seemed directly from their designers' imaginations. Perhaps the first man truly to fulfil this aesthetic potential was the Swiss engineer Robert Maillart, the beauty of whose bridges is mathematical and diagrammatic, and whose influence is still clear in our most flamboyant motorway bridges.

Next came Eugène Freyssinet, most striking of whose monumental projects were his two airship hangars at Orly Airport. Britain's answer was Owen Williams, whose buildings were less elegant but steeped with character. But despite the quasi-architectural nature of these projects, until the fifties most architects working with concrete used it more for space-dividing walls than for exposed concrete framing. Reinforced concrete remained essentially an engineer's medium until the fifties.

Then came Le Corbusier's fateful love affair with *beton brut*, "raw concrete", and the birth of Brutalism. The title, coined half-jokingly by a British architectural critic (Reyner Banham), like those of so many other artistic movements, was unfortunate. As an emotive term it was uniquely susceptible to misinterpretation by non-architects. Here, it seemed, was conclusive evidence of architects' essential arrogance and contempt for the rest of society!

The excesses of late Brutalism can now be seen as the typically bombastic fruits of an over-confident Baroque era. In Britain concrete could look forward to a period of exile from polite society lasting nearly a generation. During this time, concrete sank to a serf's status, banished to foundations and structural frames. It came to be seen as a messy, imprecise material used to fudge imprecise details. The low point in its reputation must surely have come when excavations into some sixties' tower blocks found their panels to be resting precariously on slab edges, the joints between them stuffed with newspapers.

This was the unacceptable face of the building industry against which technological romantics Rogers and Foster had set their face most firmly. So when Richard Rogers & Partners found it necessary, for

Fosters' ITN Headquarters in London retaining the painted-frame approach of their earlier Willis Faber building in Ipswich, Suffolk

reasons of fire-proofing, to use a concrete structure for Lloyd's of London, the result was a watershed in the character of high-tech architecture, and probably in the fortunes of concrete itself.

High-profile projects by trail-blazing architects have been immensely important in redefining the limits of materials usage over the last 20 years. Not only are the possibilities of a particular material extended, but its use in a prominent work by a "name" architect can transform it from naff to stylish at a stroke.

This was what happened at Lloyd's. Although in the mainstream concrete had never been out of favour as a structural material, the ideology of lightweight industrialised, "dry" construction had ruled it out of contention for most of Rogers' and Fosters' imitators. Although concrete had been used as a structural frame – notably by Fosters at Willis Faber in Ipswich, England – it was not until Lloyd's that it had been expressed so frankly, or so crisply.

The aim shared by Rogers and their engineers Ove Arup was to invest concrete with the precision and quality of finish that might have been expected of stainless steel. Samples of 20 different mixes were assessed on a test site, and a formwork system selected (using plastic-coated plywood with steel edges and neoprene seals) to provide the prestressed coffered slab with several miles of sharp arris.

The results, with superb insitu columns linked by crisp precast jointing sleeves, speak for themselves. The barrier that was breached was not only technological but also psychological. As long as concrete had been used only for ground slabs (and the occasional stack-bonded blockwork wall) there had been something artificially restrictive about the technological romanticists' palette of materials. As the avant-garde began to take on the role of the new establishment, their buildings became more monumental; their vocabulary of materials more rounded.

Lloyd's has been described as really a steel building built in concrete. Fosters' later ITN Headquarters, also in London, was less bloody-minded, retaining the painted-frame approach of Willis Faber. But for Cranfield Library, Fosters took a different approach. As Director-in-Charge Ken Shuttleworth wrote in 1993, they deliberately avoided aiming for a finish that could be better achieved using metal panels. Instead the concrete was intended to act as a foil to other more gleaming materials around it. "We developed a philosophy," he said, "that concrete should look like concrete and not try to pretend to be something which is difficult, time-consuming and expensive to achieve."

But what level of finish is it reasonable to expect of concrete in the late twentieth century? Concrete consultant David Bennett believes that we expect far too little, both of concrete and of concrete contractors.

"It's a high performance product: it's a big flaw in our industry that we have no grading required for a person who does concrete. He's probably a person who's picked it up on the job and he hasn't got the sack for a week so he carries on doing it. Where is his training?

"There needs to be a change of attitude so that a few core people who work on sites – particularly from the subcontracting industry – are given a grade of 'concretor' , and they're given a bit more money. You don't have to have everybody skilled in this. You have to have one man who knows and who can help the others."

Bennett does not share the widespread view that calls for increased use of precast components manufactured off site. He believes that this is fundamentally inefficient.

The intricately patterned pavements of the piazza in the City of London's Broadgate Centre

"Why do it in the factory? The site is a factory, so you have space within a site to make certain panels and lift them into place if you want to. You shouldn't want to make the thing 20 or 200 miles away in a factory so that five-tonne loads are dragged a hundred miles to dump as a facade on to a building."

According to Bennett, the need to support these cladding units results in structural frames that themselves are unnecessarily large and heavy. Far better is rationalised insitu construction and a conceptual shift that treats the concrete mix, and not the building components themselves, as the unit of prefabrication.

"The ready-mix industry can supply the concrete to a given brief. They do a whole cocktail of recipes: one minute they're supplying somebody doing some oversite blinding for a driveway – very low-grade stuff. The next hour, they are asked to supply 180 N/mm² concrete – which is a very specially-mixed high-strength product. And in the next breath they're asked to produce 200 cubic metres of stuff to go into the foundations with a sulphate-resistant cement... They've achieved an excellence purely because of innovation and trying very hard to give people services in every area."

Much of the sophistication of modern concrete mixes comes from the use of admixtures. For instance, concrete needs only 0.3 per cent water content to cure: any water in excess of that is just there to make it more workable. But this comes at the expense of strength.

"Basically," says Bennett, "the more water you put in concrete the worse it is. The trouble is the more water you put in, the easier it is to make it flow. The contractor would like it as runny and soupy as possible; the engineer would like it as hard to work as possible to reduce the water content." Superplasticizers square the circle by allowing cement grains to slide over each other, providing a highly workable concrete with minimal water content.

The ability of concrete to flow is vital to many of the most innovatory uses of structural concrete. Concrete that flows is also effectively self-compacting, self-levelling and essential for pumping concrete. The more liquid the concrete, the closer it comes to being perceived as a high-tech material: the very idea of a skyscraper's structural frame being squirted upwards through a tube before becoming a rock-hard matrix is, after all, a quite extraordinary concept.

This process comes closest to the status of a precision operation if the concrete continues to be pumped upwards when in the mould – through a valve in the base of the formwork – rather than merely being poured in a heap. For widespread use "Upward pumping" demands a building industry that is geared up for it - hence its widespread use in the USA but not, for example, in Britain. According to Bennett a textbook case in this and other aspects of insitu casting is Bertrand Goldberg's River City Plaza, built in Chicago during the late eighties. Here as elsewhere, upward pumping eliminated the problem of entrapped air, and with it the phenomenon of blow-holes, one of concrete's most intractable surface problems. It also meant that the concrete could be cast in more complex shapes than normal.

"People forget," says Bennett, "it is a man-made rock, which is really crudely extracted from quasi-mud, and worked up ingeniously to combine it into concrete. So if we think of the assembly, that here we have our mould – the formwork – in which we receive this liquid rock, the shaping of that (mould) is critical. How we assemble it is really the art of efficient construction, and we've lost that art. If you look at that assembly, and you treat it holistically, ...you actually create very, very efficient forms of building."

If the potential of concrete is to be realised, there has to be a change of mood amongst architects: concrete has to be seen as the precision engineering material that it is. Recognising the difficulty of changing attitudes amongst those already in practice, the Reinforced Concrete Council has put its faith in trying to convert the architects of the future.

But most of those who are teaching them were trained and have practised during a period when concrete's name was mud. It cannot therefore be surprising that a survey by Cambridge Architectural Research found that in a three-year architectural course, British students typically receive between only seven and 15 hours of formal teaching on the use of concrete. So, to make things as painless for this generation of concretophobe lecturers as possible, the RCC is offering a series of teaching packages on the subject.

But most vital of all, if students are to be motivated to learn how to use it, is for concrete to become glamorous once again. Fortunately, that is exactly what has happened. Hail then Tadao Ando, Santiago Calatrava and Zaha Hadid, concrete heroes all! □

Editor:
Georgi Stanishev

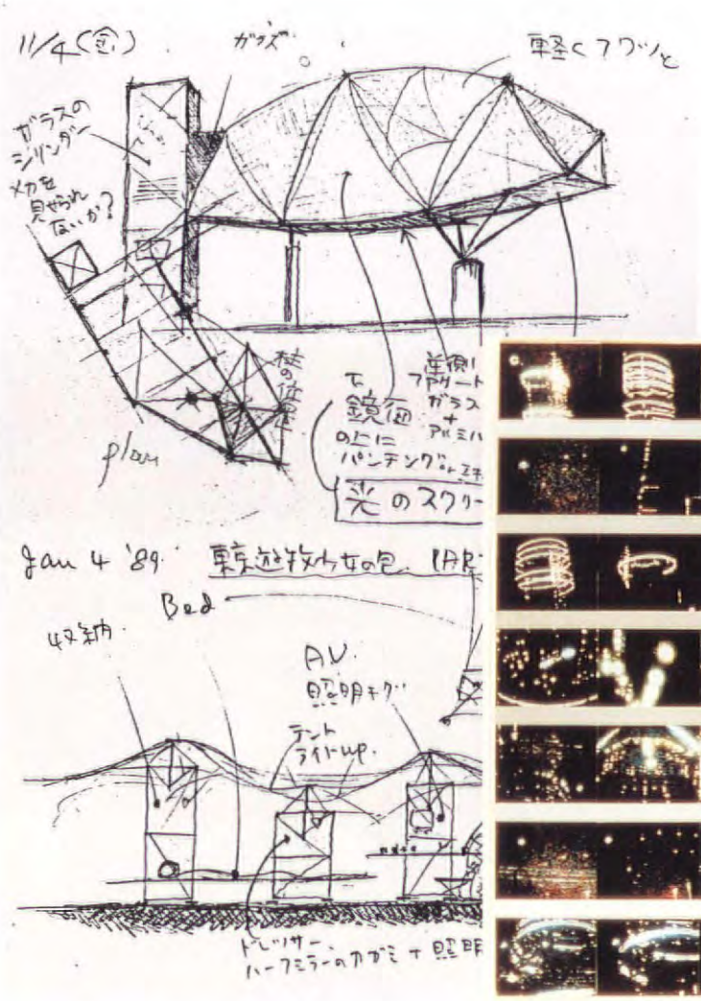
All illustrative materials used are from Toyo Ito's lecture delivered in Sofia, June 20-24, 1994.
Photography: Shinkenchiku-sha, Naoya Hatakeyama, Tomyo Ohashi.

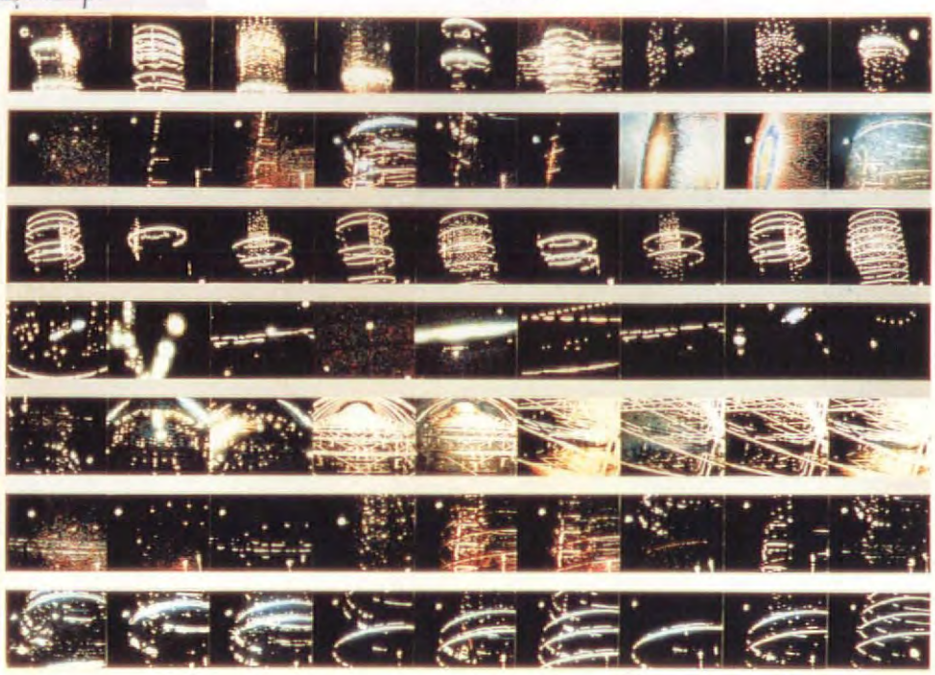
Tower of Winds, Yokohama. General view of the installations

AVANT SPACE

The Architectural Experiments of Toyo Ito

The work of Toyo Ito is related to the search for new types of freedom in architecture. It started with experiments in the visual dematerialisation of architectural structure through semi-transparency, then gradually shifted towards an interactive environment. Here, in this interview with Georgi Stanishev, Toyo Ito argues that contemporary architecture should be taught to act as an electronic responsive system, a kind of screen with a menu for options and possibilities.

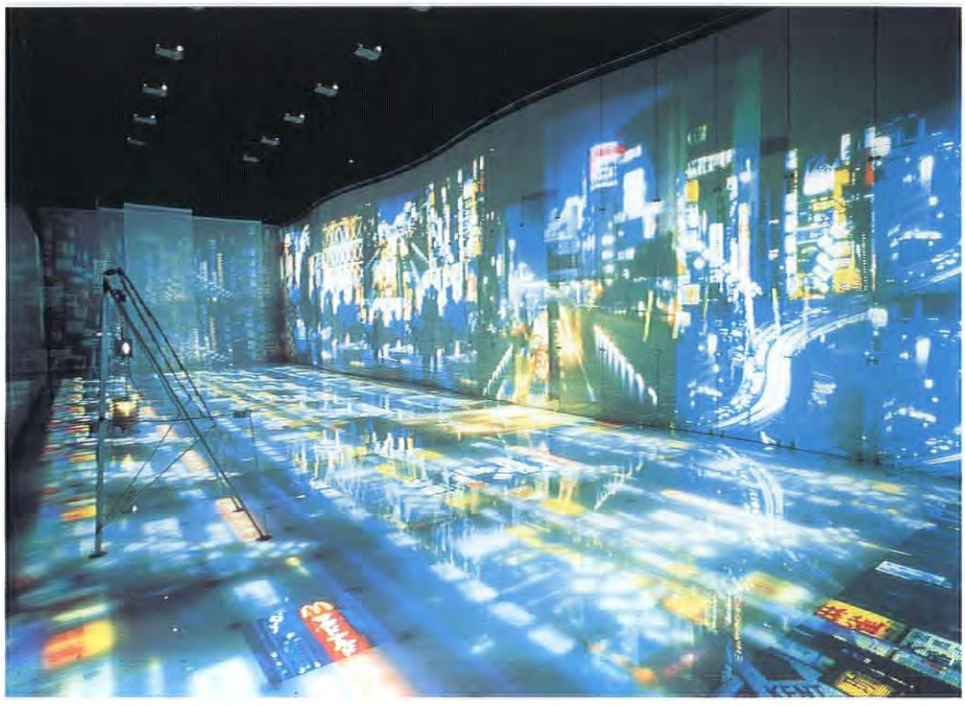


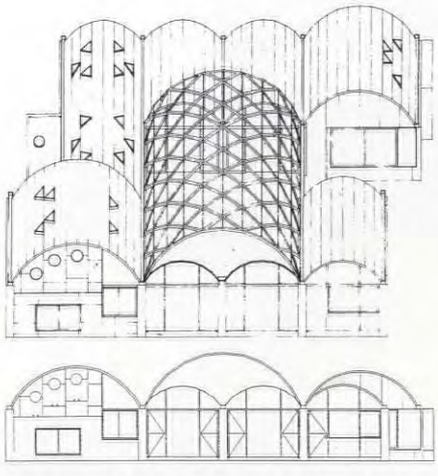


Left: Transfiguration, Egg of winds, Sketch
Below: Tower of winds, Yokohama. Series of light-reactions

G.S. Japanese culture today spans two opposite poles: science-fiction hyper-technology, and a deep revival of traditional spiritual values. Where is your architecture in this system?
T.I. I think the whole Japanese tradition works as a combination, a balance between the pro-Western and the pro-traditional orientations. To some extent the current situation is a matter of the change of generations. The previous generation was closer to the idea of implanting in Japanese society some aspects of western culture, including the European avant-garde architecture. My generation, or at least I myself, tend to search for other proportions in that respect.
What is different in the case of your work?
As a man of the nineties I am multivalent enough to perceive the world from different points of view, related to the Western and the Eastern types of vision. But I think the process of my design thought is much closer to the Japanese tradition than to Western architectural culture. Look, I can barely speak English, but I can express my architectural attitudes by a comparison between the English and Japanese languages, as I understand them. In English the words, as well as the interaction between words, are very definite and stabilised. It is certainly not so in the Japanese language, where the same types of word arrangement can be flexible. And I may say that I design space in the same way as I use words in the Japanese language.
Is there a common denominator of these two processes?
I can compare both to the action of "throwing" a concept into a certain space. This concept is usually an answer to a question raised by the space itself. The periphery of this concept in contact with space is very vague. Something always happens in this periphery, in this "suburb" of the concept. A periphery is always a border between different entities. It is a place for interaction between the concept, and the surrounding space activated by the concept. A place for dialogue between them. This dialogue generates new concepts which start new interactions with their spaces, and the process continues like that. The chain interaction generated is the real process of creation, and I compare this process to the Japanese language.
This seems very similar to the picture of the "order out of Chaos" generation, but is there any pre-determined methodology in starting the design process?
As soon as you involve a probability of chance interaction, reason is replaced by accident. Imagine the throwing of stones into water. Imagine a mist over water. When I start to design the water surface is not visible. There is at first a chaotic search in the mist to find a clear water surface. And then comes the time for the core to generate subtle waves of changes. Searching in the mist for the most appropriate word, throwing words into space, watching how they generate reactions and forms is one of the real pleasures of the architectural profession. In metaphoric terms this was definitely the way the composition of the Shimosuva Municipal Museum came about.
Stone vs. water seems to be a variant of the series: hard vs. soft, permanent vs. temporary, firm vs. supple. Recently you described the contemporary city in terms of *shozi*, the traditional Japanese folding panel combining wooden frame and silk screen. Both are based, in your view, on a combination of rigid elements and ephemeral, changeable parts. What is the desirable balance between stability and changeability in your works?
The reference to *shozi* is correct, but in the dichotomy of oppositions which you extracted, architecture in my understanding should tend to be soft, temporary and supple. I started searches in this direction with my Silver Hut House, where the traditional *shozi* screen , to which you refer, is transformed into an aluminium membrane.

The Japanese have a specific Shinto ceremony related to the starting moment of a building process. On that occasion they enclose a piece of space with a fabric screen and this temporary space becomes very sacred. The screen which frames the space transforms it into a shrine only when the people need it for a ceremony. After people leave it the same space once again becomes nothing, it becomes empty of any significance.





Top: Visions of Japan exhibition
Above: axonometric and elevation of Silver Hut, house at Nakano II, Tokyo

This is my conception of architecture. It is not related to the terms of existence of the structure. If you need a sacred space for a longer period you simply cover it with a roof. The screen becomes a wall and the *shozi* supports become columns.

But this leads us to the presumption that architecture is of importance only when we see or use it. Should architecture disappear when you turn your head away?

Something like that... Today when life is speeding-up tremendously, architecture must be adapted to be a fluid, subtle, changeable entity, like the circles in the water we mentioned. This ephemeral architecture keeps and transmits the energy of changes which causes the appearance of new ripples, and thus new architectural designs.

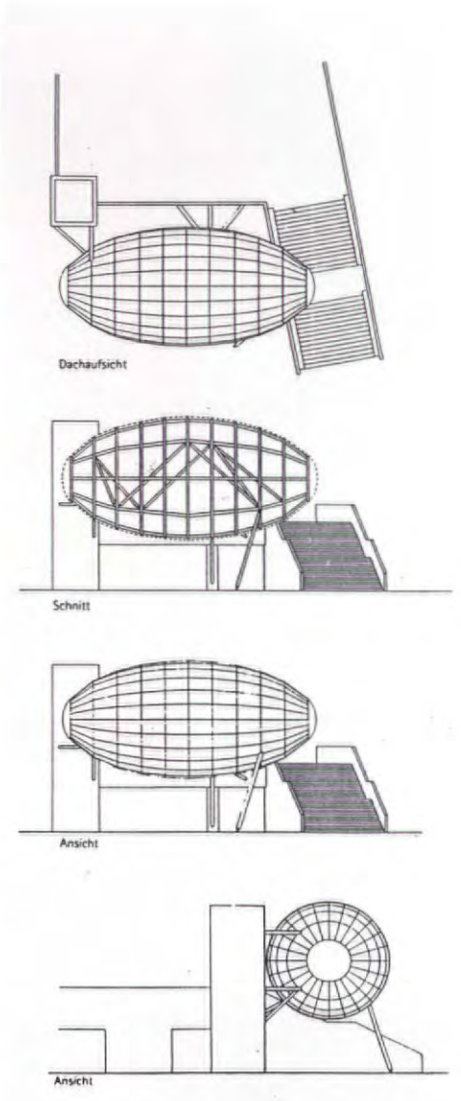
That is why I am interested in temporary architecture which can be dematerialised, like the Nomad's Pao, and architecture which is virtually dematerialised by semi-transparent screens, glass surfaces etc., like in the ITM building in Matsuyama, where the interior awakes the experience of "weightlessness".

Today I am much more interested in finding ways of formulating architectural expression as a responsive system to environmental changes, to the shifts in conditions of existence. To teach architecture to react as an organism means to provide it with a system of sensors, through which it can tune in its own environment and transform signals into changes.

Expression of changeable reality through metaphoric images of organic flexibility was a tool of expression in the Japanese architecture of the sixties and seventies. What "poetic technology" do you use today?

The difference between the seventies and the nineties is in the type of man for whom the environment is created. That is where the differences in expressive systems comes from. In a society that is permeated by information and is penetrated by communication systems as Japan is today, each of us have two bodies: a "real body", which is our physical presence, and a "fictional body", shaped by information. In everyday life these bodies are not clearly differentiated. But the fictional body, shaped by the workings of images, gradually becomes more prominent. It undermines the units from which society is composed. In fact group relationships based on physical face-to-face presence, like communities, localities, even families, are gradually being destroyed by the group relationships of virtual bodies.

The body of architecture today is also splitting in a similar manner. You will not recognise Tokyo by day as the same city, if you have only seen it by night: the electronic



Egg of Winds, Tokyo. General view and drawings

aura of the night city creates a radically different visual presence.

After your experiments with computerised sensor systems for environmental response in conceptual installations like Tower of Winds, Egg of Winds etc., do you believe that devices like that can replace traditional architecture?

No, but traditional architectural languages are very limited regarding the types of realities which they express. You see, it depends on what reality you have to refer to. The contemporary city is a subtle fabric in which the streams of information, the flows of different kinds of energies, are of more importance than the material fabric of the buildings. These streams are so condensed in the city space that you can sometimes perceive them directly with your body. We breathe air which is compressed with information. It is a specific reality of different information energies which is very different from the physical reality of the city, and this is the reality to which architecture should refer.

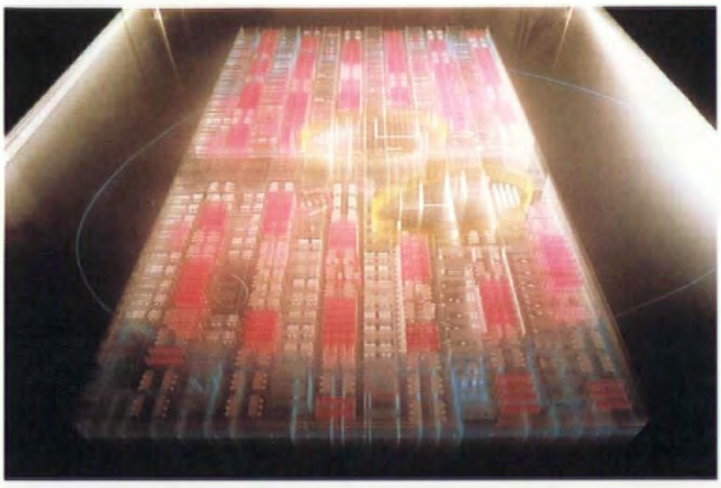
I have tried to express visually all these flows in an exhibition shown three years ago in London. Over 50 projectors were sending images to the walls, floor and the ceiling of the exhibition room, forming the impression of a permanently changing, flowing, transforming reality of the city environment, almost creating a feeling of sea-sickness.

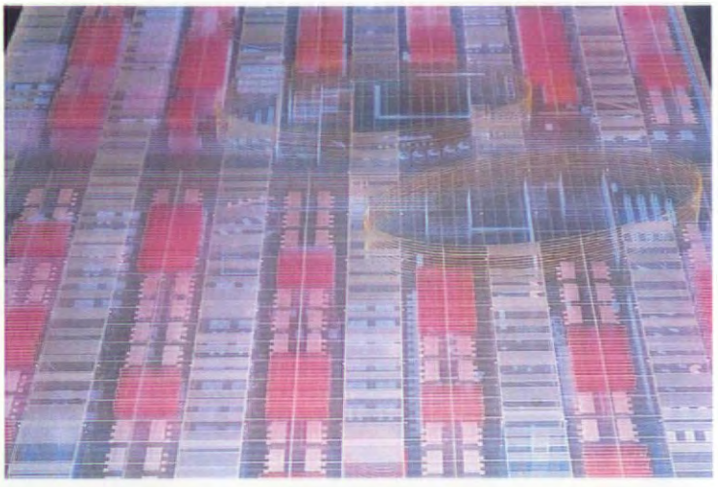
We started these experiments with the Egg of Winds and the Tower of Winds projects as alternative ways of expressing architectural reactions towards the changing environments. Now we are experimenting with special types of equipment that can be used to enable architecture to be in permanent dialogue condition with the environment.

The conversion of architecture into a self-regulating medium raises the question of new types of technological equipment. Are you involved in that field of research?

I am participating in an International Conference for Electronic Equipment for Architecture in Linz, Austria, which is organised mainly for architects. There are several subjects at the meeting, among which computer aided design systems and space simulation within the different media technologies feature. For me the most intriguing idea is the possibility of establishing a kind of technologically supported "avant-space" created by media, which, in my opinion, is the most advanced appearance of architecture.

At a more primitive level this was reached in the Tower of Winds project in Yokohama, where a big cylindrical concrete tower for ventilation equipment over an underground shopping centre at the plaza of the Railway Station, was converted into an experimental interactive sculpture. We covered the walls of





Top: project for the Library of the University of Paris
Above: views of the Shimosuva Municipal Museum

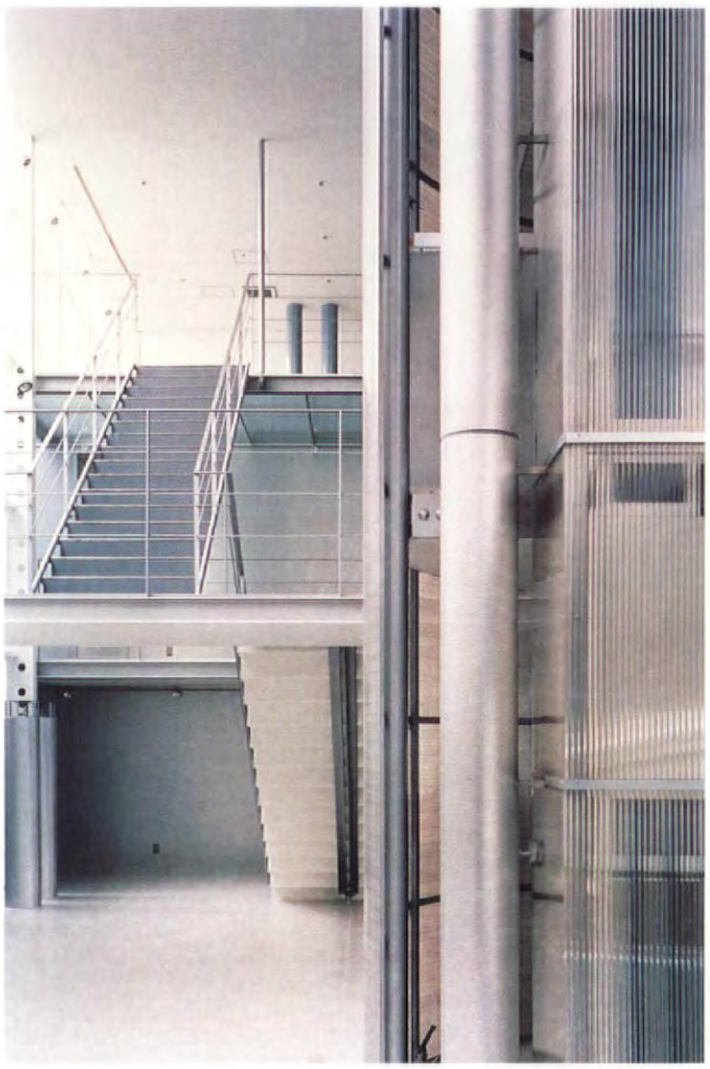
this cylinder with semi-transparent aluminium sheets and installed within it 20 neon rings and more than 1100 fixed lights. At night they are switched on and become visible through the aluminium. All the lights are managed by computers, which correlate them according to signals coming from two main sensors in the tower: one reacting to the strength of the wind, the other to the intensity of the outside noise.

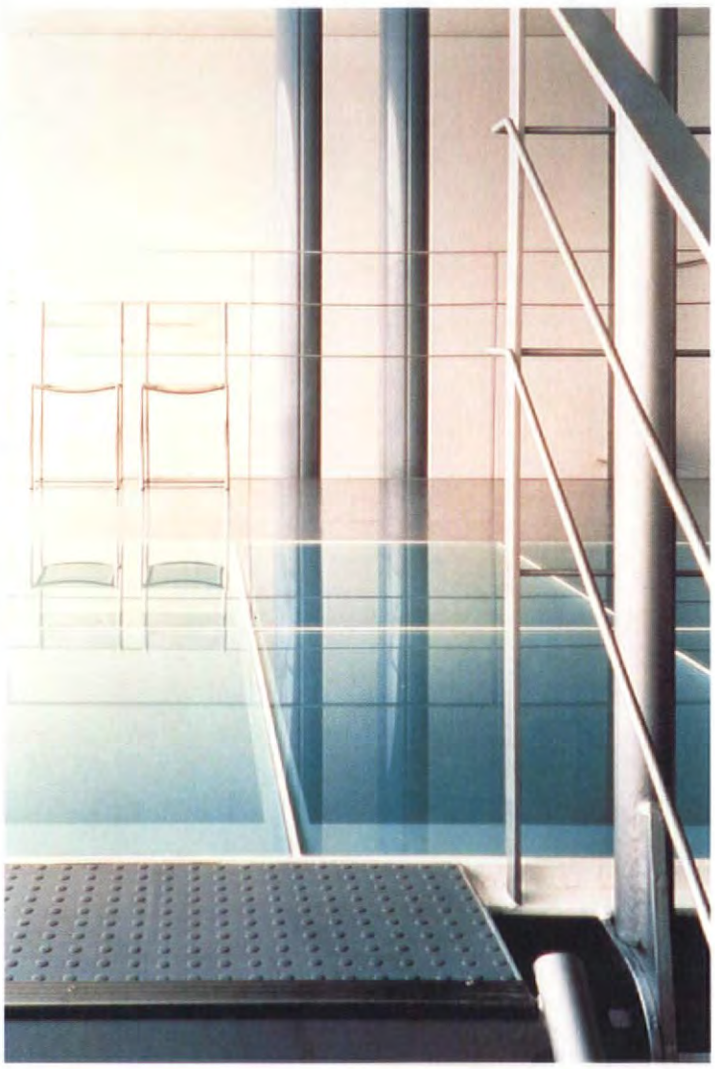
Have you been experimenting with this type of virtual-space in real architectural projects?

Last year I participated in a competition for the Library in Paris where I proposed a kind of a new architectural device which I called the Electronic Plaza. It is a space of elliptical form, which should work as a container and distributor of information. There is a kind of magnetic field around this plaza because of the strong information compression and information winds that blow in it. The plaza space is fully electronically controlled in regard of light, sound, heat and, of course, information in-puts and out-puts. This place is the heart of the Library. The space of the plaza looks like any other plaza space, and yet it exists only as a function of electronic, information and communication equipment.

So you can switch this plaza on or switch it off! This turns architecture into a function of electronic and information fields and energies. Can you imagine a Paris that can be switched off?

Interior views of the ITM Building in Matsuyama





In some conceptual reality we can think of such an ideal of architecture within which Paris can be switched on and off.

Isn't it dangerous to transform historic architecture into a converter of "information flows", into virtual reality?

Architecture has always been a system that converted the outside wild natural circumstances into a bearable condition. Now the information environment significantly replaces the natural one. Information and computer technologies are multiplying our possibilities of being present in many points simultaneously, condensing time and making it more efficient. These specific equipments also make architecture much more efficient. They are actually converting architecture into a screen with a menu of options and possibilities.

But normally architectural culture is balanced between the poles of fundamental traditional roots and the innovative flows of changes. This equilibrium is very subtle, while your electronic architecture seems to be so radical. Aren't you afraid of distorting this balance?

I speak here only about the poles of innovativeness in the architectural field, not because this is the desirable state in itself but because this is the direction I am interested in. The pole of rooted stability exists in culture without my interference and influence. I hope however that what I design reflects a good state of balance between the two extremes you are speaking about.

We live in a very specific cultural background where the traditional, say the Buddhist Cosmology, is mixed with the most daring scientific concepts and the most advanced technological environments. The most outrageous thing is that these two do not contradict each other. Probably, if what the astronauts perceive in space is analagous to what the Koökai girls of nineteenth century Japan perceive in their meditation, one could interpret this possibility as proof that science fiction and the creation of artificial technology, and the traditional development of spiritual understanding of Nature, are actually two surfaces with a common edge, a common boundary. A border, where things happen. □

Photographs by Trevor Mein Photography

Gallery House in Melbourne, Australia

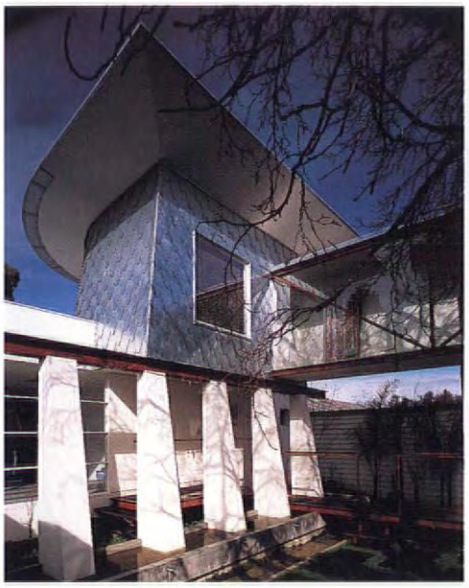
Architect: Dale Jones-Evans
Photographer: Trevor Mein

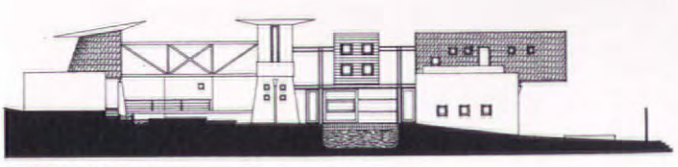
This residential project is built on an inner city site bounded by a street of 1960s three storey flats and a single storey Victorian house. There is a fall across the site with the building oriented to the north across the shortest axis. The structure is stretched out in rectilinear form 35 metres long and 7 metres at its widest point. The building footprint forms three external court spaces; each is addressed by a framed and cantilevered structure that penetrates the internal and external skin of the building. The ground plan anchors and bridges itself over the site with walls as deep and thin as a sheet of glass. The first floor spaces float in double cantilever suspension across the exterior of the building. They are strung together by a suspended walkway that runs the full length of the building.

This is an external-internal building composed of steel, rendered masonry, timber and glass. The first floor is suspended and lightweight and skinned in zinc shingles and weather board. The rectilinear forms consist of positive-negative spaces and frame the external courts.

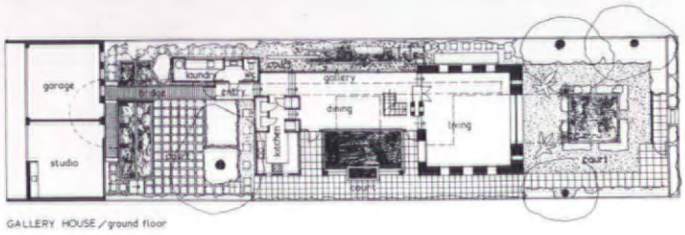
The building makes no reference to context through architectural form. It is uncompromising and seeks only a relationship with the Australian light, the specific artistic language, to which it belongs, and the courts that frame it. It is surrounded by a rapidly changing tempered climate so the internal spaces allow the occupant intimate contact with the elements or deeper places of retreat. The horizontal framing of views reflects the connection Australians have with edges; of the sea and land mass; or powerful horizontal spaces that charge our consciousness.

The building reconciles a relationship between the forces of urban geographical locale and the need to shape form for its own sake.

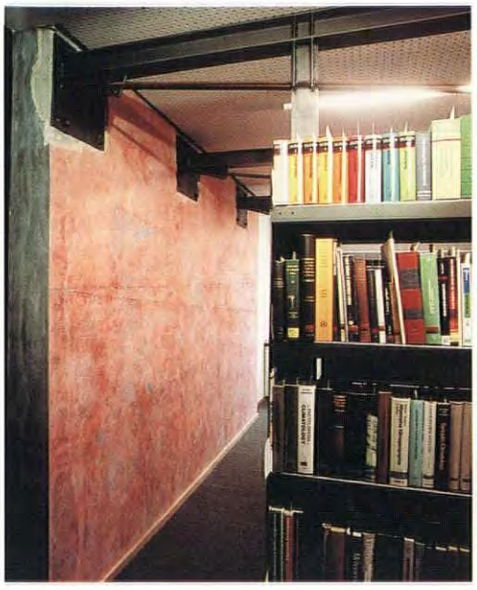




GALLERY HOUSE / north elevation



GALLERY HOUSE / ground floor



Meteorological Institute in Offenbach am Main: Central Library and the President's Floor

Architects: Paul Werr, Siggi Reuter
Experimental artist: Mut Muller
Photographers: Klaus Emrich & Jochen Muller

The project involves the reconstruction of two parts of the Deutscher Wetterdienst building, originally constructed in 1957.

The two main areas of the building which have been totally restructured and renovated are the Central Library of the Institute and the main President's Floor.

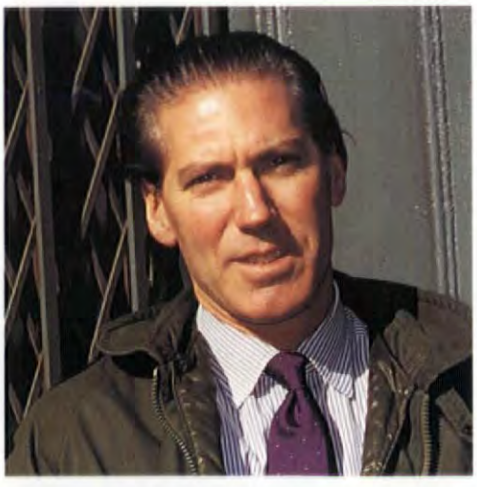
The most important conceptual preoccupation and intention of the architects was to refer to and to make visible the building construction of 1957 as well as to show traces of the reconstruction process. The new system of wall finish, the fixed and movable furniture etc., were conceived to accentuate the method of their production, preserving the spirit of the unfinished in the interior.

The library area is designed to organise reading in a spacious and light atmosphere. It includes a central zone with the coordination point, an information zone - to the South of the centre, a block of books, which marks the boundary of the library in the North, and the reading corners - the quiet zone in the East. The area of the president's floor is divided into a public foyer sector and the administration offices block with a conference room.

The free flow of the furniture correlates to the ongoing process of change in the building spaces. The wall finishes were made using a plaster spatula technique with sculptural quarzit by experimental artist Mut Muller.

SPECTRAL LIGHT

James Carpenter usually describes himself as a sculptor, although in conversation with Graham Vickers he explains the confusion such terminology can cause. He is not in the business of designing free standing artefacts. Instead he uses his expertise and passion for glass in combining fine art, architecture and engineering either for art pieces within a building, or as part of the building's own structure. He is continually experimenting with new methods of creating "live glass", and has secured his position as a leading figure in structural glass technology.



This face to face article has been a long time coming. No blame for this can be attributed to its subject, for James - Jamie to his friends - Carpenter is the most patient and helpful of interview subjects. Rather it was the vagaries of journalism, too ramshackle to go into here, that were responsible for our series of conversations being spread over a couple of years, starting in the SoHo studio he has since vacated, and ending in a small time-warped London hotel of the sort beloved to Agatha Christie. Over this period Carpenter has progressed from being a creator of crystalline environmental sculptures to becoming an international architectural consultant in glass and related structural matters. In fact he was always both, but times change and so, to some extent, has the career emphasis.

Once the darling of metro-chic magazines whose photographers were delighted to discover that not only did their subject produce dazzlingly photogenic art but that he had cheekbones too, Carpenter remains a serious-minded man in the vanguard of international glass technology. He has ongoing professional relationships with Skidmore Owings & Merrill, Edward Larrabee Barnes, I.M. Pei and Sir Norman Foster and Associates. He is a consultant to Pilkington and Corning Glass. He lectures regularly to architects in Europe and the USA. Some of his work is dazzlingly beautiful and all of it comes from a unique blend of high technical expertise and a personal enthusiasm for glass bordering on obsession.

Carpenter is crazy about glass. In fact I have rarely met anyone so hooked upon a man-made substance that was legal. He talks about his work with befitting lucidity, and sees glass as an almost mystical agent for controlling light at "the boundary of space between inside and outside".

His is an approach which, in amalgamating the concerns of the fine artist, the architect and the engineer, has effectively created its own discipline, one which challenges traditional notions about the role of glass in a building and which also, perhaps less happily, challenges traditional notions about how you set about naming a practice that works this way.

"We never really quite know how to do that. I usually still refer to myself as a sculptor. This can send out the wrong signals - if you say you are a sculptor then some people have a preconceived notion that you're making these objects that sit outside on a pedestal. But I cannot say that we are engineers. I cannot say that we are architects. Honestly I haven't really found the right word. We're still somewhere between architecture, engineering and fine art".

Carpenter's own interpretation is that as a sculptor he manipulates materials to

Oregon Spectral Light Dome (opposite page), Los Angeles Center arch truss wall (below left), and Southern California Gas Company tension net structure (below right)

Mikio Sekita

David Sundberg

accomplish "something that's over and above the experiential".

Among his early tours de force, were a Spectral Light Dome for the main lobby of the Center for The Performing Arts in Oregon, and two volumetric glass windows for a chapel in Indiana.

At the latter, the Christian Theological Seminary in Indianapolis, the building's interior is transformed into a kind of complex camera obscura. The structurally glazed windows contain horizontal members of dichroic glass and the effect is to produce two reflected and two transmitted images from each section, producing complex patterns which shift during the course of the day. In addition, images from outside - clouds, trees, sky - are projected inside in a bravura example of Carpenter's preoccupation with re-distributing light and blurring conventional perceptions of glass as a barrier.

Meanwhile his Spectral Light Dome at the Center for the Performing Arts in Portland, suspended some 20 metres high beneath a transparent skylight, depends for its effects both upon the changing quality of external light, and the shifting vantage point of the observer below. Over 500 strips of dichroic glass are attached to the inside of a hemispherical steel frame, selectively transmitting and reflecting light, creating a dynamic spectacle which perpetually responds to external and internal lighting conditions.

Carpenter now sees these early successes as being very much in the past, although together they seem to give one of the clearest expressions of his enduring concerns. Much published at the time, they were so photogenic that it is usually an exaggeration of their effects rather than an analysis of their form that is conveyed by photographs. This is ironic, since it is the magic of "live" glass combined with a rigorous attention to technical detail that has motivated Carpenter through his continuum of studies, projects and professional consultancies.

His early interest was in botany, in which field he was already an accomplished illustrator before deciding to study architecture at Rhode Island School of Design. There he was soon diverted by the sculptural possibilities of glass, working with Dale Chihuly, then head of the glass programme, on various environmental sculptures. These included a series of metal-framed windows in which Carpenter was able to explore the possibilities of introducing more complex arrangements of composite glass into a traditional form.

Graduating from Rhode Island in 1971, Carpenter then went to work in New York where he eventually became artist-in-residence in the R&D department of Corning Glass.

In 1977 he left Corning to develop a radical glass product incorporating its own variable louvres. The basic idea was that integrated photosensitive blades could be set at different angles depending upon the height of the window, so combining optimum shading properties with maximum visibility from the inside. This project was funded by the US National Endowment for The Arts and eventually went into production to be tested for Sir Norman Foster's Hongkong & Shanghai Bank headquarters, costs subsequently being split between Corning and the bank. In the end Carpenter's product was not chosen, but his reputation as a creative consultant in architectural glass technology was established

Huge fibre light reflectors inside San Francisco International Airport terminal (below). Project for twin mast bridge, St Paul, Minnesota 1993 (bottom)

and his professional course set.

Carpenter remains uneasy about being viewed simply as a technical advisor to architects, even though this has frequently been his firm's function. An example of this was a consultancy project for the Guggenheim Museum.

"There we were asked to produce a study of the movements of the sun though the main skylights in the course of a day" Carpenter says. "Then we were asked to specify the glass that we thought would reproduce Wright's intent for the building, as well as satisfying current curatorial concerns, such as UV filtration. In effect we were supplying a bridge between architectural intention and practical reality."

He lists his projects under two different headings: "Art-Architectural" and "Architectural Glass" commissions. Broadly these reflect two types of work: one in which Carpenter has been asked to produce a glass "art piece" to complement a building, another where the glass is - to a greater or lesser degree - part of the structure. It is projects on this second list that now come closer to his preferred working approach.

"The best method for us is for the architect to have us on board and to be involved at the design stage" he argues. "We want to contribute to the building in a programmatic way, creating something that's part and parcel of the building fabric."

Carpenter now seems rather ambivalent about the "art piece" approach.

"I think it's always a great disservice to architecture when the art object becomes an isolated focal point" he says. "We don't want people to say 'Oh yes, there's the art piece over there, and here's the office I'm going to.'"

His own office, recently relocated from SoHo to the TriBeCa area of downtown Manhattan, sees Carpenter working closely with associates Janet Fink, Luke Lowings and Richard Kress in the kind of atmosphere that most closely resembles that of a rather disciplined art school. If Carpenter is the high-profile emissary, frequently globe trotting to lecture and persuade, they mind the store in a working relationship that he clearly values.

"We work very much like an architectural firm" he says, "parlaying our resources into the elements of a building. Oftentimes we're then able to go into the building part of it as well".

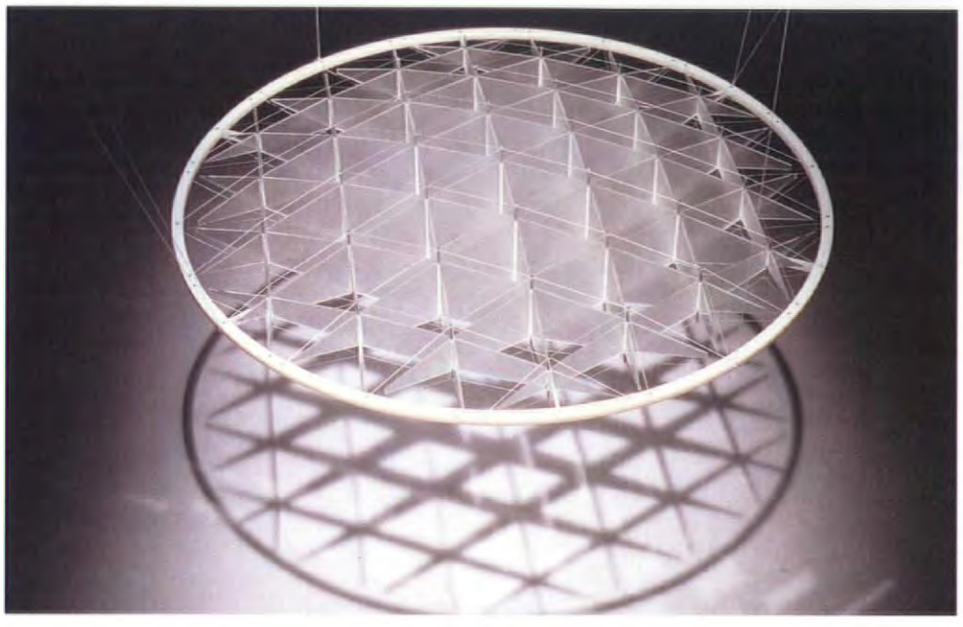
And oftentimes not. The models of several unrealised projects are usually visible in his studio and the abnormally protracted nature of our conversations reveal that some of the projects discussed at meeting number one in SoHo have sustained inevitable casualties by the time we talk in his London hotel two years later.

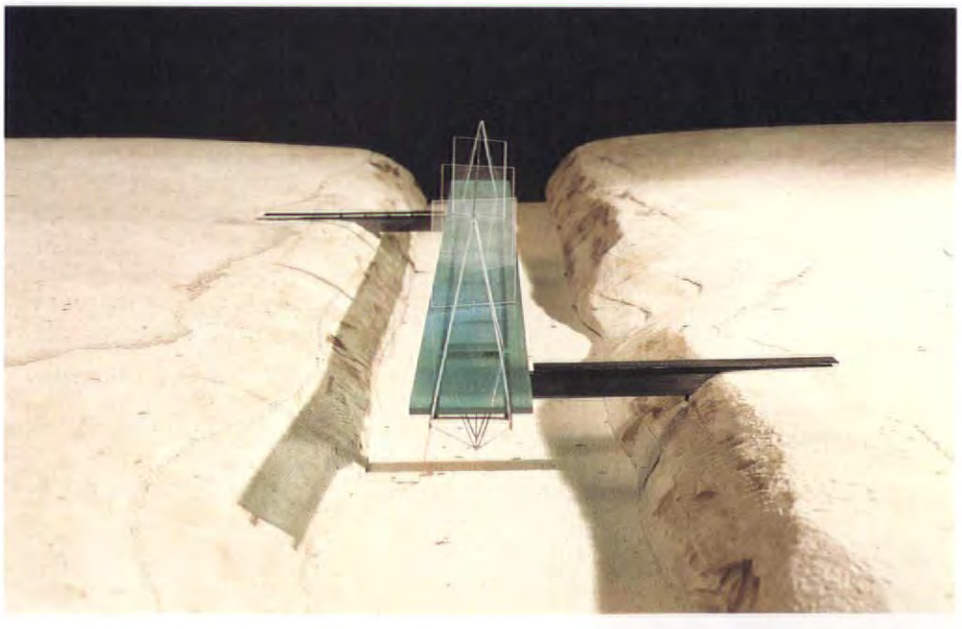
Once there were glass roof structures for Canary Wharf station, and La Bibliothèque de France in Paris, an arch truss wall for the Los Angeles Center (designed in conjunction with Ove Arup), atrium glazing at Tokyo's Palace Tower and exterior glazing for Richard Meier's Canal+ building in Paris. Some disappeared, some were partially adapted, and on some the jury is still out.

An aerial glass sculpture project for Los Angeles' Pershing Square was partially adapted for Munich airport and now seems to have metamorphosed into a more elaborate scheme for San Francisco airport.

The starting point was a slim, horizontally-inclined, cigar-shaped structure suspended 26 metres above the ground, consisting of a central tubular spine surrounded by proportional compression rings stiffened by dichroic glass tetrahedral blades. The San Francisco airport version now sees Carpenter reconciling his sculptural and architectural ideas quite literally.

Glass and steel tension dome model 1994 (below). Project for 100 ft cantilevered glass bridge 1987 (bottom)





"We've tried to make our sculptures a functioning part of the building as a way of controlling daylight" he says. "In a sense it is what we were doing with the seminary in Indianapolis, but here we are trying to get them to work in a much more organised way, defining the quality of light at different times of day, defining how many lumens there are. The result is that the sculptures become instruments that are quite beautiful to look at."

Ironically, it is a rather atypical bridge project that has generated a new wave of architecturally-based projects for Carpenter's firm. The Wabasha Bridge in St Paul, Minnesota was, one suspects, a project almost reluctantly taken on at a time when the recession meant that work was thin on the ground. Although it is unlikely ever to be realised in a version identical to Carpenter's proposal, it has brought his firm extra architectural credibility.

"Our hope is that through doing this bridge project over the past two or three years, we've taken on a bigger scope of work. We would now like to take on modest architectural projects in the studio. Although I think we may seek out associations with architects in the future, I don't see our basic structure as a company changing."

Certainly the small, experimental nature of Carpenter's studio gives him a flexibility and a sense of focus that would be hard to duplicate in a larger, multi-disciplinary context.

"Architects remain our best advocates" Carpenter says, "although sometimes our clients may be the owners. In those cases the client may have recognised the need to hire a very good architect, but he might also have seen the need to distinguish his building from another by the same architect."

Carpenter is confident that few architects or other building professionals can match his levels of expertise in glass.

"I think we probably know more about glass types and glass availability - from all over the world - than anyone else. We know how those things can be put together by different companies to create a new product. Also just on the processes of making glass, we're probably much better informed than any architectural firm because we have more hands on experience, and work closely with industry, whether it's with Pilkingtons or Corning Glass. We have a technical basis and a knowledge of available possibilities that you would never be aware of if you were an architect."

Carpenter's total absorption in his work remains his best credential. He knows so much about glass - and yet there is still so much more to know! Seated amidst the fake Edwardiana of his Kensington hotel lounge (he has been staying there ever since the days when he used to lecture at the Royal College of Art just around the corner), this advocate of leading edge building technology expounds on the boundless possibilities of glass.

"Technology is advancing to the point where speaking of daylight is really a more realistic option. People tend to resort to louvres and brise-soleils, but those are really additive fixed systems. What I'm keen on is something that's a little more active and particular to times of the day. That's probably the one track that runs through everything I do: the pieces we develop, whether it's a piece of the building or an autonomous piece, all have a life that changes dramatically during the day time."

Behind him some murkily unco-operative London morning light filters through a very conventional pane as he gets up and prepares to fly back to New York. I promise him that, finally, this piece will get written and come out. If he doubts it, he is far too polite to say so. □

COMPUTING

LIGHT ON CD-ROM

VIRTUALLY HOME

WIREFRAME WONDERS

ANIMATED IMAGERY

CAUGHT IN THE NET

➲ New Light on CD Roms

The information technology revolution moves in on architecture: two recent but rather different publications on CDi are *Mario Botta - Architect* from the London office of Artemis, and *101 Projects* from the Dutch lighting company Kreon (the latter is a combined CDi and Photo-CD disc). The Botta publication illustrates some of the problems of editorial definition the new medium has yet to resolve. CD-ROM (and CDi) offer still and full motion video images, text panels and full sound, interlinked via hypertext buttons on screen. The reader/viewer can either treat the work like a conventional publication, moving from subject to subject in a direct line, or can search the whole disc for selected information, or can "graze", following an aleatory path from subject to topic to areas fancy or curiosity dictates.

The advantage of the system over a conventional book lies precisely in the extent to which the user can choose an independent reading line. The fact that voice, music and motion are also available is an incidental advantage. The success of any CDi or CDRom publication needs to be judged on the ease with which it can be accessed, as well as on the quality of the information on disc. (Very often this is largely material from secondary sources, as in the case of these two CDs.) The Botta CD contains a wealth of information, including lists of projects, reading lists, comments from and interviews with the man himself. However it has been put together with little attention to the user's needs: once a particular segment starts rolling, you have to sit it out. The lack of opportunities to cross over from one item to another, and the rigid structure of the information, makes this product a disappointment as a CD for the individual reader, but it could be useful in an educational or exhibition context.

The Kreon disc ducks this issue by presenting a photo album of recent lighting projects, accompanied by descriptive files on CDi. The projects include Starck's Royalton Hotel, as well as a range of European projects lit by Kreon. Here again the question to be asked is whether the format is right for the material. The quality of the image you can get off a CD is mainly defined by the graphics card and screen on the system used for visualisation. Unless you have a large size high quality screen, or intend transferring the image into a printed paper form, the result is likely to be a lot poorer than looking at a quality transparency or a well printed illustration. CD Roms can be used to promote lighting products, for example by providing interactive access to lighting computations (Concord/SLI have such a project in hand), but the small scale of the illustrations on this product from Kreon make detailed examination of the lighting almost impossible.

➲ At home with Matsushita

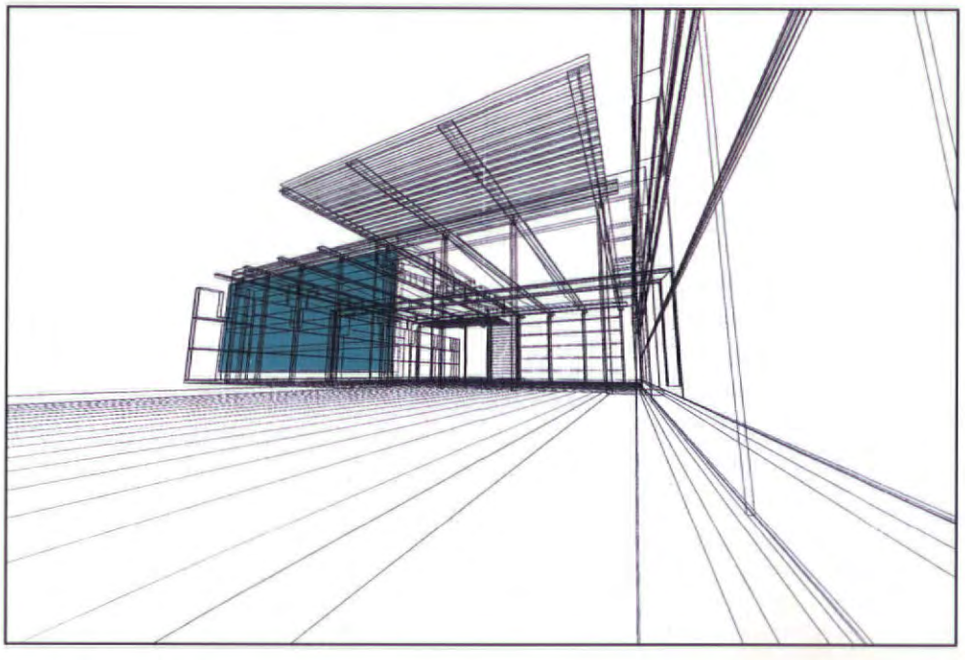
You stretch out your hand towards the doorhandle, and a ghostly grey shape appears in front of you: as it touches the handle the door swings open. You are in the Matsushita house, designed as in virtual reality by Matsushita Inc, Japan, using dVS software from Division running on Silicon Graphics Onyx

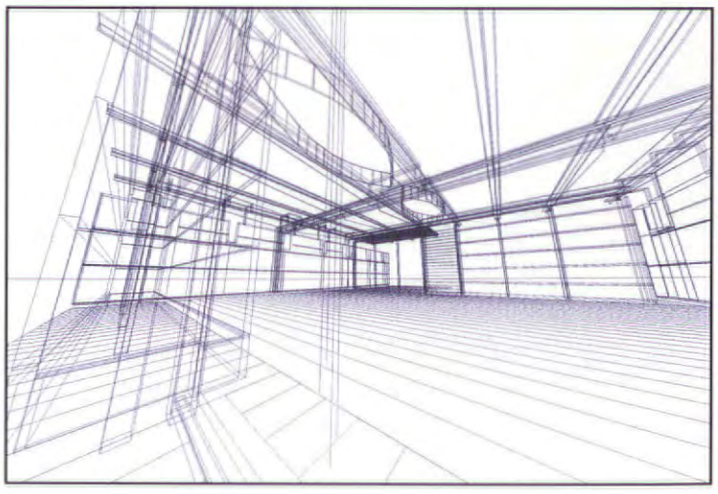
(Below and below right) two views of the virtual interiors created by Division Ltd. for Matsushita. (Opposite page) two wireframe renderings of Craig Downie's Hat Hill Sculpture gallery and a colour rendering

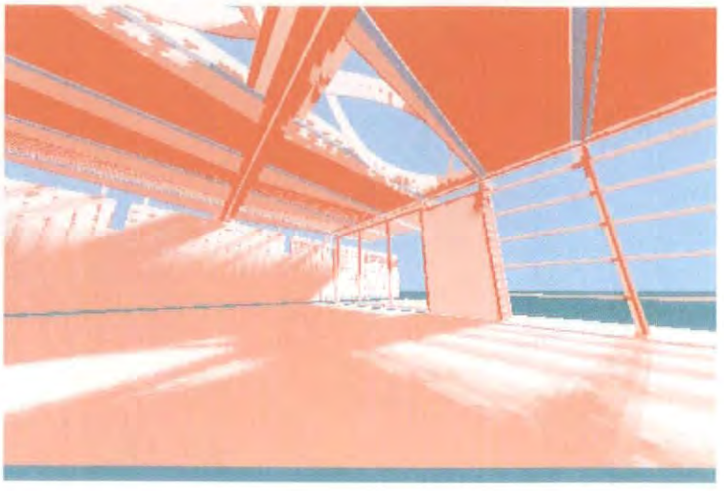
Real Time. The interior is that of a modern Japanese two-storey house, with living rooms, kitchen, bedrooms and bathrooms. Wearing a headset and holding a three-directional mouse you can explore each room, turning on and off the lights, running the water in the bathroom (with realistic sound effects), opening and closing curtains, doors and cabinets, moving furniture. There is a view out of the windows, reminiscent of a Sunday afternoon in middle England in November, however. Architecturally the house is at best undistinguished, and the blue on white flock wallpaper in the living room is definitely not something for the modernists. So why has one of the world's most innovative electronic companies put so much time and effort into creating it?

Part of the answer is that creating a fully-working domestic interior was about the most challenging project Matsushita could come up with to prove to themselves the range and validity of virtual reality as an architectural tool. In fact modelling a pure white Corbusian space would have been a good deal easier. A number of commentators have suggested that VR will take a long time to appeal to architects, because the control of detail is far from sufficient. The Matsushita project shows how much progress can be made using top-level systems and equipment.

The other explanation for the project is that Matsushita's main business is making domestic electronic products, mainly under the Panasonic label. The virtual house gives them a testbed to evaluate new designs, which can be imported into the display from CAD files, without the expense and delay of making a series of full-scale models. Their engineers and designers can review how their products would look and could be operated in a typical setting.







➲ Wireframe in the Woods

"I felt slightly reluctant showing wireframe drawings to the likes of Ito and Kurokawa", said Craig Downie, reporting on a recent symposium in Tokyo when his Hat Hill Sculpture Gallery was among projects he was invited, with four other younger British architects, to present to an eminent Japanese jury. The Gallery, in a wooded, sloping site near Chichester, in England, houses a small exhibition area and forms a framework for the permanent collection exhibited in the open air.

Wireframe drawing is where CAD started out, of course, creating fine line structures in flickering green on black screens. It remains the underlying function of most CAD programmes, which create images through plotting the relative position of end points in a virtual three-dimensional space, and then rendering wall surfaces to conceal parts of the structure not visible from the chosen viewpoint. For Downie, unrendered wireframe CAD is valuable as a way of defining the project as an abstract form. "I rely on drawing on paper as a first process: the only way to feel my way into the building is by drawing it out by hand. But CAD enables us to look at the developed concept for a building and take it that much further. We particularly use two

Istanbul 2000, a visualisation for Istanbul's Olympic bid by View by View, California

techniques: firstly, we turn off the render and hide commands, so that all the underlying levels of information are simultaneously available. Secondly, we look at the project from unusual and different perspectives, even ones we could not achieve in reality. Our clients also appreciate this approach, and get quite used to reading the fairly complex drawings we produce in this way."

Recent projects from Studio Downie include the creation of a series of refitted job counselling and training centres for a London TEC, the new London offices for the prestigious French Caisse de Depots, and a new business and arts complex in West London. Studio Downie's consultant Stuart Rand Bell used MiniCAD and Modelshop on an Apple Mac to generate the images shown here.

➲ Electric Imagery

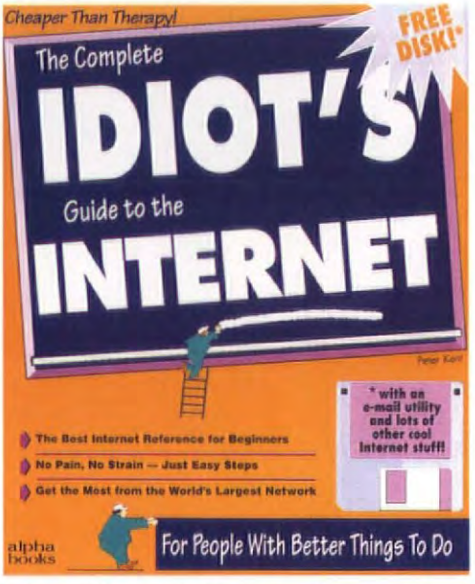
At the opposite end of the rendering scale from wireframe is ElectricImage, a Californian design software package for producing high resolution images. Originally developed for computer game industry and the movie business (the Los Angeles cityscapes in the film *Terminator 2* were developed using the software) ElectricImage are now reporting increasing use by architectural clients. The new Hyatt Hotel in Hong Kong was rendered in ElectricImage for presentation to clients by Teresa Williams of Santa Monica architects See 3. In the UK the architects Hayes-Davidson have also used ElectricImage in visualising the new Czech Technology Park in Brno, designed overall by Building Design Partnership, as well as on the Jubilee Line Depot in London and in Manchester's bids for the Olympic Games.

The current version of ElectricImage is Version 2.0, released in 1994. It will run on a PowerMac or Quadra, but RAM of over 32 megabytes is recommended, and a hard disc of 1 gigabyte to handle animation effects in reasonable time. It is an animation and rendering facility, creating output of still images or on video, rather than a direct 3D modelling one. The preceding version 1.6 was awarded "Best Mac Product of the Year" in 1993 and "Best Animation Program" at Siggraph 93. The upgrade has one useful feature if you don't like your designs - Mr Nitro is a plug-in programme to blow models apart realistically, as happens to Los Angeles in *Terminator 2*!

➲ Caught in the Net

The Internet, the computer and phone based world-wide information system, is growing daily, and promises access to information of every kind to the determined user. It also offers large amounts of information you could not conceive of anybody wanting, let alone bothering to download it onto a computer system. But there is information there of value to architects - at least two architecture specific workgroups, and others concerned with lighting, structural engineering, and CAD systems, including user groups for most CAD programmes. And all the main American universities have e-mail addresses that can be reached via the net.

As the system works under ASCII and DOS users don't have a friendly help file ready to pull down on screen (though the access software is changing rapidly - a format for distributing bitmapped files over the net has recently been announced), so a handbook to the net is essential, not only for the beginner but as a reference for the experienced user. One of the best is Peter Kent's *The Complete Idiot's Guide to the Internet* Alpha Books, USA, Computer Manuals, UK). That said, it's a book best read with the eyes closed, as the graphics are as funny as Jerry Lewis in a bad film, and cheerful remarks like "Cheaper than Therapy" (on the cover) or "Move on Folks! There's nothing to see here" (on a blank Page). But the account it gives of how to use the net, and



what all the netspeak means, is extremely clear, and directly written for the needs of the user, who is not interested in the intricacies of the system, but how to put it to work. The relentless good humour is barred from the running text, and so it acts as an excellent introduction. The free disc with the book also contains useful software such as lists of discussion groups, mailing lists, and newsgroups, and guides to addressing mail, to the Internet Services File, and to accessing on-line library and technical databases. And UUDECODE is also on the disc, so that you can send plans and drawings over the Net, by the time you've finished reading the book. □

(Opposite page, bottom left) interior of the Hyatt Hotel, Hong Kong, visualised by Teresa Williams of See 3 and (opposite page, bottom right) freehand image Desert Christmas Trailer by Alex Arko

(Right) the destruction of Los Angeles from Terminator 2, *rendered by ElectricImage software*

BLADE RUNNER'S WORKSHOP

Café society has spread its wings from the sidewalks of Beverly Hills, to the lobby of Ridley Scott's production offices. To compensate for the antisocial hours worked by most employees, TSD (The System Design), have helped Ridley and Tony Scott transform their warehouse accommodation. Lori Stocker tells how the installation of a cappucino bar/cafeteria launched a whole series of costly innovations to create a sleek, professional home-from-home.

Photographs by Grey Crawford

Film directors and producers Ridley Scott and Tony Scott recently asked a Beverly-Hills based architectural firm, The System Design (TSD), to renovate a 13,000 square foot warehouse to serve as their production facility.

TSD is a combination of architectural, interior design and construction services. Mark Warwick heads the architectural design department while Kim Hoffman leads the interior design team. Many of the textiles and most of the furniture TSD uses in their projects are fabricated from an original design.

Before beginning every project, Warwick and Hoffman study the purpose of the building. In this case they studied how people work when putting together film and video projects. They believe that architecture should enhance workers' performance and to that effect, the RSA-USA floorplan reflects the natural flow of doing business in the film industry. Says Warwick, "We want to make the company bigger and better through the use of the building."

The RSA-USA offices, located in West Hollywood, California, accommodate up to six video/film production crews on the main floor and 2-3 music video crews on the second. With the availability of multiple production bays, RSA-USA may lease space not being utilised by a Scott crew to other production companies.

As is the case in many industries, film production requires a hectic work pace, where days lead into night to fulfill the script and deadline requirements. A common thread is gathering over food and coffee to relieve the intensity of the work. Warwick and Hoffman wanted to create an environment that would enhance the employees' performance while also making the company more productive comes to fruition in a version of the communal company cafeteria.

It's easy to mistake the lobby of RSA-USA for a street-level café. The west-facing lobby extends through floor-to-ceiling windows to a small sidewalk café, replete with tables and plants. Separated from pedestrians by a metal railing, crew members enter through a door adjacent to the main entrance. Yet a visitor to the facility also enters a spacious cappuccino bar/café atmosphere. Round metal tables and chairs are painted to match the concrete floor, all a warm coffee with hints of coffee with cream. The location of the highly polished cappuccino machine softens the metallic

The main doors to RSA-USA (above) lead visitors past an outdoor café. Steel railings introduce passers by to the materials and patterns used in the building's interior
(Right) The balusters protrude through the railing's vertical plane, a design used also in the sidewalk café. Wooden crossbeams lying below skylights create shadows which change shape and location during the day. On the left, an example of how TSD uses their knowledge of light and colour; the white paint becomes greyer as it nears the ceiling where a natural shadow occurs

Work bays are fitted out with phones and facsimile machines; up to six different productions may share the main floor at one time

and concrete atmosphere with a gently curving bar graced with a polished wood countertop. Ceiling fans circulate the air with white fabric blades, another example of soft contrast to the exposed metallic cogs and machinery which operate the fan.

The café walls stretch beyond the second floor to the roof. More metal is exposed in supporting steel I-beams. Painted to co-ordinate with the floor, they lead the eye upward to the ceiling. Rough-hewn wood with a slightly whitewashed finish was obtained by sandblasting the original roof timbers, leaving behind traces of old paint.

The ceiling/roof is the only remnant of the original building. The roof was trussed and supported with steel beams while the foundation and walls were ripped away and consequently rebuilt. The beams remained as an integral part of the building's redesign.

The café affords crew members the opportunity to relax, meet a friend or have a cigarette. Says Dennis Berry, office manager, "This area gets a lot of use, especially during the lunch hour. We don't miss the traditional lobby - this makes a lot of sense." A full kitchen is located behind the cappuccino bar.

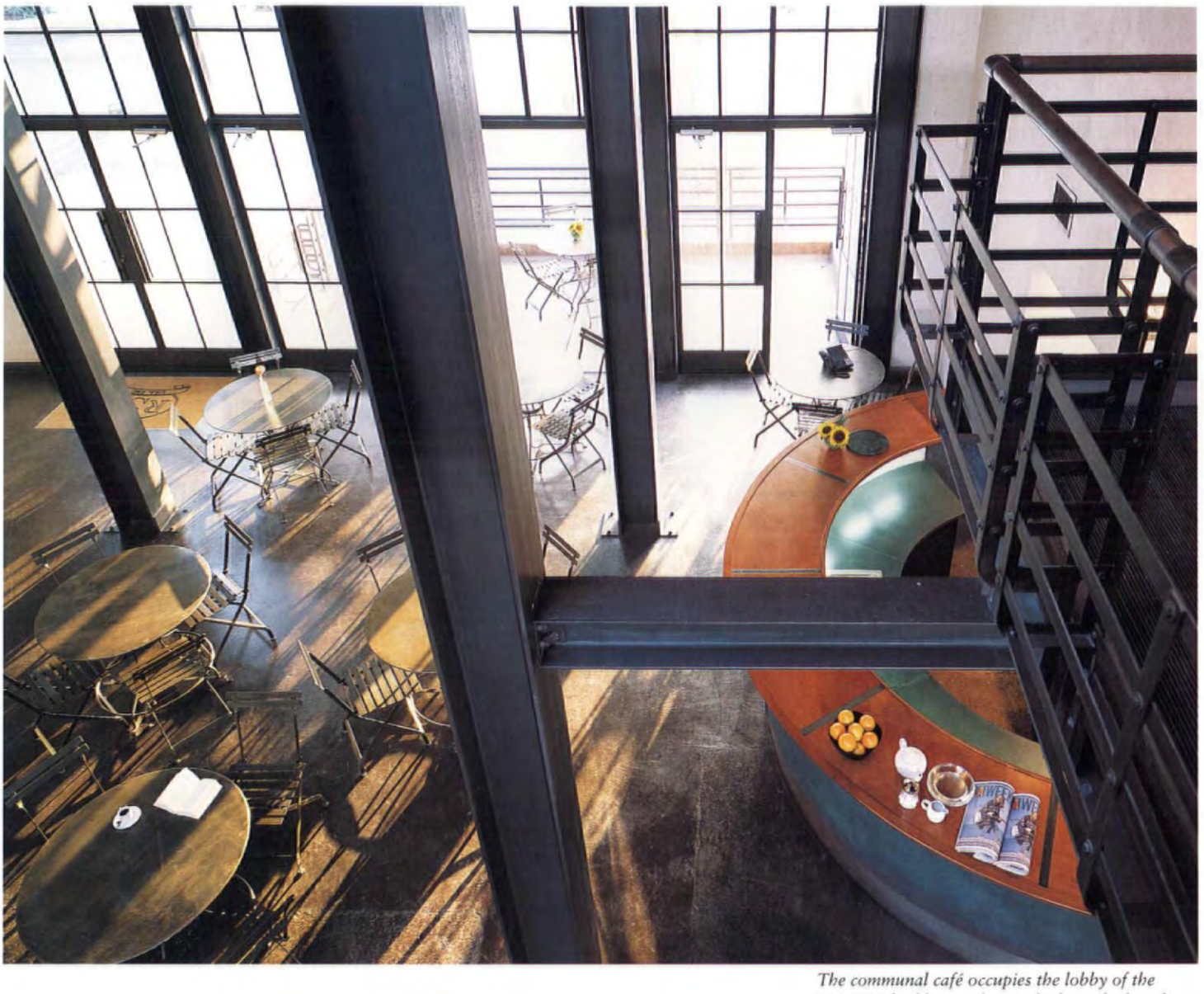
To the right of the main entrance lies yet another door, this one leading into a waiting room where actors and actresses answer casting calls. This holding room leads into a reading room where the actor auditions for a role. The reading room has a separate entrance for the director and casting crew diametrically opposed to the actors' entrance. A one-way mirror faces the actor and allows the director to leave the audition to take phone calls and still view the proceedings.

A staircase, hidden behind a door in the café, leads to the second level balcony where metal grating is used for the walkway. The balustrade protrudes from the vertical plane, echoing the sidewalk café partition.

The second floor is devoted to music video production, and work bays and offices reflect the equipment used. Work areas feature shelves with built-in bookends/space dividers and were especially designed by Hoffman for use in the bays. Recessed lighting underneath the shelves replaces overhead lights.

Bays on the main floor are arranged so that up to six crews or up to 40 people may use the area at the same time. Barry commented on this design feature: "The noise level is low for the number of people working. It's amazing how many people can be accommodated without feeling crowded." Bays are equipped with multiple phones, facsimile machines, recessed lighting and shelves. Work areas are divided by thick plaster walls which angle downward at the front of the bay in a welcoming gesture.

Bays are painted in dark colours, offsetting



The communal café occupies the lobby of the RSA-USA building and extends through glass doors to the sidewalk. The receptionist's desk lies across the café from the cappuccino bar. Walls are a myriad of whitish hues. Steel beams, part of the roof support during reconstruction, became an integral part of the redesign

white walls. Warwick added interest by using two colours in the bays, shades of burgundy and blue, and gently fusing one into the second in a quadrilateral pattern repeated inside and out.

Sisal carpets add another texture to the bays by softening the dark effect of the wall dividers. The same floor covering is used in the offices and there mimics the warm tones found on the walls. Offices, surrounding the work bays on two sides, become temporary homes to directors and feature views of the bay area. Doors hang on sliding rails, reminiscent of the metal used in the balcony.

Somewhat red, somewhat brown, somewhat yellow, somewhat blue - these are as close in nomenclature as one can describe the colours used in RSA-USA.

A large conference room echoes the colours used in the bays and introduces another scheme which is used in the offices. Warm Sisal replaces the dark and will be used in the directors' offices.

Hues of yellow and gold, from light to dark, vary the feel of the directors' offices. As the eye moves around the room, walls gradually change colour. Warwick studies the angles of each room and how they affect the lighting and, in turn, how the lighting will affect colours. That knowledge is visible in the wall treatments. Paint is applied in layers and blended so skilfully that colours are difficult to identify. Walls are solid colours yet so full of different hues that a texture surfaces from the plaster base.

The president's office overlooks the work bays on the north and lies south of the accounting department. The TSD team felt that easy access to both the creative and financial processes was important for the CEO - another way to make business flow more efficiently.

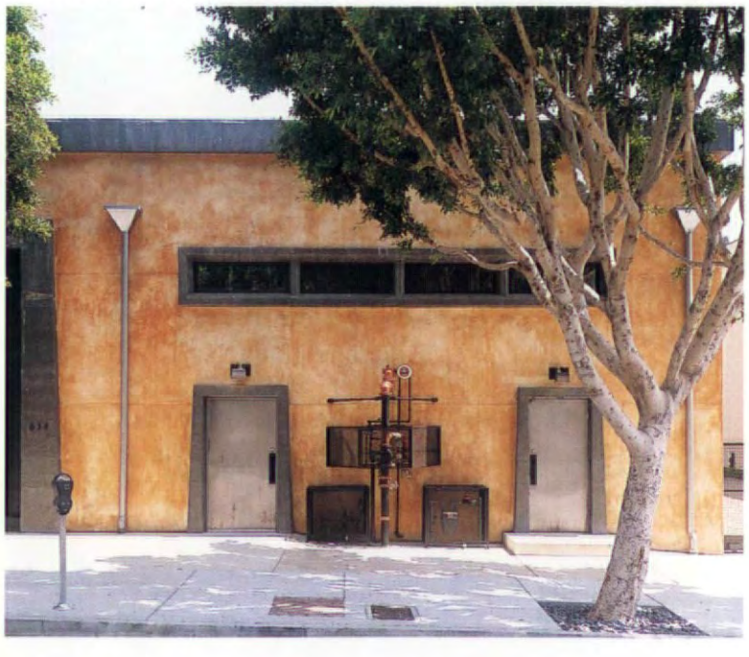
A second conference room, also north of the work bays, shows a colour scheme coordinating with other offices in its yellow base colour. It also has ties to the pattern used on the bay wall dividers. Shades of yellow gradually fade into pink and violet and then blue in a wide, flattened rainbow.

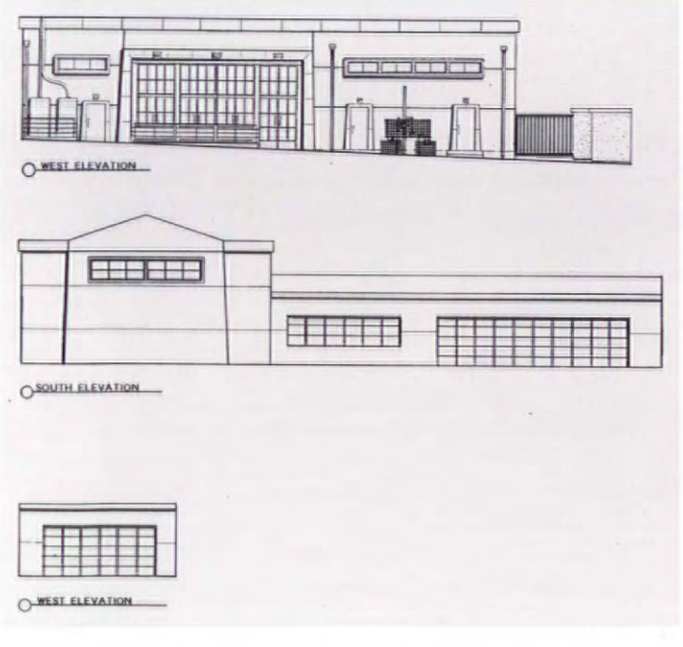
Windows permit light to enter the premises at varying heights throughout the building. And windows between offices allow the initial light to reach interior spaces. Light entering through skylights above wooden trusses creates geometric patterns on floors and walls that transform themselves in shape and position as the day progresses.

Another Warwick/Hoffman trademark is the lack of artwork found on the walls of RSA-USA. Warwick believes that "art tends to be personally descriptive; it tends to define the sensibility of the space. Designed spaces don't need art." □

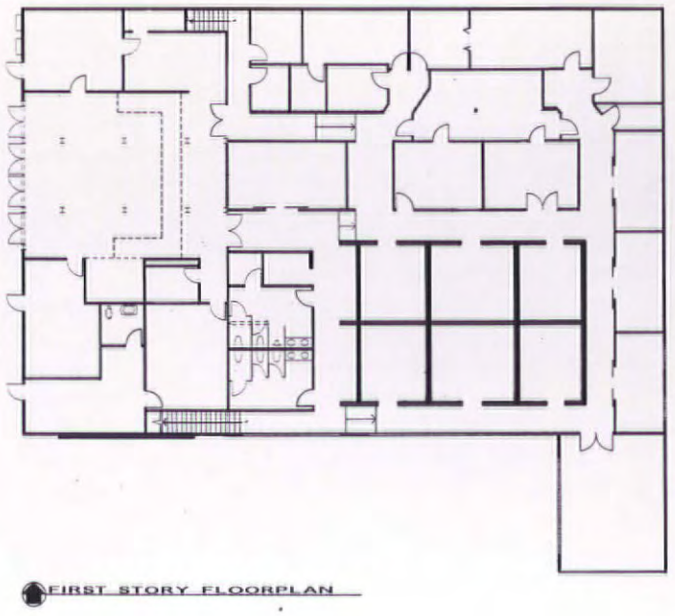
A large conference room repeats the colour and pattern scheme of the work bays but is lightened by the natural coloured sisal carpeting

Employee and casting doorways lie to the right of the main entrance. Hoffman and Warwick designed the steel doors and frames for the project

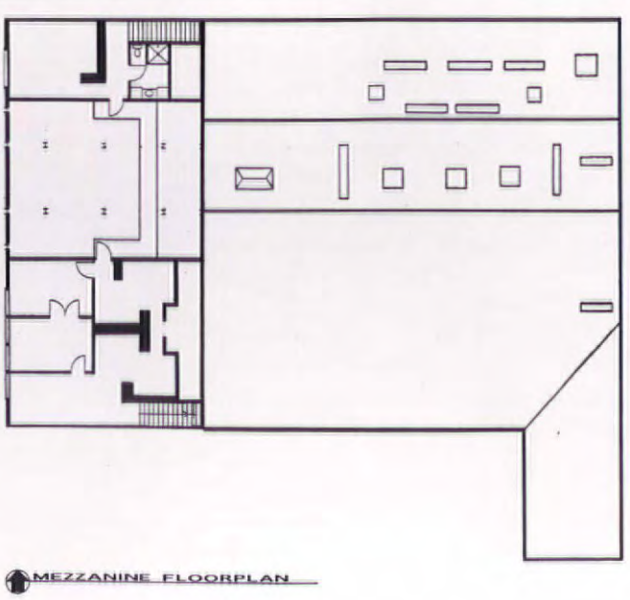




Doorway to the large conference room displays the detailing found in the doorframes. Other office doors are hung on steel beams and slide open



FIRST STORY FLOORPLAN



MEZZANINE FLOORPLAN

BODILY EXPERIENCE

Flesh and Stone. The Body and the City in Western Civilization. *Richard Sennett. London/Boston: faber & faber 1994. 431pp. £25.*

Review by Dirk Hansen

It seems that urban, civic and civil matters, at a time when notions of these disintegrate, get at long last the infusion which has been missing since Sitte. There are now more essays about the city than ever (Bogdanovic, Butor, Perec). This is in some sense borne out of the despair about the individualisation of the city. A very personal despair, as in the case of Sennett who starts his survey of bodily behaviour in an American shopping mall, "stones" designed to streamline women and men for consumption. Gone are Sitte's cold plazas and streets, Stübben's precise organisations of the city, Gutkind's dry plans, or Norberg-Schulz's slide images of the *genius loci*.

Sennett who wrote *The Fall of Public Man* is certainly not known for the sanitisation of urban problems as are most architects, planners, geographers, sociologists and historians who are fascinated by the city but somehow manage to leave human temperament out. He had his fingers on the weaker growing pulses of the cities for some time. The exasperation about the flesh and blood deconstruction of the cities as already laid down by Alexander Mitscherlich's *Die Unwirtlichkeit der Städte. Anstiftung zum Unfrieden*, 1965 is the subject of the book, that is, the overicing of our bodies, the individualisation of our movements, the criminilisation of our senses, and the general decomposition of togetherness. We do not want to touch each other anymore. We abhor the smells of others. We have to live together but we shove each other into ghettos. That is the story here "a history of the city told through people's bodily experience: how men and women moved, what they saw and heard, the smells that assailed their noses, where they ate, how they dressed, when they ate, how they made love in cities from ancient Athens to modern New York."

The stations between are Hadrian's Rome, Medieval and Revolutionary Paris, Renaissance Venice, and E. M. Forster's London. However, the intended vigour as delineated by Sennett here is only contained in earlier chapters. When it comes to the industrial and post-industrial, modern world we are left with William Harvey's discovery of blood circulation (1628) and its impact on the theory of free flow, that is, movement and mobility being the raison d'être of planning the modern city. Whilst this certainly destroyed the densities of human contacts it gave bodily behaviour new dimensions. More speed but also more flux. Robert Moses and the "dissipation" of New York may be deplored but the freeway gave also the sense of a new body.

In the end Sennett is after something else: "Lurking in the civic problems of a multi-cultural city is the moral difficulty of arousing sympathy for those who are Other." It is this anguish which is the motivation of the book. In a way, therefore, it is a quasi-religious one. This is good, it will make the blood flow faster. It makes it an important book, because it has a heart.

But one wonders why is it all smells, blood, and flesh now (*pace* Balzac, Dickens or Döblin)? Is it not too late? Why do academics travel at such a snail's pace before they look at phenomena with their eyes, ears, noses, and hearts? Do we all have to sit first with a depression in a Galeria networked by security-cameras in case one's body does not follow the "flux" as set out by the retail industry? Have we not been here before with Franz Hessel's *Flanieren in Berlin*, Louis Aragon's *Paris Peasant* or Italo Calvino's *Invisible Cities*? And did not Ruttmann's *Berlin-Symphony of a City* (1927) already show where the flesh and blood of the city is located?

Maybe Sennett's book because of its private nature and its historical overview leads academics back to the importance of the bodily experience.

PUT OUT MORE BOLLARDS

Delirious New York. *Rem Koolhaas. 010 Publishers, Rotterdam. 318pp. £20.*

Review by Ronald Green

There are two politically correct ways to write about cities. The first is in the manner of a latter-day Victorian philanthropist, dwelling on their squalor and communal violence, their collapsing infrastructure, the threat posed by their growing underclass, the economic disaster presaged by their falling property values, the epidemics heralded by their undrinkable water, their poisoned air, gridlocked traffic, uncontrolled crime, deranged street-dwellers, and the thousand individual tragedies of cardboard-box-living, drugs, poverty and death that pass unnoticed in them every day. The second way of writing about cities is far less prolix and gets away with murder. Like the Canary Wharf tower rising above the higgledy piggledy mess of London's Docklands, it soars high above all such grisly details and simply says; "I LOVE NY."

As one would expect from the inventor of EuraLille, the first town to loosen dollars from investors on the basis of Channel Tunnel hype alone, Koolhaas's book is neither the work of a ragged trousered philanthropist, nor easy reading for the average metropolitan booster. Instead it straddles both viewpoints in a bid to master the megalopolitan reality of New York; an authentic "World City" that has broken loose from its old political boundaries and become, for lack of a better phrase, a gigantic state of mind. In this second edition of his cult classic first published in 1978, Koolhaas sets to work to stem and organise the torrential flood of meaning that is urban life. Into the existential black hole of the metropolis he heaves the history of great projects like the Empire State Building, as well as new assemblies like extra airports and shopping malls, freeways and born-again trams. His chapters contain whole filing cabinets of agreeable and disagreeable urban facts. Everything you ever read in a magazine, or dreamed in a nightmare, about New York is here in omnivorous delirium, along with postcards, cartoons and grey, grainy photographs that make it all look the same, which is of course part of Koolhaas's point.

In Koolhaas's eyes this ancient and modern city crackles with energy and is ready to flash over at any time. New York, he says, is a total city in the sense that war became total war just before it became practically impossible. Despite the 'delirium' of his title his city has no real geographical boundary; its gates are the doors of airliners; its subways and freeways measure their size in travel time; its shopping malls are its public spaces, and its hotels have become residential districts, exclusive bars and cafés.

Yet despite his overwhelming scatalogical knowledge of New York Koolhaas's text seldom bubbles over into actual enthusiasm.

The urban view he is most comfortable with is from 5,000 feet in a helicopter. It is as though he knows that, down below on the ground, there is nothing but an untidy gang of politicians, planners, traffic engineers, social workers, journalists, activists, lobbyists, enumerators and arbiters of museums, defenders of art galleries, beggars for cathedrals, concert halls, and architectural competitions who all claim to be running New York. In fact, far from putting the finishing touches to its evolution, they are doing no more than putting out more restrictions on urban life while the real electricity snaps and crackles beyond the distant hills to the North.

In this sense, Koolhaas is revealed as a kind of Francis Fukuyama of urban dynamics, embracing the post-historical, no longer accountable, out of control, nobody to blame view of the city. Despite all his talk of energy, what he describes in the end is a kind of entropic urban state, half antique, half unborn. New York, for him, has already blurred into one contiguous, lobotomised resting place for restless millions. In chapter after chapter it becomes clear that his view of them is precisely that of the middle management figures he describes seeing at Kennedy airport; the businessmen, the academics, the consultants, the international flying circus who form part of the perpetually jet-lagged who have become an essential part of the landscape of every modern city.

Moving unobservably amongst teeming millions, one day on this side of the world, the other on that, these dazed figures are the diametrical opposite to the chauvinistic mayors whose exploits earlier elicited a flicker of qualified admiration. These travelling cyphers with their word processors see only what they want to see. Thus does Koolhaas digress on the ethnic structure of the upper East Side, then takes a stroll through the Bronx to wallow in expatriate Wall Street. He explores public housing, what there is left of it, but also considers Mayor La Guardia's contribution to urbanism in some detail. He ponders the history of the city's bids for the Olympic games. Then he hatches three or four pages on the pernicious myth of "community", which "has nothing to do with city life", an insight he pursues with zeal, possibly unaware that it comes from a book published in 1974. The same sort of lacunae emerge when he enumerates the sufferings of immigrants who can watch ethnic TV in New York, including the deprived expatriate Japanese who have their own satellite channel.

There are a lot of books about cities around at the moment. There is Mike Davis's *City of Quartz* (about Los Angeles); Saskia Sassen's *The Global City*; Joel Garreau's *Edge City* (an interesting study of the boom in peripheral development), and Deyan Sudjic's *100 Mile City*. Sadly what they, and *Delirious New York* tell us is that it is futile to expect any great insight or real diversity of opinion about great cities. As intellectual subjects they are already ungraspable. As separate entities they have already ceased to exist. Any literary attempt to understand them is doomed to end up with a clutch of jet-lagged authors who not only eat in the same restaurant but fight to be at the same table. If you want a late, late twentieth century view of New York, "I LOVE NY" has to be it.

OUT OF THE PARTS BIN

How Buildings Learn: what happens after they're built. *Stewart Brand. Viking. 242pp. £18.00.*

Review by Duncan Carse

Not long ago there was a paint advertisement that captured the essence of post-construction modification perfectly. It showed a typist seated on a Memphis chair with a pink electric typewriter in front of her. Behind were pastel filing cabinets with conical hats on them. Although a few screwed-up sheets of paper gave testimony to earlier efforts, the typist was no longer typing. She was blowing bubblegum balloons while reading a copy of Playgirl tucked inside a book called *Learn to type in a day the nimble fingers way.*

No room for that sort of perception in *How Buildings Learn* I am afraid, even though the brazen plug for the ancient *Whole Earth Catalogue* on its cover is thoroughly appropriate to the post-Modern consciousness. What is less appropriate is the cover picture of two New Orleans houses in 1857 and 1993, for there is little about architecture and a great deal about sociology in the pages that follow. Even Charles Jencks, the grand master, merits only one citation in the text and nothing in the bibliography.

Stewart Brand's new thesis is that, while the attacks of age on authenticity in buildings after they are built can be equated with the modifier's attack on the designer as an ageist in disguise, it is nonetheless unsuccessful. Now all the sound and fury have abated we can see that the edifice of modernity remains intact despite the ageing process. For this reason Brand believes that alterations will not succeed novelty but merely add new tactics to its brutal old strategic thrust: probably by the nurture of "localism", the "co-operative tendencies found in post-Fordist business organisations", and what he opaquely describes as "the as yet prefigurative possibilities regarding the revival of pre-ageist methods of retaining local identity".

If the reader has difficulty with the above, he or she is not alone. Perversely Brand seems to see a continuum extending from the antebellum social order of the Deep South to the prefabrication binge of the post-World War Two period. Certainly poverty plays a part, but DIY has played a larger one since then. In the end all the aspects of ageing become interchangeable parts of a structure of possibility that – unlike reality itself – appears to be able to go backwards in time as easily as it can go forwards because it is all part of what happens to buildings after they are built.

Unlike Brand's text, the utility of his argument is transparent. At a stroke it converts the clear cut conflict of the 1970s – design versus personalisation and transformation – into an innocuous alphabet soup for the 1990s – design plus modification equals a happy life. Rather unsatisfyingly everyone ends up having been right all along.

BOOKS RECEIVED

Architectural Competitions: International Competitions in Architecture and Town Planning. (2 volumes). *Compiled by Cees de Jong and Erik Mattie. 740 pages, 1,500 illustrations. £49.99 hardback cased.*

The Acropolis Restoration. *Edited by Richard Economakis. Academy Group. 220 pages, 125 colour and 125 monochrome illustrations. £39.50*

The Architecture of Good Intentions. *Colin Rowe. Academy Group. 144 pages, 200 illustrations. £17.95 paperback.* □

NATURAL ENVIRONMENT

From the initial production of solid beech floors in 1930 Junckers' policy to use hardwoods from sustainable forests in Northern Europe, for the production of high quality solid wooden flooring, remains the same. Today Junckers is an extensive industrial concern with international subsidiaries and representatives. The company has a strong commitment to conservation, and a total utilisation of the raw material is ensured by supplementary production of medium density fibre boards, chemical pulp and work tops, as well as enough energy to be self-supplying in all production units.

Project developers, architects and private consumers alike are demanding solid wood as a major factor in the trend towards reverting to natural materials in public as well as domestic buildings. Junckers solid hardwood flooring systems comprise proprietary installation systems, a variety of solid, prefinished flooring boards in 22 mm and 12 mm thickness, purpose machined mouldings and accessories, as well as specially formulated surface treatment and floor care products.

One of the characteristics of a Junckers hardwood floor is its easy interplay with the surroundings and its ability to match a wide variety of designs and settings – from fashionable high street stores and industrial locations, to office environments and private homes. More than 65 million square metres of Junckers flooring have been supplied for projects all over the world.

A range of area elastic sports floors, approved according to stringent international standards for performance and safety, is a special development by the company in response to the strong demand for premium quality sports floors which can help reduce the rate of sports injuries.

Factory Finished

The floors look like traditional long stave parquet flooring but are actually made from boards of 1830 mm or 3700 mm for ease of installation. Junckers Solid Hardwood Floors are manufactured from staves assembled into 129 mm wide boards by means of a double dovetail construction. This traditionally crafted construction is advantageous from an environmental point of view as only an absolute minimum of glue is used for this lengthwise stabilisation of the board.

All logs of beech, oak, ash and maple, are bought from sustainable forests in Northern Europe and delivered freshly cut to the factory. The logs are cut into staves which are then treated in a unique press drying process, which is the secret behind the dimensional stability and durability of Junckers beech floors, which are even harder than oak. For two hours the staves are kept at 160 degrees centigrade and brought under 12 atmosphere pressure, thus reducing the moisture content in the wood from about 80 to 1 per cent. Subsequently, the staves are conditioned for about ten days to regain an equilibrium moisture content of 8 per cent which is considered

Above, Junkers light beech floors provide resilience and comfort in this Korean company's welfare and leisure centre
Right, the modern style of this hotel lounge is accentuated by Junkers Colour-Line, a design flooring allowing completely floating no-glue-no-nail installations and specially developed to give fully built in compensation for expansion allowances

Opposite page, showroom for new ideas and an interior design scheme highlighting the exclusive ranges of chinaware and accessories. SylvaKet was chosen for its rich, hazel tones and silky, oiled finish. Architects: Hans K Weiss/Uwe Fickenscher for Rosenthal AG Bauabteilung

ideal for controlling expansion allowances at installations in Junckers' main markets in Europe, USA, Japan and South East Asia.

The boards are supplied factory finished with a polythene moisture balancer on the underside and a four sided tongue-and-groove match securing easy installation with completely square edges and joints. The extremely hardwearing 45-50 micron factory sealing comprises a priming with UV curing urethane topped by several coatings of polyurethane lacquer applied in closed circuit, environmentally protected plants. Factory oiled surfaces receive a penetrating treatment with a minimum 0.2 kg of rich oils per square metre.

As a further step towards environmentally sound flooring solutions Junckers has developed the so called "Quick Clip" system allowing almost glue free installations. The flooring boards are simply tapped in place by means of metal clips inserted in a factory machined groove to the underside of the board. Only board ends and last boards need tongue-and-groove glueing. A further advantage of the clipped installations is the possibility of introducing a damp-proof membrane between the floor and the concrete slab.

High Traffic Flooring

Product research, technical documentation and co-operation with customers and international laboratories and testing institutions, have been crucial for the developing of new products in Junckers laboratories and workshops. Recently, the world's largest cleaning contractors, the Danish ISS, inspired a new type of oil treated floor which offers improved indoor climate and maintenance properties. ISS's basic work, "Cleaning and indoor Climate", stated that in the administration and office sector cleaning accounts for 35 per cent of the co-operating costs of a building, and out of that the floorings make up 60 per cent. It also stated that oil-treated wooden floors were fairly expensive to maintain. Therefore, the ability to resist wear coupled with low overall maintenance costs are major features of Junckers new factory oiled floors.

Short installation time was another key parameter in the development of the flooring. Last-minute installation is one of the toughest demands on contract flooring, and the factory oiled floors have obvious advantages to the installer. They are saturated with new types of in-house formulated, low-emission oils providing an extremely strong surface with no need for on site treatment after installation. This finish provides the flooring with a warm and silky lustre enhancing the natural shades of the floor. This feature has been appreciated by architects and interior designers already, and in 1994 more than 200,000 square metres of Junckers oiled floors were installed.

Partnership

Solid hardwood, being a strong and genuine material, lives and breathes even when laid as a floor. This is a challenge to overcome when working with wood as part of interior design solutions. Junckers is spending many resources on refining the factory control of the material and training specifiers, architects and floor layers in the proper execution of designs and installations. As part of these efforts the experienced staff of the Technical Service Department involve themselves actively in the specification of Junckers floors and often supervises demanding installation work around the world. Junckers stress that they are not merely suppliers of flooring boards, but provide "complete solid hardwood flooring solutions". This approach to customer service includes close co-operation with architects and interior designers specifying Junckers floors, technical advisory and documentation, and in certain cases even shop drawings. It may also include product testing, customised flooring designs and surface treatments. Most importantly, the customer knows where to turn to for technical assistance in relation to the installation and maintenance of the floor. In this way long term partnerships are established with customers.

In total the Junckers Group employs a staff of 1,450, generates an annual turnover exceeding one billion Danish kroner (1994), and justly stakes claim to the prestigious status of Europe's largest manufacturer of hardwood flooring. □

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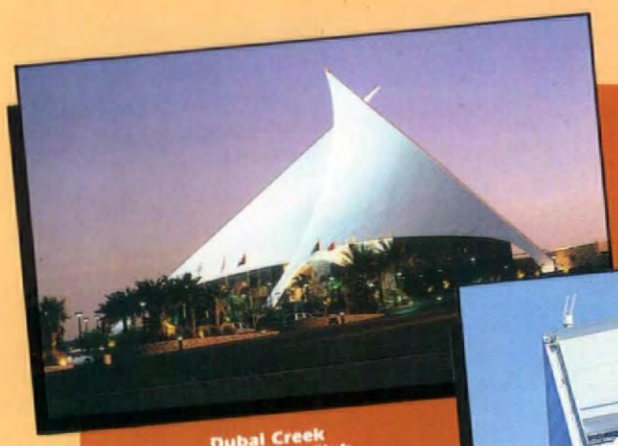

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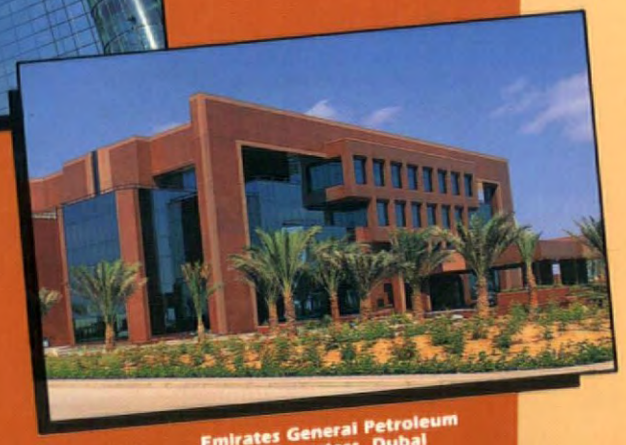

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