WORLD ARCHITECTURE

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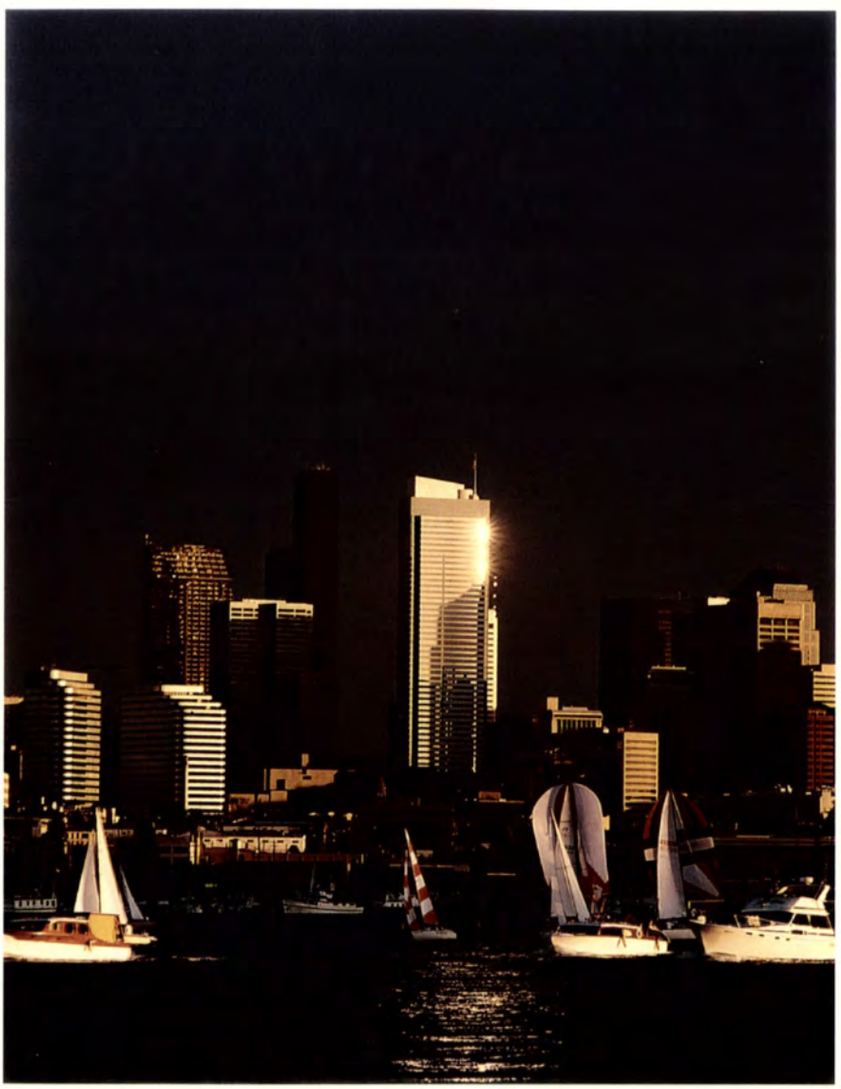

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WORLD ARCHITECTURE

THE INDEPENDENT MAGAZINE OF THE INTERNATIONAL ACADEMY OF ARCHITECTURE (IAA) NUMBER 35

Schulitz in Braunschweig (page 84)

FTL for DKNY (page 106)

Elliot Kaufman

Cover:
In this view NBBJ's majestic Two Union Square dominates the Seattle skyline

Culinary futures? (page 78)

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PERFORMING GLASS

Builders and architects have historically looked at architectural glass as a commodity product, selected largely on price and deliverability. Today, however, the construction industry is learning that glass can provide a significant performance element to a commercial or residential structure. Libbey-Owens-Ford Co, based in Toledo, Ohio, are world leaders in the architectural glass market.

An expanding worldwide market

International commercial construction has taken as many forms as the variety of countries involved in the construction boom. High rise office structures, hotels, banks and shopping areas, and all types of housing, are increasingly being designed to include great expanses of glass.

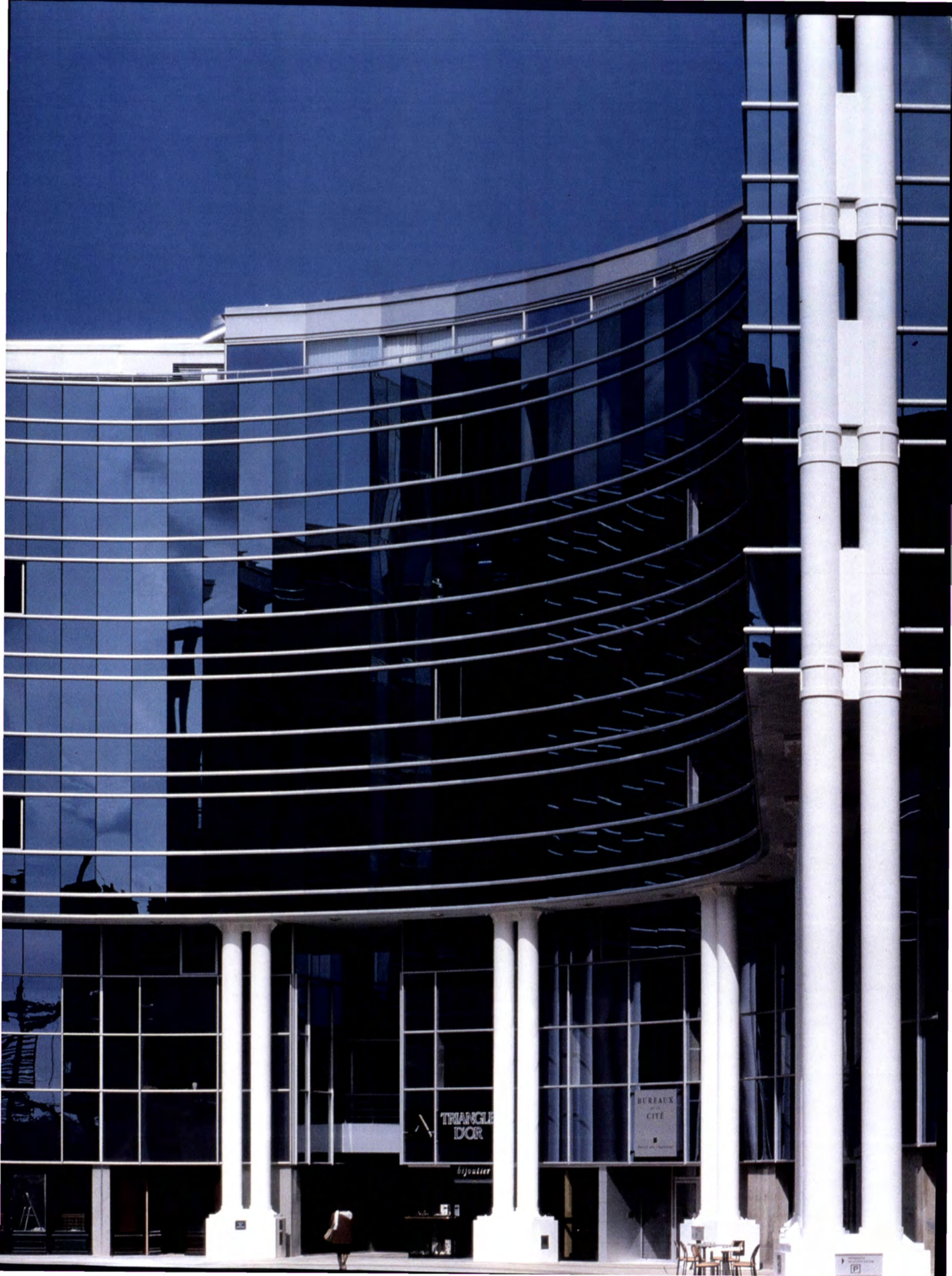
Libbey-Owens-Ford Co is an international supplier of architectural glass, and is one of the world's leading producers of float glass for use in architectural, furniture, mirror and speciality products. Their customers are now looking for a product that lowers the building's operating costs, as well as fulfilling an aesthetic function. At LOF glass is not considered merely as a commodity product. Customers are shown a variety of glass applications suitable for their individual projects, before any decision is made.

LOF is expanding its emphasis on value-added products to all its world markets. In the US, they are the only glass manufacturer to have a staff of architectural marketing specialists working directly with architects and building owners to best utilise glass product in their structures. These specialists are now branching out to focus on LOF's international markets.

LOF is currently working closely with customers in China who are beginning to incorporate bent, or curved, glass projects into their buildings. They are also assisting customers in Japan on Low-E, or Low-emissivity – which refers to the product's ability to reduce heat transfer from long-wave radiation, (not light) – glass projects.

LOF also works with the established sales network of its parent company, The Pilkington Group, in representing LOF products to customers in markets in Europe, Latin America and the Pacific Rim. LOF has become a presence in virtually every world commercial glass market, with particular success in the Pacific Rim countries, specifically Korea, Japan, Hong Kong, Singapore, Malaysia and China. In addition, the company has work underway in Latin America and the Middle East, and projects in conjunction with Pilkington throughout Western Europe. Several "new" markets include India, Turkey and Eastern Europe.

LOF Gold ECLIPSE® Reflective Glass (left). Blue-Green ECLIPSE® glass at Cité des Vins, Bordeaux, France (facing page)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Bronze ECLIPSE® glass at the Hyatt Hotel, Santiago, Chile.

Blue-Green ECLIPSE® used in a commercial and apartment building, Abu Dhabi, United Arab Emirates.

Wide range of Product Selections

Today's variety of glass products should no longer be chosen purely on the basis of colour, but also on the wide range of performance options available. Glass can be separated into three specific types:

1 Reflective: Reflects light away from the coating. Reduces light and heat transmitted through the coating and lowers shading co-efficient – the amount of solar energy admitted through the glass/glazing. Tinted reflective coating further improves the shading co-efficient.

2 Tinted: Reduces light transmitted through the product, lowering shading co-efficient. Can be combined with low-E to dramatically improve performance and lower U-value – the thermal conductance or heat flow through the glass/glazing.

3 Low-E: Reflects heat. Lowers U-value, improves shading co-efficient – the amount of solar energy admitted through the glass – and reduces UV transmittance. Can be combined with tinted or reflective glass to further improve shading co-efficient and lower U-value as compared to using clear glass.

LOF glasses are pyrolytically coated, or hard-coated, using a patented chemical vapour deposition process. This process ensures a durable, easily fabricated glass product which can also be handled, cut, insulated, laminated, heat-strengthened and tempered using standard float glass techniques.

LOF's best selling international product is their ECLIPSE® line of reflective glass. They have used ECLIPSE® glass in every conceivable type of product, from hotels and office structures to banks and government buildings. ECLIPSE® glass offers low heat absorption, high daylight transmittance and reduced UV transmittance. The LOF family of architectural reflective glass products includes Blue-Green, Bronze, Grey, Clear and Gold ECLIPSE® Reflective Glass.

The use of Low-E glass is becoming more commonplace in international markets. In Japan use of Low-E is mandated by the government in both commercial and residential projects. LOF is offering its new Sun Management Glass System to assist architects and designers in reducing building energy use while maintaining the aesthetic quality of the structure, regardless of climate.

The system unites an inboard lite of high-performance Energy Advantage® Low-E glass with an outboard lite of one of LOF's solar control glass products – either ECLIPSE® Reflective Glass, or Blue-Green, Bronze, Clear, Grey or EverGreen™ High Performance Tinted Float Glass.

LOF Energy Advantage® Low-E Glass has long been known for its ability to keep building interiors warmer in cooler climates. It is also able to inhibit solar radiant heat transfer into building interiors, keeping buildings cooler in warmer climates. Using this system on commercial buildings can bring about substantial energy saving over the life of the building. □

Critical construction schedules call for the total ECLIPSE Reflective Glass solution.

Blue-Green
ECLIPSE Reflective Glass

Time is money. And in today's world of tight budgets and fast-track scheduling, that's never been more true.

That's why more of today's architectural projects call for ECLIPSE® Reflective Glass.

Unlike soft-coat reflective glasses, ECLIPSE Reflective Glass is pyrolytically coated using LOF's patented on-line CVD process. Which means ECLIPSE Glass is durable and easily fabricated – it can be handled, cut, bent, insulated, laminated, heat-strengthened and tempered using standard float glass techniques.

In fact, compared to soft-coat products, ECLIPSE Reflective Glass can cut days or weeks off your schedule by significantly reducing lead times and improving production flexibility.

And ECLIPSE Reflective Glass is available in a distinctive palette of colors, including Blue-Green, Bronze, Grey, Clear and now the unique aesthetics of Gold.

So go ahead and make your schedule tight . . . because you can depend on ECLIPSE Reflective Glass to meet it.

Bronze
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GIS Geberit Installation System

Use

The Geberit installation system GIS permits simple, fast and complete construction of sanitary installations to the building shell stage in installation areas in new buildings and in the modernization of old buildings.

Rationalization

The modular system adapts individually to every situation. The installation work in the sanitary areas is simplified and considerably speeded up. Time-consuming and difficult work is transferred from the building site to the workshop.

Everything from one source

With GIS, the fitter is able to provide all services for the entire installation from one source. The number of people involved in the building work is reduced and coordination is simpler. The only remaining work consists of tile laying and electrical installation.

Clear separation of functions and free bath design

With its support system, GIS permits not only the erection of the usual installation against the wall but also the construction of room walls or free-standing walls (e.g. partitions). Problems of the past, such as slotted walls and hence poor sound insulation,

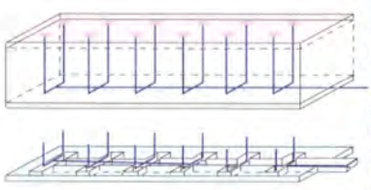
and unnecessary costs owing to the large number of people involved will no longer be encountered in the future.

Computer support

To simplify planning and scheduling, Geberit has developed a computer-assisted service software package, GIS-DLS, which can be used on commercial personal computers. An offer can be prepared for the end user on the basis of plans or diagrams.

Future

GIS is a system that opens up many more possibilities in sanitary technology for the planner and architect and sets no limits for creativity.



Geberit Pluvia Syphonic Roof Drainage System

Economical

The Geberit Pluvia syphonic roof drainage system for draining flat roofs differs from conventional drainage systems in that the pipes are laid horizontally and thus save valuable building space. This innovation also allows the architect to consider new designs (pleasanter appearance).

Reliable

The Geberit Pluvia syphonic roof drainage system is equipped with a special roof outlet which largely fills the connected pipes and therefore acts as a pressure pipe. Consequently, the high flow velocity of the water ensures that the pipe is self-cleaning.

Environmentally friendly

The pipe diameter and hence also the material consumption can be greatly reduced by this system. The Geberit Pluvia system requires few underground collecting pipes, few drain connections and therefore also less materials. The Geberit Pluvia pipes are made of the environment-friendly material polyethylene (PE).

Geberit software at the building site

Calculations for a Geberit Pluvia syphonic roof drainage system are assisted by specially developed Geberit software.

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Our Element is Water

We are an international leader in the sector of sanitary engineering. Our complete systems for prewall installations, flushing cisterns, drainage, water supply and syphonic roof drainage respond to the market needs by offering pace-setting and vital solutions.

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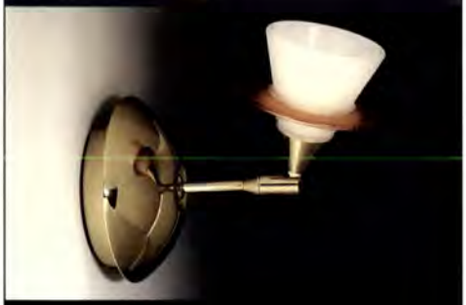

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Dies ist eine Mitteilung für den Beleuchtungsfachmann. Nach 35 Jahren Erfahrung möchten wir nicht nur Design und Qualität, sondern auch Service im weiteren Sinn des Wortes anbieten:

Este es un mensaje dirigido a profesionales de la iluminación. En Eurofase, después de 35 años de experiencia, queremos ofrecerle no sólo diseño y calidad de nuestros productos sino servicio, en el sentido más amplio de la palabra.

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Magnum - timeless elegance

The new, exciting Magnum fixture represents an altogether new luminaire of a timeless, elegant and sculptural design from Louis Poulsen. The hemispherical shape of the fixture and the columnar form of the pole blend into the design as harmonious and integrated parts. The combination of its function and elegant appearance makes the fixture ideal for both representative modern and classic environments.

The designers of the Magnum fixture had wanted to apply the technology of wide beam lighting. Their solution is a hemisphere divided into two halves by a sturdy U-shaped holder. Each half is equipped with a white reflector and an opal diffuser placed in front of the light source. The two-part luminaire has only one light source and may be fitted with a mercury vapour or metal halide lamp. It also takes the new Philips QL lamp which has a life of 60,000 hours or approx. 15 years which provides for a reasonable economy.

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Getting fresh air indoors...

...is a breeze

If you think air-conditioning is an expensive luxury or a long and complicated process to install, then you obviously haven't been introduced to Fujitsu's new 45,000 BTU/h cassette unit.

The 45,000 BTU/h fits unobtrusively into any false ceiling and features knock out panels that can provide fresh or recycled air to even the furthest corners of a building. This means that additional rooms may be linked to the system. It also features a 3 phase operation with reverse cycle heating options.

But the 45,000 BTU/h is just one of a wide range of air conditioners from Fujitsu. As well as cassette units they include floor standing and wall, window or ceiling mounted models, all of them neat, unobtrusive and stylish. They feature a whole host of technological innovations such as infra-red remote controls, a super quiet action and a unique multi-directional air flow adjustment system which ensures an even distribution of air in every direction. There is also a choice between units which supply cool air and those which offer both cooling and heating options.

If you'd like to know just how much of a breeze it is to get fresh air indoors contact your nearest international office.

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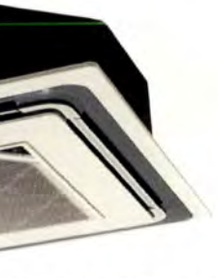

Ceiling mounted

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Window mounted

Wall mounted

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ARCHITECTURE

High performance in CAD

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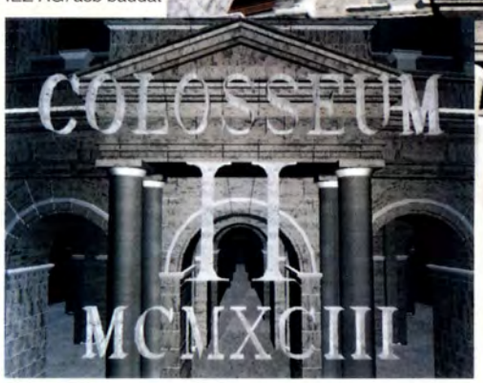
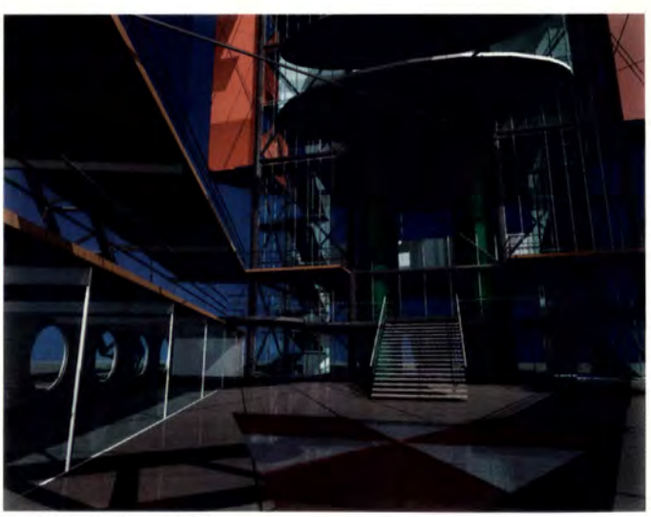


Via strategic international cooperations with such well-known companies like Siemens Nixdorf and Intergraph, IEZ is about to extend its world-wide network setting AEC standards. In the field of future-oriented research and development, IEZ participates in major European research programmes.

Since its foundation in 1981, IEZ AG has become a major player in the AEC CAD market. IEZ´s integrated solution *speedikon* is installed more than 6.500 times world-wide at small and medium sized architectural firms as well as in huge, well-known industrial companies and public institutes. More than 200 qualified experts work at IEZ in Germany to develop *speedikon* as a model-based CAD solution for the whole range of AEC tasks: Architecture, Civil and Structural Engineering, HVAC, Facilities Management and Interior Design.
Sales and distribution of *speedikon* are efficiently carried out by more than 30 resellers in Germany and distribution partners in Switzerland, Austria, Belgium, France, Italy, Slovakia, the Czech Republic, Scandinavia, Netherlands, Luxembourg, Spain, Hungary, Singapore and in China.
All *speedikon* applications are based on a system nucleus running on the major UNIX workstations as well as on PC's under SCO UNIX.
IEZ AG recently released *speedikon M*, an additional architectural solution based on MicroStation, also running under Windows NT.



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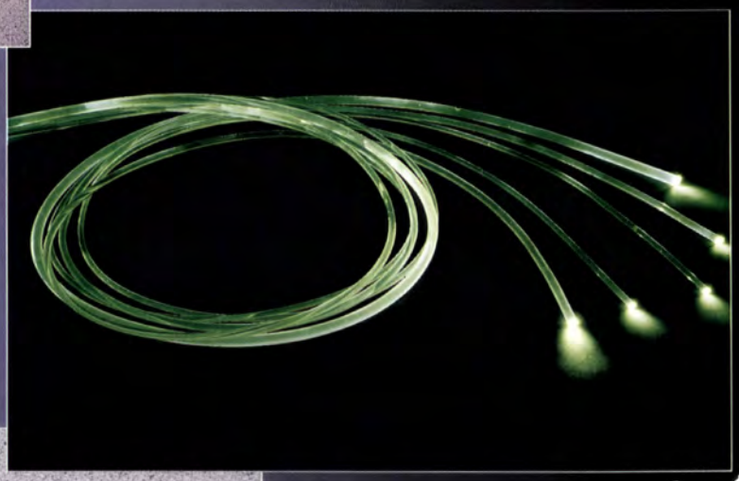

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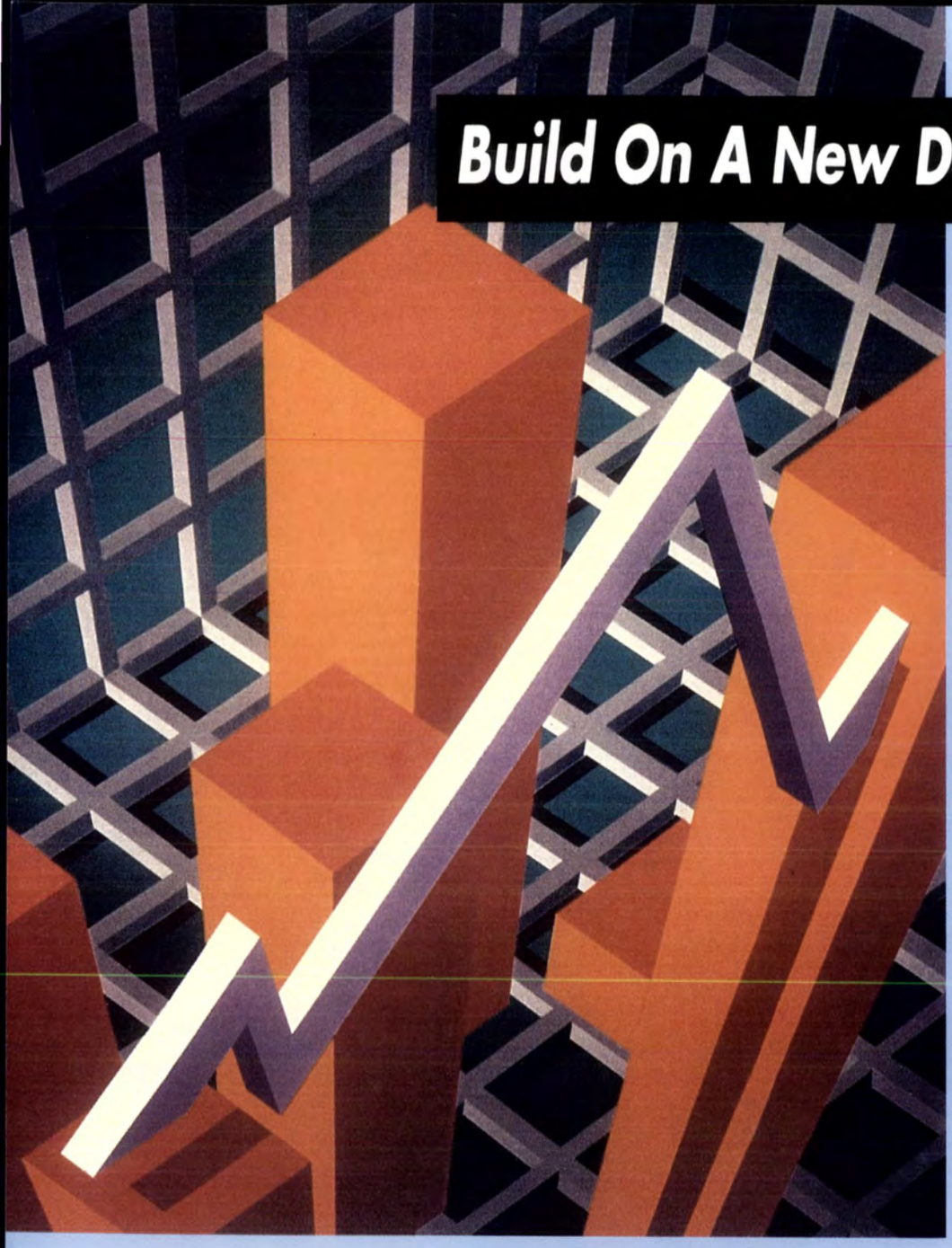

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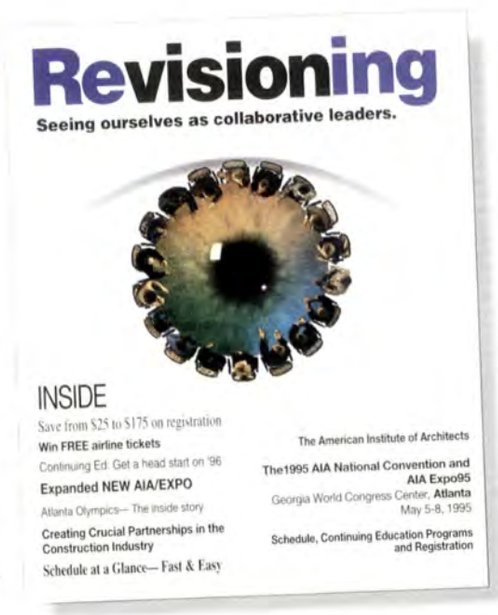

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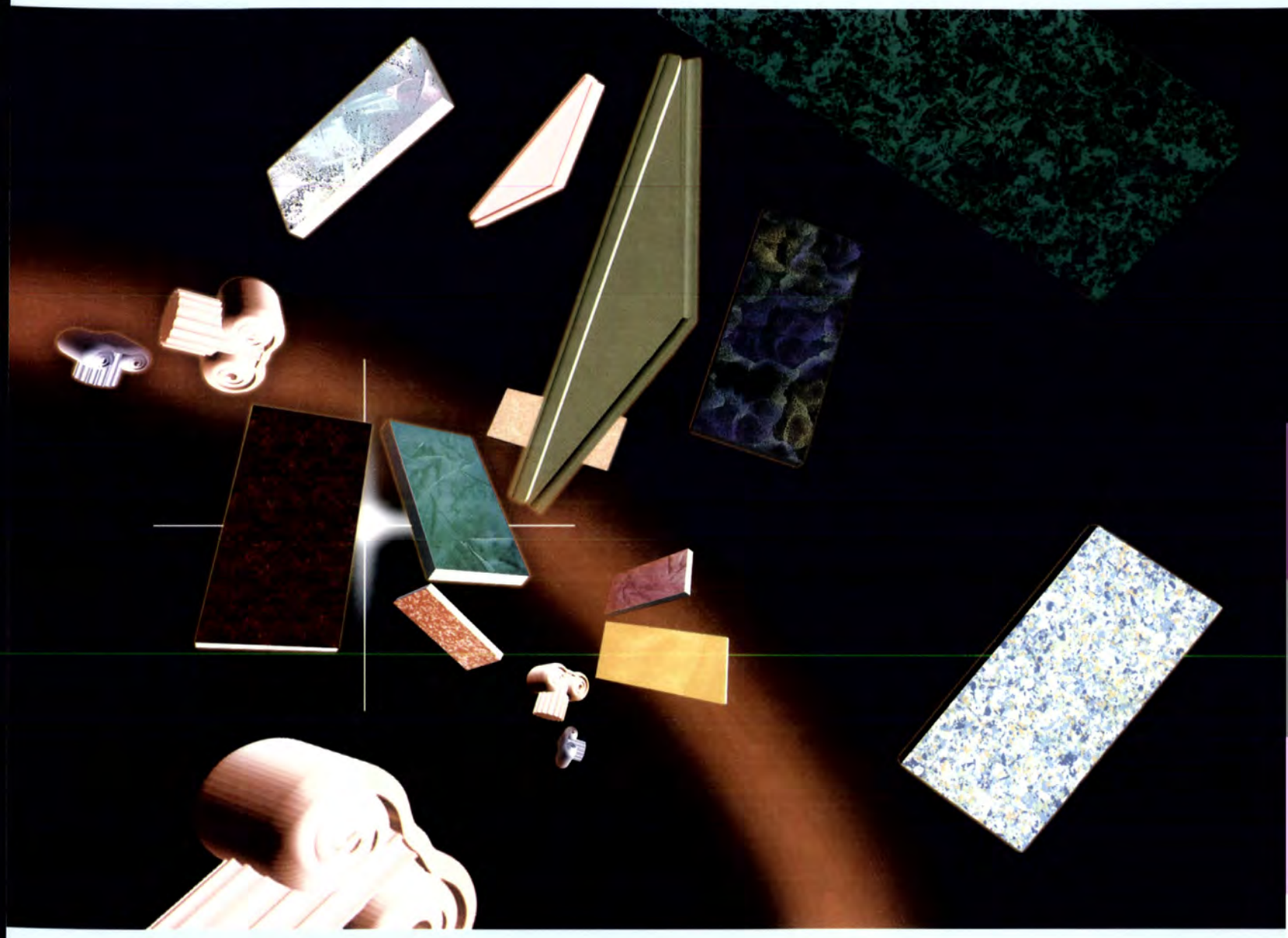

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WORLD ARCHITECTURE

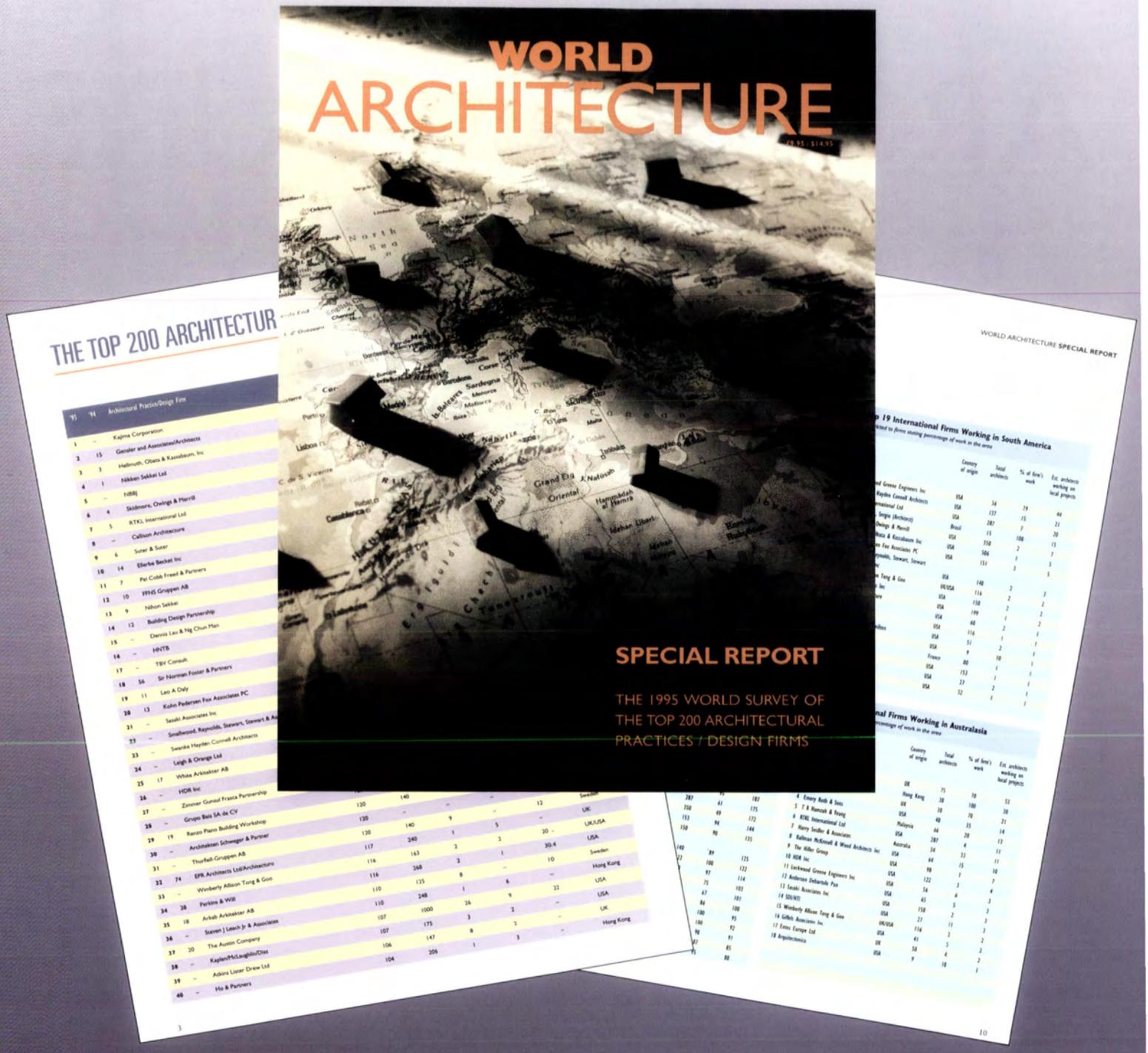
No more tall buildings, only big ones

"Today architects are looking at some very big buildings in some very small ways," the American critic Ada Louise Huxtable wrote in her book *The Tall Building Artistically Reconsidered* a few years ago, and it is not difficult to understand what she meant. Structural engineering today, far more than in the heyday of the megastructuralists 20 years ago, has the capability to realise structures that would dwarf Le Corbusier's *Ville Radieuse* and contend with Frank Lloyd Wright's Mile High Illinois skyscraper, but the problem is that we no longer have an architectural ideology into which such engineer's dreams can fit. Instead of being seen as parts of something even bigger, today's tall buildings are deliberately designed to look smaller than they are. Worse still, their designers defend them on contextual aesthetic grounds more appropriate to cabins in the woods. The defenders of London's Canary Wharf tower, for example, claim that it fits into the English context because, at grade level, it exhibits the hard-edge grass-next-to-stone of an Oxford College or a London Square. In the early days of the project the developers even refused to release computer-generated images of the complex seen from the flight path to and from London City Airport, for fear that people would realise how big it was. Unlike the Modernists of the era of Sant' Elia and Chiattone, the "modestists" of the 1990s are not excited by visions of the future. The idea of a dome enclosing 50 blocks of Manhattan, proposed by Richard Buckminster Fuller 35 years ago, fills them with dread. And so does the reality of enormous, ubiquitous, 20-40,000 square metre warehouse and distribution centres that have sprung up over the last decade around motorway off-ramps and major feeder roads all over the developed world.

How wrong they are. In an agricultural landscape that is dying the death of a thousand cuts, surely the best thing to argue for is really big buildings. Not tall perhaps, but huge, low, perforated roof structures covering up whole square miles of countryside that have been disfigured by untidy, low density development. A start might be made in Southern Ireland, around Cork, where new industry has lately filled in the gaps left by half a century of "Bungalow Blitz". Another possibility is the miserable wasteland between Montreal and the US border. Perhaps the ideal spot to start would be the Exe Valley in England, a spectacular panorama of wretched structures ruining a splendid landscape. If this entire jumble were to be overclad, Christo-style, using gigantically extended big sheds, the results would be complementary to the landscape. Not only could the upper surface of such a twenty-mile square area of corrugated roof be decorated, or camouflaged like a World War Two factory – but its protective properties would convert the intractable problems of local contextual design into one of interior decoration.

The real breakthrough in building technology over the last decade has not been the possibility of 150-storey towers in megacities, but the reality of science parks, business and distribution sheds at every node on our highway networks. Raised from their puny seven or eight metre height limit, these vast enclosures could easily become the prototypes for vast fifteen or sixteen metre umbrellas over many areas of obsolete development. Thus they would form landscape rather than buildings – and it is landscape we must learn to construct, not monuments.

Martin Pawley



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NBBJ

INTERVIEWS WITH PARTNERS

NBBJ is the name of the second largest architectural practice in America. The initials stand for Naramore, Bain, Brady and Johanson, the four men who founded the Seattle firm during World War Two. Fifty-two years later NBBJ employs over 500 people in eight offices in the Eastern and Western United States. Organised according to a unique studio system, the firm is led by nine partners, 46 principals, and teams of architects 15-30 strong. World Architecture *visited NBBJ's offices in Seattle and Columbus, Ohio, spoke to eight partners, 12 principals and numerous other staff in preparing this profile of the practice whose avowed aim is to be "The best design firm in the world".*

Moving swiftly, Dave Hoedemaker leads the way through the newly restyled offices of the Herring Newman advertising agency in Seattle. The interior is what he describes as "grunge", a physical manifestation of the musical movement begun a few years ago in Seattle with the same name. The receptionist's desk is pink, framed in steel tube and looks as if it might rotate on a floor track. The floor is float-finish concrete with remnants of black adhesive sealed down where it won't come off. There is no ceiling, only grey, sprayed-on fireproofing compound criss-crossed by galvanised ducts. More steel and cyclone fencing make up the partitions, which are decorated with full-size images of people, posters and pinboards. A key part of the interior is a triangular light well passing through two floors. Lancing down through the opening is a counter-intuitive cascade of pendant lights. At

NBBJ's partners on the roof of the Seattle office in 1993. Left to right: Bill Bain, Jim Jonassen, Dave Zimmerman, John Pangrazio, Neil Anderson, Larry Helman, Dave Hoedemaker, Friedrich Böhm and Scott Wyatt

the bottom is some custom made wooden fitted furniture echoing the triangular shape. The staff are totally integrated into the design. They are everywhere, dressed in jeans, T-shirts, boots and whatever, laughing, joking, working in what they clearly regard as their own environment. Partner Scott Wyatt, who led the design team, with a nod to Hoedemaker's "grunge" observation, adds that this aesthetic is only part of a complex response to the needs of a highly competitive and creative advertising agency. The space addresses the needs of a youthful staff and their state-of-the-art technology.

Dave Hoedemaker is a Yale graduate who once worked for the great Eero Saarinen. He joined NBBJ in 1962 and became a partner in 1968. From 1976 to 1987 he managed the firm through the major reconstruction that gave it its present leadership structure and identity. Today he is NBBJ's design guru, coordinating the firm's design strategy as it navigates the cross-currents of style and fashion in the post-Modern era.

"Modernism was broken on the wheel in the 1970s and since then all the feathers have been up in the air," he says. "Now, after an era influenced by French philosophers and a great burst of irrationalism we are looking at Modernism again and seeing that it was not all bad."

Conscious of NBBJ's long tradition of responsible design and troubled by the irrelevance of post-Modern historical references in the North West, where there is little or no tradition of Classical design, Hoedemaker has led the firm in the direction of critical regionalism, concentrating on sharpening awareness of regional design cues everywhere that NBBJ operates.

"At NBBJ we design and formalise our public outreach and our client relationships. We design our buildings functionally, working as building type experts who continuously update our research and awareness. We design our processes of project management. We design our technical and constructional systems, and we design our projects according to neighbouring social, organisational, and regional forces and influences."

Apart from design integrity, Hoedemaker is chiefly concerned these days with efficiency and competitiveness, both of which are an integral part of the design equation in the world of commercial architecture.

"Nowadays to operate successfully we have to work fast, do more work for the same fees, and strive for zero defect work."

NBBJ's founding partners in the 1940s. Left to right: Floyd Naramore, Perry Johanson, Clifton "Doc" Brady and William J Bain

Partner Bill Bain Jr is a native of Seattle and the son of one of the four founding partners of NBBJ. He lives in a downtown penthouse at the top of one of his own projects, Market Place Tower, with its spectacular view of Elliott Bay and the high rise centre. A prize-winning student at Cornell University, Bain joined Naramore, Bain, Brady & Johanson after completing his military service in 1955 and became a partner in 1961. Fifteen years later it was his commission to design the Columbus Convention Center that led to the merger with Nitschke Godwin Böhm that created the firm's Eastern group of offices. An important figure in Seattle commerce and culture, Bain takes a positive view of the future of the city, but he concedes that a sea change has come over commercial development in urban America since 1989 when he finished his pride and joy, Seattle's 56-storey Two Union Square skyscraper.

"Looking back you could say that building marked the end of an era," says Bain today. "It marked the end of the era of large tower power, of strict order and limitless resources. The goal for our firm is to help guide the growth of the city by looking beyond the aspirations of our individual clients. There is no doubt our cities will continue to grow in the coming century and we must participate in that growth by providing leadership as well as technical assistance."

Does Bain think his father would have liked the way the city has developed since his day? He thinks for a moment before answering.

"Yes. I think he would be very comfortable with it."

Partner Jim Jonassen is also based in Seattle. He is the chief executive officer of the firm's Western Region and guided the West through its major cultural transformation to an open studio environment. A Columbia graduate he joined NBBJ in 1965 and became a partner in 1970. As regionalism is for Dave Hoedemaker, and urban regeneration is for Bill Bain, so is health care for Jonassen. In fact his development of health care architecture is what made NBBJ a national firm.

After years of domination by large-scale scientific, technological and institutional concerns, Jonassen believes that his field is becoming dramatically more humane and reasonable, and that the contribution architecture can make to the healing process is on track for a massive increase.

"Architecture is unique in its capacity to accommodate changing technology," says Jonassen, "and yet still to keep an identity of its own. In health care there is not only a great need for the strategic planning of facilities that are certain to grow. Even more important is the adoption of a new model of care based on the

concept of 'wellness' instead of 'illness'.

"I see a new structure emerging in which hospitals might eventually disappear. Certainly they will diminish in importance and fit into a hierarchy beginning with the workplace, then moving on to new 'Self Concern Centres' which might be based on drug store chains equipped for self-diagnosis but staffed with highly-trained nurses, nutritionists, pharmacists and primary care physicians. The next stage will be 'Health Maintenance and Diagnostic Centres' which might be like small office buildings staffed with multidisciplinary care teams. These would be integrated with a smaller number of 'Intensive Intervention Centres', in effect intensive care hospitals capable of dealing with life-threatening illness. The last link in the new structure will be 'Aided Living Centres' providing care for the chronically ill or convalescent."

Jonassen believes that the design of all these new facilities will strongly effect their performance. "The idea that 'God is in the details' is true only if the details transmit a notion of caring, thoughtfulness and appropriateness."

The fourth and youngest Seattle NBBJ partner is Scott Wyatt, an architect who merged his firm with NBBJ in 1991. A graduate of Rensselaer Polytechnic Institute, Wyatt is leader of NBBJ's corporate design studio which looks at the design and fitting out of office space from the standpoint of end users. Though enthusiastic for the future of corporate construction in the long term, Wyatt concedes that United States demographics overlaid on existing real estate suggest that less new building will take place in the 1990s, and a great deal more recycling of old buildings. He does however stress the uncertainty that all professionals feel in the present situation.

"There has been very little building for nearly five years now and vacancy rates are coming down," he notes. "By traditional standards developers should be ready to start building again any time now. The problem is that no one knows how far the traditional rules of thumb for determining demand still apply. We have to consider the downsizing of corporations, the development of teleworking, computer-increased productivity... All these are new factors. Today's corporation does not want a building that paints it into a corner. It wants a broad band-width of potential uses for anything new.

"If I were to take an educated guess at what is going to happen, I would say there are going to be buildings torn down, and there is going to be a renaissance of human scale. The corporate environment is redefining the role and relationship of the individual in the corporate scene. There are profound architectural changes taking place to reflect these changes in the nature of business. New technology companies, for example, do not see themselves fitting into a high rise or the classic American out of town business park. They are more interested in mixed use 'urban villages' or 'pedestrian pockets' in the city itself. If they need 100,000 square metres of floor space, it is my guess they would rather have it at a human scale in a downtown district. The tear-downs are going to be in the suburbs, not in the downtown areas."

Since 1987 Austrian born Friedrich (Friedl) Böhm has been the firm's managing partner. Located in the NBBJ Columbus offices, he has implemented many of the firm's new strategies in cooperation with the partners and the firm's leaders. Böhm is also the Chef Executive Officer of the Eastern Region, a counterpart to Jim Jonassen in the West. He has been in practice in Columbus since 1970 and joined NBBJ in 1976 as a partner.

Today he works with the Columbus based partners Neil Anderson, the Eastern group health care specialist; Lawrence Helman, NBBJ's leading authority on development planning and locational analysis, and David Zimmerman, who is NBBJ's financial partner, responsible for the business and financial operations of all the Eastern offices of the firm.

A generally younger and less formal group than the Seattle partners, the Columbus team is prone to speak less cautiously about the future.

Asked about the future of the corporate sector Böhm declares flatly: "Corporate America is walking away from architecture in its traditional form," but he is confident that "New forms of architecture will constantly emerge." As to the future of city centres, he confesses himself perplexed: "Downtown buildings cost 50 per cent more than suburban buildings. If suburban building is down I don't know where downtown America is going to go. It is a challenge to us to find the right mixture of uses for our downtown areas, and new uses for old buildings as well." Böhm sees the immediate future lying in health care work, schools, colleges, criminal justice work and overseas commissions.

Helman too has his eye on the changing regard in which architecture is held. "All institutions must become increasingly manageable," he says. "In recent years rapid technological and economic change, and the need for greater efficiency, has forced business to become more adaptable, able to analyse and test different options, make quick decisions on the ground and measure their results."

Zimmerman, with his business grounding, plays a key part in NBBJ's practical ability to confront the changing future. "The complexity of architectural practice today, with all its legal, financial, quality, technology, contractual and human resource aspects, means that a firm like NBBJ requires constant stewardship," he says. "It is my job to provide that so the firm's partners and principals are always free to focus on what they do best, which is practice their craft."

"We are a firm that deals with building types where complexity is the only constant," comments another Columbus partner Neil Anderson. "In health care it is a fact that all our old hospitals are 50,000 square metres of total chaos. They have been added to indiscriminately for 50 years. Whichever building type we deal with, we first unbind the client from his preconceptions, then work out what the project really needs to be, and work backwards to find out how we can get it. For us architecture is fundamentally a breakthrough process. At NBBJ we are so confident in our process and our intellectual capital that we believe we can compress the time it takes to get to those breakthroughs."

Although much can be achieved by teleconferencing, in the nature of things it is difficult to find all the NBBJ partners in one place at one time. A visitor to Seattle may catch four in residence, a visitor to Columbus might catch another four. It might require a trip to San Francisco to meet John Pangrazio, who runs the NBBJ office there. Deeply absorbed in the burgeoning California demand for health care and laboratory architecture, he too praises the loose, though strong NBBJ management structure.

"Our regional office concept offers every individual in the firm the opportunity for continued professional growth and advancement. We seem to be blessed with talented people willing to rise to every occasion. All of the regional offices have NBBJ transplants from somewhere else."

Perhaps the most eloquent testimony to the looseness and flexibility, but also the solidarity of the NBBJ organisation is the photograph accompanying these interviews. It is the only extant image of all the partners together. It was taken on October 15th 1993 on the roof of the Seattle office. □

REGION AND IDENTITY IN AMERICA

How is a region defined? What is the essence of regional identity? At the end of the twentieth century, in an age of megacities, global commerce and instantaneous communication, these are not easy questions to answer. Yet for architects all over the world they have a crucial importance, and nowhere more than among the major commercial practices of North America, the home of the International style. The progress of the US giant NBBJ is a case in point. Fifty years ago a child of the American North West, NBBJ is now a global player developing a concept of regional identity that embodies elements from the future, the past, Asia, the Pacific and Europe, as well as the continental United States.

Concourse D, Seattle-Tacoma international airport 1994. "Shoji screen" glazing is unique

There is a joke in Seattle architectural circles that says North Western colours are any colours found under a mushroom. But despite the backwoodsman frontier mystique its inhabitants still like to expound, Seattle is a new city whose style is more derived from invented aeroplanes computer software and biotechnology, than from indigenous flora and fauna. Ninety miles from the Pacific Ocean and surrounded by its own group of satellite towns, Seattle proper lies between Elliott Bay, a branch of Puget Sound, and the fresh-water Lake Washington. A late-comer among world cities, Seattle was founded in 1851, and for more than half a century it remained no more than a frontier port, with no industry beyond the export of its native timber and coal. Only the coming of the United States Navy yard at Bremerton and the growth of maritime trade with Asia and the Pacific rim gave a hint of its growing geopolitical importance.

The firm of NBBJ was originally formed in 1943 by architects Floyd Naramore, Perry Johanson, Clifton Brady and William J Bain. Using different permutations of their four names they carried out a number of wartime contracts and, after the war, settled down to practice in custom-built offices in Seattle as Naramore, Bain, Brady and Johanson. In the 1950s and 1960s the firm was responsible for a large number of school buildings, housing projects and hospital and medical research projects. Then, in 1966, the firm took a major leap into prominence by designing the Seafirst Building, an elegant anodised aliminium-clad 50-storey Miesian office tower that was the first skyscraper in what is now a crowded Seattle downtown high

rise district. Jokingly described as "the box the Space Needle came in" – a reference to the famous vertical feature designed for the 1962 Seattle World's Fair – the Seafirst building was followed by other large projects including the Seattle Kingdome, still the longest span thin shell concrete structure in the world.

Towards the end of the 1970s there were signs of change in the structure of the practice. The founding partners were now at or near retiring age and increasing staff numbers, workload and expansion beyond the Seattle region were beginning to impose strains on the firm's administrative base. In 1977 the practice received a major commission in Ohio, to design a Convention Center in Columbus. Often underestimated, the distance between Seattle and heartland of the United States imposes limitations on communications that are only now being conquered by new technology. To team up with a local practice there, Naramore, Bain, Brady and Johanson merged with the Columbus practice of Nitschke Godwin Böhm, a move that paralleled other mergers with local practices driven by projects in other parts of the United States. The result was that, by the end of the 1970s, the firm had in some ways become a victim of its own expansion, having turned from a large Seattle practice into a loose federation of offices, separated by great distances, and with an excess of partners.

Now began a period of reorganisation that was to bring into being the firm that exists today. Over the years, working patiently and with considerable political and organisational skill, the partners slimmed down the unwieldy accumulation of affiliated firms and partnerships that had grown up in the preceding 20 years and created a firm with two regions. The Eastern region was to be administered from a large office in Columbus, with responsibility for smaller offices in New York City and North Carolina. The Western region, operating from the practice's existing headquarters office in Seattle, would administer three satellites in San Francisco, Los Angeles and Tucson, Arizona.

With the main strategic leadership division achieved, the second major cultural change concerned the introduction of a studio system into the running of all offices. Under this arrangement, loosely based on the French beaux-arts system of vertically integrated ateliers led by a patron or master, teams of 15-40 architects and assistants working in particular market sectors were to be grouped together with four principals, one specialising in design, one in construction technology, one leading marketing and the fourth concerned with project management. Owing to the number of offices making up the firm at that time, and their different sizes, this arrangement meant that the majority of studios would be located in the larger regional headquarters of Seattle and Columbus, with only one in each of the other offices, but the system worked well from the outset. Each studio found that it enjoyed the independence and initiative of a small firm, while being securely linked to the multivalent support framework that only a large organisation can provide. The new structure that emerged from the leadership reorganisation of the 1970s and the cultural shift of the 1990s enabled the firm to operate effectively on a national scale, exploiting local opportunities as a federation of semi-independent units, but also presenting itself as a distinct professional identity in the American architectural scene. As though to formalise this new identity, and the fact that it had become a truly national firm, in 1988 the firm divested itself of the clumsy titles accumulated by earlier mergers and styled itself simply NBBJ.

Today NBBJ is a collegiate organisation driven, not from the top down, but from the bottom up. Few decisions, apart from long range planning commitments are made by the partners alone. Most are made by the staff themselves using their own initiative. The nine partners are teachers and leaders but, most importantly enablers. Their efforts are devoted towards creating an environment in which good architecture can thrive. No visitor to the firm today can fail to respond to the evidence in every office of a powerful drive towards quality, a commitment to team work, and the consequent opportunities the firm offers to its own people. As a national firm with smaller regional offices, NBBJ can offer a balance of expertise, talent and drive in every location in which it operates.

Ever since the Seafirst Building NBBJ had been responsible for some of the tallest commercial buildings on the Seattle skyline, and even in 1983 the firm's new offices, a refurbished and restored paint warehouse originally built in 1904, must have seemed understated. Today, as a firm with seven regional offices and over 500 employees, a firm that has built in 14 countries and in 32 of the United States, a firm that has 800 to 900 projects on the go at any one time, they seem positively modest. In this, as in other matters, NBBJ remains doggedly committed to true critical regionalism – and nowhere more so than in its own birthplace. Building in Seattle was the starting point for the search for a contemporary North Western identity in all its range and complexity, from memories of its short and frugal pioneer history, like the shell of the paint warehouse, to the vision of a glittering advanced technology future lying before the region today like a golden carpet.

But as if to exemplify the multifaceted phenomenon of regional identity in architecture, only a short walk from the painstakingly restored sandstone, brick and timber NBBJ offices in South Jackson Street is Two Union Square. This is an NBBJ building of a very different type soaring into the sky amongst the skyscrapers of the downtown area and overlooking the whole of Elliott Bay from its upper storeys. Dramatically modern as it is, Two Union Square is marinated in North Western symbolism. From ground level its entry steps were visualised by partner Bill Bain as "surf" leading to a "beach" of computer-designed carpet based on images of rippled seashore sand. 56 storeys higher the streamlined penthouse, a capping structure shaped to resemble the hull of a racing hydrofoil, expresses the city's relationship with advanced technology. Between these two points the building displays a wonderful richness of North Western imagery and metaphor. The multiple curvatures of its elegant sides are derived from a series of interlocking circles drawn from the topography and street pattern around its site. Seen in elevation the curved tinted glass of this elegant tower, with its multiple corner setbacks, produces complex and moving reflections like the waters of Elliott Bay itself. In turn the curved spandrel panels separating the storeys – formed from aluminium by the Korean carmaker Hyundai – are so shaped as to represent the striped bark of the great cedar trees that once stood on the site. Everything, from the airfoil-shaped handrails and information panels to the rich brown tones of the local woods used to line the interior spaces of the podium level public buildings, reflects the same desire to achieve a kind of unity with the spirit of the city. This concrete, steel, aluminium and glass giant was completed only five years after the warehouse conversion, yet nothing could be more different from the modest, contextual structure on South Jackson Street, where it was conceived.

In truth the effort to create a regional identity at Two Union Square started with the very inception of the building. Design partner Bain sent the members of his studio out one weekend with orders to return with images evocative

of Seattle and the North West. In the end over 300 were analysed and considered, images that ranged from clipper ships and yachts to waves and water, flowers, trees, skylines, airplanes and mountains. In one way or another all these elements fed into the final appearance of the building. Images that dissolved into a glistening tower topped with a giant flag, bravely flying in the wind like a battle ensign.

Perhaps 2,000 miles from Two Union Square another pair of NBBJ high rise buildings had just been completed by the time the Seattle flagship was topped out. These buildings were in the downtown district of Columbus, Ohio. One of them is the 32-storey State Office Tower at the corner of State and High Streets, the other a nearby 26-storey commercial office building called One Columbus. The designer of both these structures was James Schirtzinger, a principal with NBBJ for many years. Like Bain in Seattle, Schirtzinger in Columbus paid particular attention to the context of his buildings. His two towers were related to older neighbouring structures by echoing their style and frequency of fenestration and their overall colouring. Using computer-generated images of the downtown area that would give views from any angle, Schirtzinger's NBBJ design studio tested dozens of profiles and facade treatments before deciding on the form of the two buildings. In the event the recessed glazing and cupola roof of the State Office Tower, part-finished in copper, were developed from the materials used in the smaller 1933 Columbus Statehouse, which stands nearby on the banks of the Ohio River. At One Columbus a similar contextual contribution came from the prominent Empire-style Le Veque tower of 1927 and, in a more detailed sense, from the bay windows of the Wyandotte Building opposite, designed by Daniel Burnham in 1893. Reflecting Burnham's facade profile NBBJ produced a sawtooth elevation for the front of One Columbus which had the additional advantage of generating a large number of corner offices, thus increasing the real estate value of the property.

Back in Seattle, a mile or so from Two Union Square, on the edge of Lake Union, is another building by NBBJ completed five years after the great skyscraper. This one is a conversion, like the firm's own offices, but based on far more dramatic ingredients. Zymogenetics is a biotechnology firm like a score of others that have clustered round the University of Washington, the medical research facilities, and high quality labour force of Seattle in the last few years.

T Hursley

A hierarchy of towers in Seattle, topped by Two Union Square. The curved facets of the tower are derived from intersecting arcs (left)

A wholly owned subsidiary of the Danish research company Novo Nordisk, world leaders in the development and manufacture of insulin, ZymoGenetics might in former years have sought a campus-type building near one of Seattle's satellite towns, like Redmond, home of Microsoft, or Bellevue or Tukwila where Boeing is heavily represented. Instead the client chose the Lake Union Steam Plant building, a disused coal-burning power station on the water's edge not far from the city centre but close to existing university, medical and research institutions. Completed in 1921 this building once provided electricity for the city. Now its exterior has been restored and its interior converted into a state of the art 11,000 square metre biotechnology laboratory. The original large rooftop boiler flues – less one, which was considered expendable – have been replaced with matching glass fibre exhaust stacks, in order to retain the appearance of the building as a local landmark. Externally the renovation of the building was carried out by architects Daly & Associates to comply with the guidelines of the Seattle Landmark Preservation Board. Internally NBBJ was responsible for converting the vast single storey space into five floors of offices and laboratories, all with excellent waterside views. In the resultant scheme the entrance lobby is the most altered space, with a battered wall at the elevator shaft designed to recall the original steam boiler mounts. Above the lobby the centre bay of the building is opened up from front to back with three storeys of balconies and a metal staircase with an expanded stair landing intended to serve as an impromptu conversation area.

If Two Union Square represents one pole of NBBJ's search for an authentic regional identity, then ZymoGenetics (like the firm's own offices) must represent the other. Clearly the restoration of the exterior of existing buildings, coupled with the conversion of their interiors to alternative uses, is a very limiting form of regionalism. Instead of creating and interpreting it merely reinforces an old identity. It is better described as a recycling process that accepts the authenticity of the past, than as a search for meaning.

Another current NBBJ client, Starbuck's, the world's largest gourmet coffee retailer, currently expanding at the rate of one new retail outlet every day, has taken the same route as ZymoGenetics, and for even more pragmatic reasons. Having intended to build a new headquarters, and visited purpose-designed Pepsi Cola and IBM buildings, Starbuck's decided to save money and buy space to concentrate its operations instead by commissioning the architects to convert 10,000 square metres of a 70 year-old 200,000-square-metre Sears Roebuck warehouse into a corporate headquarters, with huge internal growth potential.

More truly in the spirit of Two Union Square, and perhaps the best and most recent NBBJ bid for regional authenticity, is the refurbishment and enlargement of three existing passenger concourses at Seattle-Tacoma International Airport. Here the search for a regional identity has taken on a global dimension. Reflecting on the prominence of Seattle airport as a gateway to the Asia Pacific region, NBBJ decided to reinforce this aspect of the city's identity through colours, materials and proportions consonant with the many nations of the Pacific rim. In organisational terms NBBJ proposed new additions to the concourses in the form of distinct pavilions to break up the perceived length of each concourse and create an articulated perimeter with distinctive roof profiles. Aesthetically the execution of the design was driven by a concept of simple elegance, careful detailing and a system of proportions derived from traditional Japanese *Shoji* screens. The use of translucent insulated cladding panels according to a *Shoji* module is a direct reference to these screens and also the dominant feature of the new airside external elevations, which are white, bright, and appear open, unlike those of most airports. Internally the spaces are darker as a result of the use of bronze and wood finishes. These materials being chosen as a reminder of the importance of woodworking in both North Western and Asian crafts and cultures.

At a distance of ten years it is possible to say that, in one sense, the benefits of the new organisational structure and creative principles that have motivated NBBJ since the mid 1980s became obvious very rapidly. Naramore, Bain, Brady and Johanson received occasional design awards for their work in the 1960s and 1970s but these had diminished during the years of change. In 1984 the firm received none at all. Then, in 1985, as the benefits of reorganisation came through, the total jumped to ten. From then on the practice has gained increasing recognition with an all time record of 14 awards in 1991 at the height of the 1980s construction boom. In all, by the end of 1994, NBBJ has received 284 design awards, over 100 of them from AIA honour award programmes.

Any short account of a firm as large, as productive, and as long established as NBBJ, is bound to be incomplete. This narrative has concentrated on the history of the firm and the challenge of regional identity because both these matters are inextricably bound up with the image NBBJ presents to the world today. It would have been possible to discuss the firm's extensive involvement in health care architecture, which has produced a number of remarkably innovative hospital buildings, particularly hospitals for children. To enumerate the work of the firm's retail studio, which includes the design of Atari retail outlets, over 1,000 drug stores, and 105 Eddie Bauer clothing stores would take pages. So too would the firm's criminal justice programme, involving the design of a large number of prison facilities all over the country, including recent additions to the enormous complex on Riker's Island, New York. In the same way little has been said about work overseas. An important omission because in the US today NBBJ is operating in a construction sector that has shrunk from a value of $110 billion to about $80 billion in five years. During this time the firm has not only survived but continued to grow, and a vital part of that growth has involved work in China (where there are seven major projects in Shanghai alone), Taiwan, Thailand, Japan, Korea, Germany, Poland and Russia. One of the firm's Columbus studios recently won an international design competition to design the headquarters of the China Ocean Shipping Company Headquarters in Beijing, while the Koo Cancer Research Center in Taiwan, the project of another Columbus studio, represents an extension of the firm's regional identity concept beyond the continental United States for the first time.

It is part of the fascination of NBBJ as a practice that, global or local, it always contrives to reflect the values of its region. With eight separate offices NBBJ could be a communications nightmare but it is not. Instead it finds that its multilocational structure appeals to clients who are multilocational themselves. Over 50 years NBBJ has developed a unique nationwide structure. Serviced by the two large offices in Seattle and Columbus, it maintains a crucial and lively presence in such key locations as San Francisco, Los Angeles, New York, Washington DC, Raleigh North Carolina and Tucson Arizona. Today, with its growing number of overseas commissions, the net is widening and the firm's ambition to become "The best design firm in the world" must be closer to realisation than ever before. □

Two Union Square, Seattle, Washington
1989

Two Union Square captures the regional essence of the Pacific Northwest for the first time in high rise architecture. From the one-acre courtyard at the base of the building to the top of the 56-storey tower, the building reflects the values, natural environment, and economic resources of the region.

Rising 886 feet above sea level, in the heart of Seattle's office and retail district, Two Union Square remains firmly rooted to its site. The building sits just north of and on the same property as One Union Square, an aluminium-clad office tower, built by the same developer, with design references from the Philadelphia school.

Two Union's greatest contribution to the people of Seattle may be its three-level, one-acre exterior courtyard. Pedestrians can enter the landscaped courtyard at three levels, through a number of interior and exterior walkways. Easy access and covered paths encourage people to stroll through the space at all times of day and during all weather conditions.

As an alternative to the outdoor gathering place of the courtyard, the fireplace lobby on the second floor provides a warm, inviting space for people to relax or meet friends. The focal point is the curving fireplace, with two Honey Onyx mantles, bordered by African olivewood. The warm sand-coloured custom carpet emulates the patterns left by an ebbing tide on a Pacific Northwest beach, similar to the pattern of the blue carpet in the entry vestibule and retail corridors. The carpet is bordered by a wide field of Blue Arden granite.

The enclosed elevator lobbies reflect the deep browns and greens of the great Pacific forests. The walls are panelled with Makore wood and Baltic Brown granite; the floors are covered with custom moss green carpet surrounded by Hulean Jade marble. Special details include custom green fused-glass hall buttons filled with a random pattern of air bubbles, and corresponding amber fused-glass light fixtures in the elevator cabs. The 30 elevators transport passengers to their destinations at a speed of 1,600 feet per minute.

The tower is basically a crystalline box with applied regular and reverse curved forms capped by a white, sloping penthouse angled towards Elliott Bay. The curvilinear forms of the tower recall sails and ships' prows, airfoils and jet wings. The white colour and unusual penthouse configuration are light-hearted references to the magnificent snow-capped mountains surrounding the city.

Two Union Square in context (opposite page). Floating spandrel panels advance and recede in relation to the macro-grid formed by less and more prominent glazing bars (above). One acre courtyard (left) reflects North West vegetation

T Hursley

While the tower is simple in form, its skin has many subtle details. Ochre-coloured vertical and horizontal lines form a "supergrid" on all glass facades, providing scale and relating the tower to the ochre-coloured columns at its base. White curving horizontal spandrels on each face contribute to its slender and elegant proportions, minimising the bulk and width of the building in relation to One Union. The spandrels, some of which are accented by a series of white rectangles, have been broken in places by vertical lines that mark important relationships with surrounding city axes. Each of the tower's facades exhibit variations of these elements, responding to differences of context and presenting four distinct faces to Seattle's skyline.

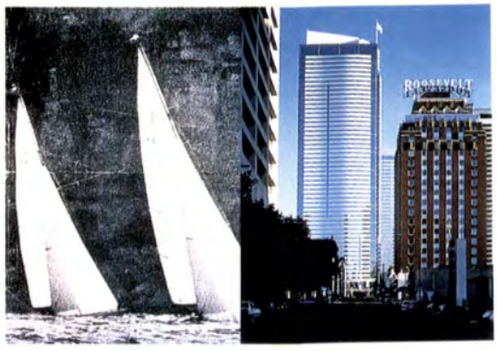
Two Union has ten column-free corner offices on most floors as a result of the tower's floor plan and structural design. Traditionally, skyscrapers are framed in structural steel. Instead, Two Union Square's centre core, which supports 60 per cent of the gravity load and all of the lateral forces, is supported by four ten-foot-diameter hollow steel columns filled with high strength 19,000 psi concrete, the strongest commercial concrete in the world. This central load-bearing capacity allows for minimal structure around the outer walls and in the rental spaces of the building. Rather than exposed cross-bracing or closely spaced exterior columns, Two Union utilises just 14 small composite perimeter columns spaced as much as 46 feet apart.

Using large columns in the centre core freed rental space and increased space-planning efficiency by as much as ten per cent. In addition to column-free corner offices, the layout provides corridors with unobstructed views in all directions.

T Hursley

Podium level (opposite page) features colours and finishes derived from local materials and vegetation. Plan of tower is inset into sculpture and seating. Local woods and marble (above) echo streamline shapes of cladding, while spandrel returns mask vents

Inspirations (below) range from clipper ships to forests, beaches, cliffs and reflections in water



From Collegiate Gothic to High-Tech. Fluke Hall's transition (below) and the full elevation (bottom) showing the slope from campus, right, to industrial, left

Fluke Hall, University of Washington, Seattle, Washington 1990

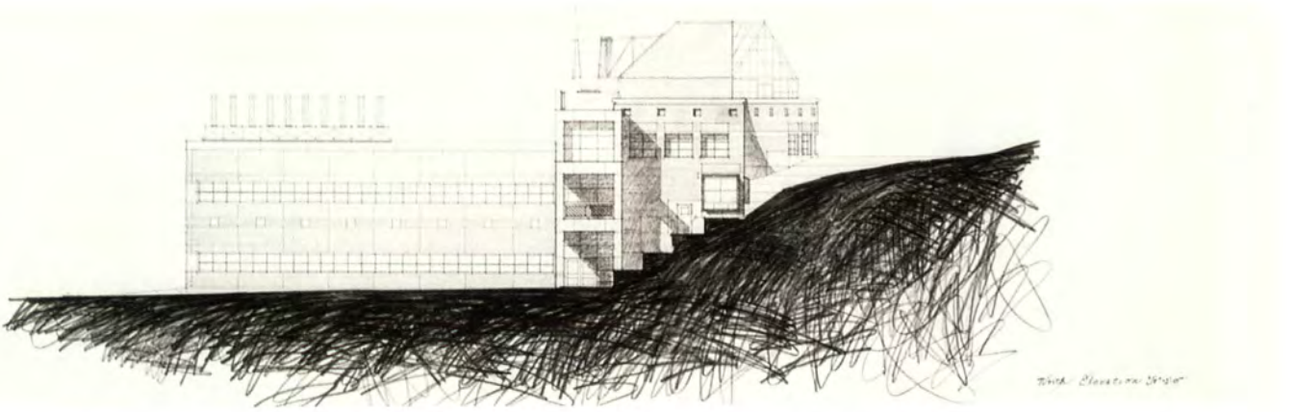
Fluke Hall is a technology transfer facility designed to accelerate the spread of research from the laboratory to the marketplace by bringing together scientists from academia and industry in disciplines ranging from microbiology to microelectronics.

The 72,910-square-foot building sits on the east edge of the campus on a site that is both flat and steeply sloping. Existing buildings along this edge are somewhat industrial in character; those above the slope are predominantly brick Collegiate Gothic. The architect's goal: to accommodate a broad, unpredictable spectrum of research needs while visually bridging two distinct architectural vocabularies.

The west wing is characterised by brickwork and roof elements consistent with the traditional campus. This wing, articulated to represent the permanent functional spaces inside, houses offices, meeting rooms, and locker rooms. The mechanical penthouses on top of the wing are separated by a glass conference pavilion that breaks the building's orthogonal geometry and preserves upper campus vistas of the Cascade Mountains. The pitched roofs of the penthouses screen the large, flat roof of the research bays from the Faculty Club above.

The east wing, clad in corrugated metal panels with stainless steel fasteners, communicates the flexible, expandable nature of its laboratory functions. The open, high-bay labs have exposed overhead utilities for easy access and dedicated pathways for exiting. The wing may be expanded to the south and to the east.

A concrete circulation spine, extending the full height of the building, joins the two wings and allows a free flow of people and services.



The step-down seen from a distance (below), an interior of the East wing (bottom left) and the full industrial treatment (bottom right)

Paul Warchol

Seattle-Tacoma International Airport, Concourse Improvements 1993

NBBJ was design architect for the expansion and renovation of three existing concourses at Sea-Tac International Airport. The project includes the addition of 150,000 square feet and the renovation of 170,000 square feet of space on Concourses B, C, and D.

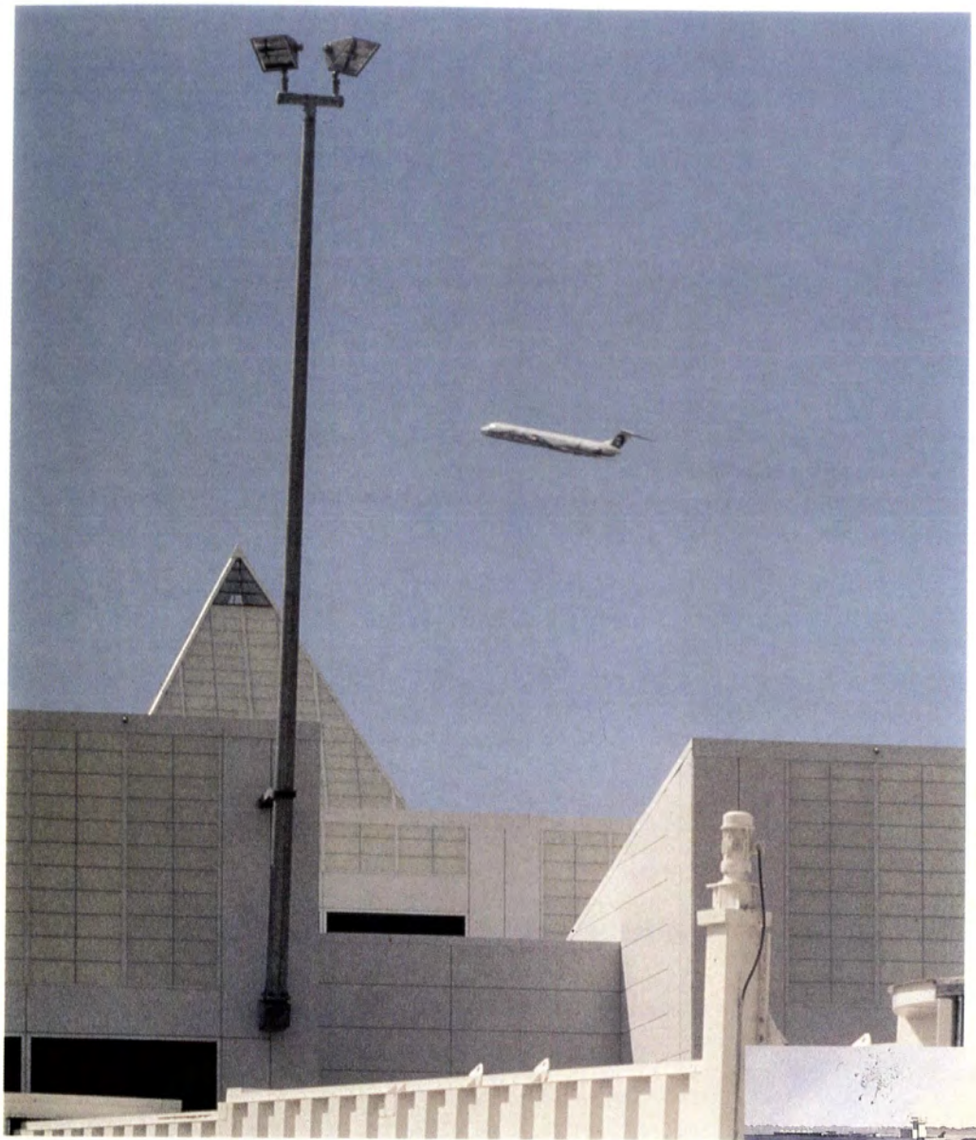
Seattle has emerged as a prominent port on the West Coast, specifically as a gateway to the Pacific Rim. As such, the redesign of the airport reflects its increasingly important role in the international arena.

This new image is portrayed through simple elegance, architectural detailing, and proportions. Architectural proportions throughout are based on those found in Japanese *shoji* screens. The use of translucent insulated panes in this module is a direct reference to these screens. Aged bronze with wood on the restroom entry walls recalls materials used in both Asia and the North West. The hand-worked finish of the bronze is a reminder of the importance of craft to both cultures. The aluminium banding on columns and restroom entry walls was inspired by the iron strapping found on Japanese temple columns.

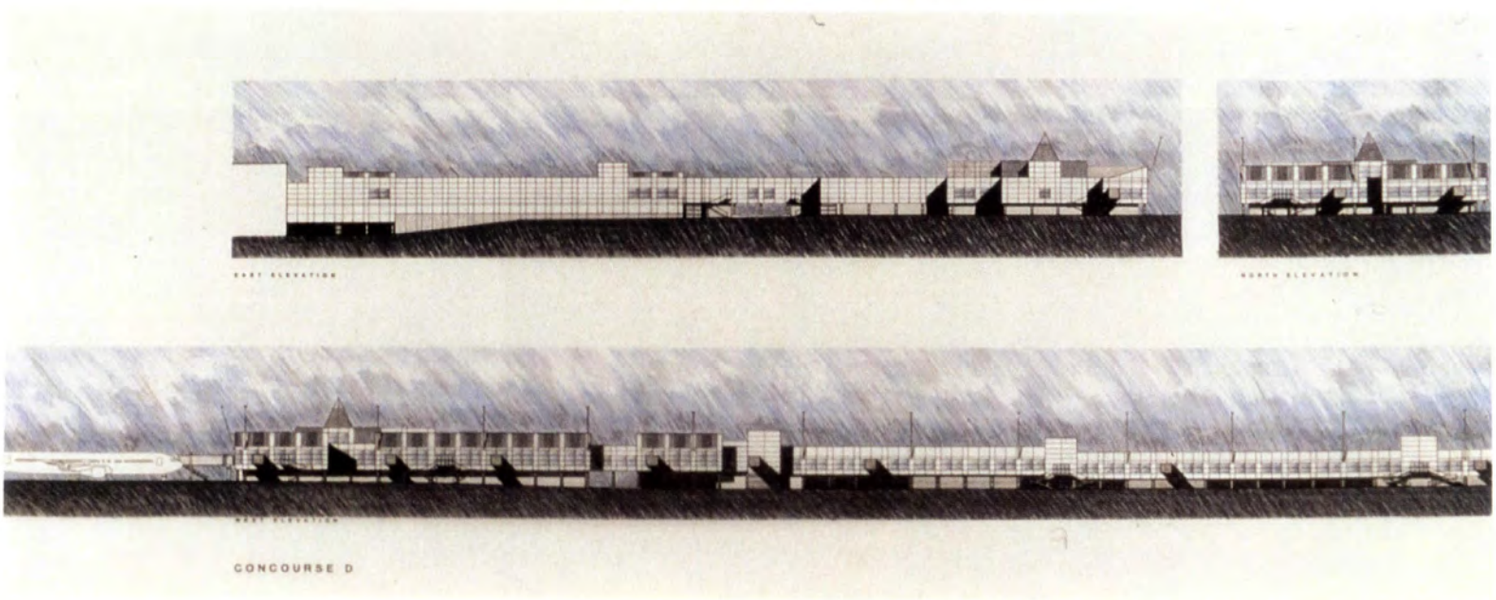
The corridors feature a bronze-coloured perforated metal ceiling through which a random placement of light fixtures creates dappled light patterns like those experienced in North West forests. The bronze colour of the ceiling acknowledges the brown terrazzo on the floor. The holdrooms are cool and calming in their colours, emphasising the blues and greens that have come to be identified with the North West.

The new additions to the concourses are distinct pavilions that break up the perceived length of each concourse and create an articulated perimeter. In cross section, the pavilion roofs slope from the existing concourse roofline up to a high point at the building perimeter. This slope creates a visual transition to the scale of an aeroplane and provides better views of the airfield.

A distinctly white and bright "airside" identity will be created for the concourses and satellites to contrast sharply with the dark bronze "landside" identity of the main terminal. Natural light will enter the building at the perimeter through 10 to 12 feet of grey tinted vision glass. Translucent insulated panels above the vision glass will allow additional soft diffuse light to enter. The translucent panels continue up and over on the sloped roof, creating a perimeter skylight. The ridge beam normally at the apex has been lowered down so the ridge corner can visually be dissolved with light. Additional skylights are located strategically at pivotal turns in Concourse B and C and at the end nodes. The lantern-like appearance of the translucent panels will give the concourse a warm welcoming glow from the air and on the ground at night.



Airside views (opposite page and above) show nighttime lightness of structure and pyramidal pavilions. Interiors (above right) show clerestory lighting and shoji *screen glazing. Artist's impression (right) and elevations (below) show full scope of project*



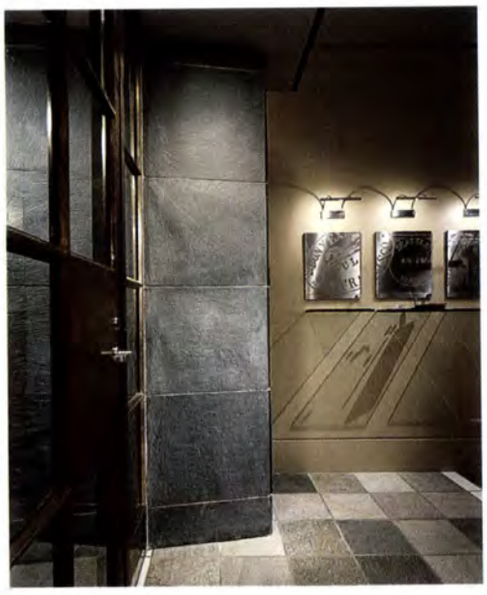
Market Place Tower, Seattle, Washington
1988

A 17-storey mixed-use building that is located near the north end of the historic Pike Place Market, Market Place Tower provides one level of retail space, 12 floors of class A office space, parking for 200 cars, and on the top four floors, 35,000 square feet for seven luxury condominiums. Stepped facades provide multiple terraces on nine floors. Upper-floor greenhouses and bay windows signal the building's strong mixed-use purpose by differentiating the residential floors from the office and retail space below. In addition, the building contains two separate lobbies: a public lobby for commercial use and a private residential lobby.

Responding to the competitive market for office space in Seattle, the tight budget constraints of the owner, and its location in a highly visible and publicly sensitive area, Market Place Tower is the result of inventive value engineering. Standard window systems were employed for economic reasons, but they were varied in size and colour to produce a textured and scaled facade. Cost-effective but visually rich materials were used throughout the building to produce a high value to dollar ratio for the owner and tenants.

Exterior colours were selected to convey an open-air type feeling. Three different types of glass were used to reflect the light from Elliott Bay, the Olympic Mountains, and the surrounding community. Heavily textured slate and quartzite stones were used sparingly at the base and complemented by lines of polished white Georgia Marble. Textured glass and fibre reinforced concrete were juxtaposed with smooth glass to create an animated facade. Landscape design includes landscaped terraces, a view court, streetscape improvements, and features massing and texture unique to the area and site.

Exterior view shows array of rooftop penthouses. The building has an unrivalled view of Elliott Bay. Details (below) include letter opening shelves and opaque glass screen



Central lightwell staircase in South Jackson Street offices (left). Conservatory (bottom left) is demountable on flat roof. Exterior shows stone and brick elevations

NBBJ Offices, Seattle, Washington 1982

A sophisticated new life was created for this turn-of-the-century warehouse. Except for the discreet addition of a new entry vestibule, solar-tinted window panes, the skylight, and rooftop greenhouse, the building stands virtually intact.

The sandstone exterior was cleaned and restored. The interior brick-bearing walls and heavy timber structure were cleaned and left exposed. The building was improved seismically and new stairs, elevators, indirect lighting and air conditioning were added.

A new central stairwell was designed which opens the five-storey building to a large skylight above. Balconies on the sides look down upon the zig-zagging white staircase and open the floors to each other. On the roof, a glazed penthouse provides an appropriate retreat from Seattle's mild, often grey weather. It also offers a breathtaking panorama of the city, Puget Sound, and the mountains.

Open work areas serve the changing needs of 15 to 25 person design teams and support groups. The luminous and flexible working environment contrasts smooth, new surfaces with timber and brick.

This building is now listed on the National Register of Historic Places.

Dick Busher

ZymoGenetics, Corporate Headquarters, Seattle, Washington 1994 (in association with Daly and Associates)

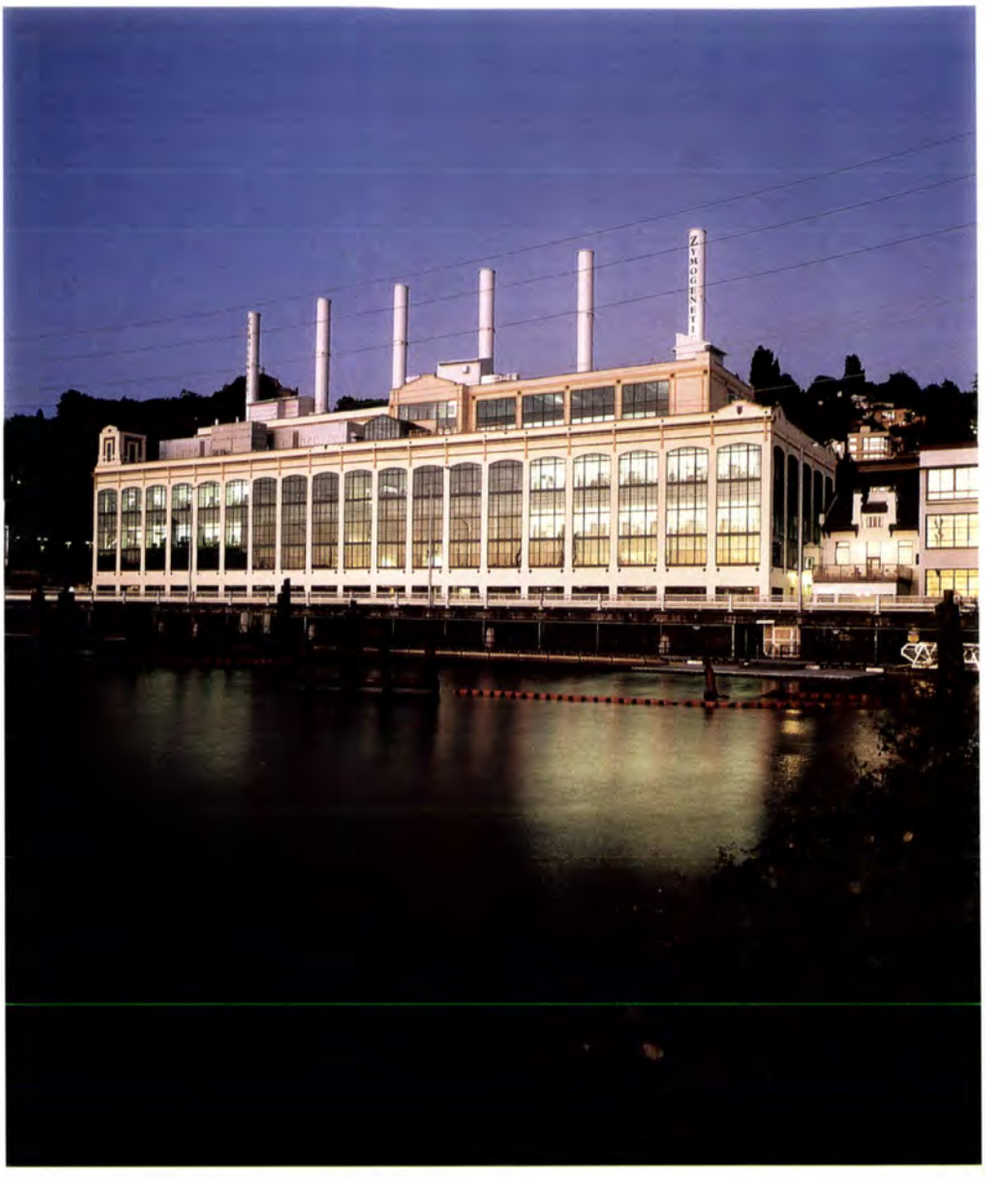
The Lake Union Steam Plant building, a concrete frame structure 90 feet wide and 316 feet long, was completed in 1921; it had a power generating capacity of 30,000 kilowatts. Adjacent to the south end of the Steam Plant is the landmark Hydro House, which was constructed in1912. The Hydro House site is still connected by a 3,400 foot long, 30 inch wide pipe to the original water source at a 412 foot higher elevation known as the Volunteer Park reservoir.

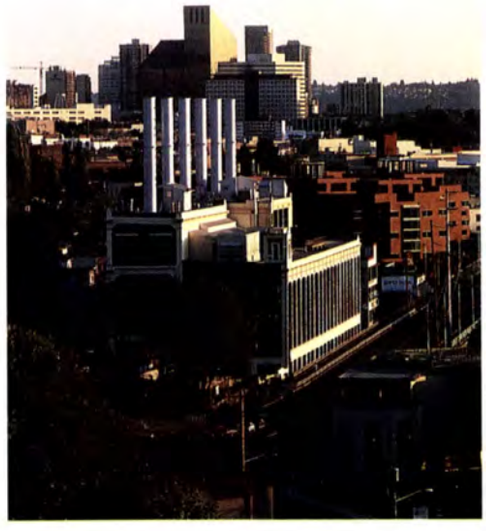
The exterior of the Lake Union Steam Plant has been restored to its original grandeur; the interior has been converted to a state-of-the-art biotechnology research and development facility. The architectural restoration followed the guidelines established by the Seattle Landmark Preservation Board to ensure that the restoration preserved the historical, visual integrity of the building while accommodating adaptive reuse needs and current building and energy codes.

Recalling the open character of the original steam plant's interior, the 113,000 square feet of space available for laboratory and office use takes full advantage of the building's sweeping views. Since the lab areas are the primary work spaces, the areas have been kept as open as possible and located on the Lake Union side of the building.

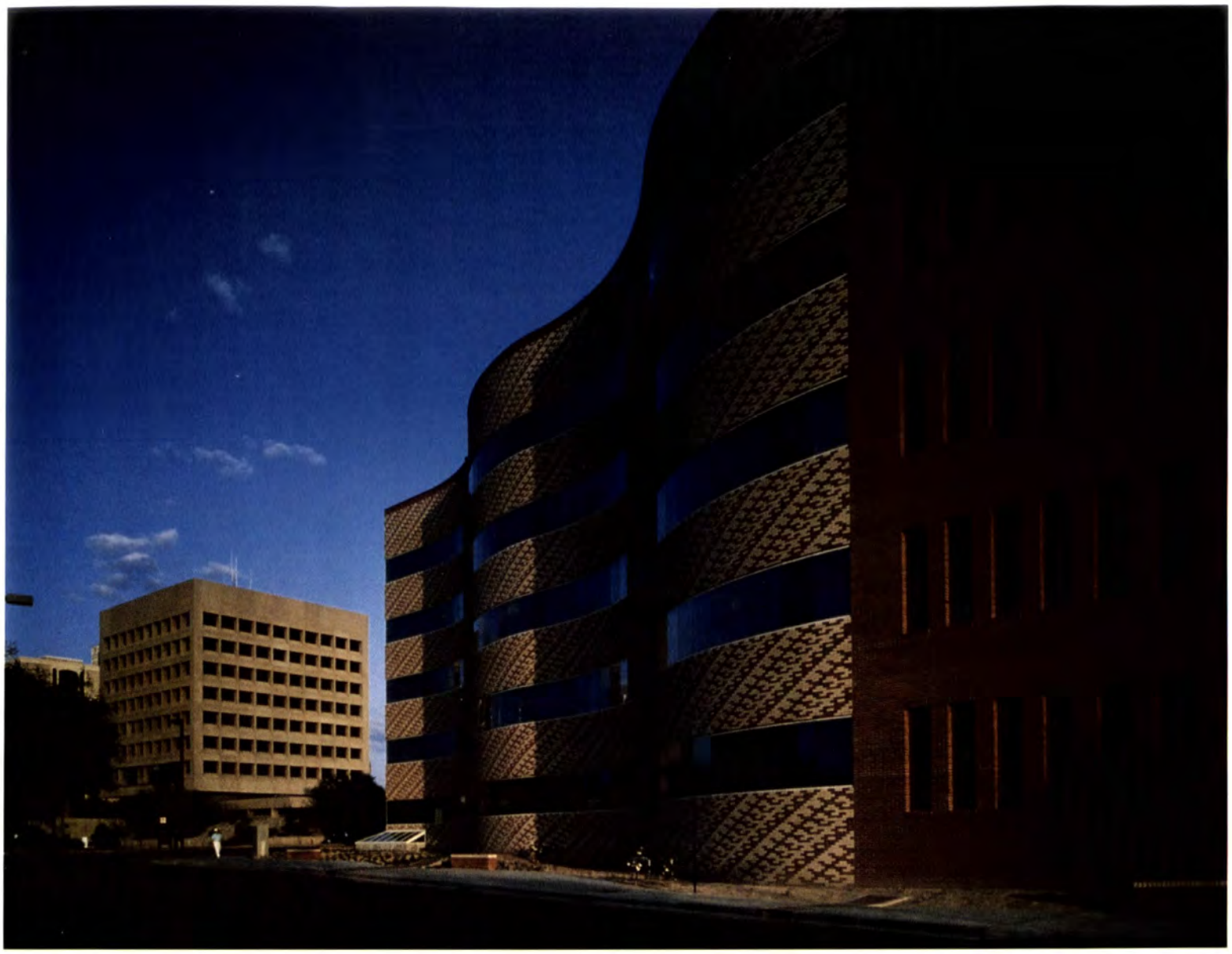
The first floor of the plant houses ZymoGenetics' corporate and administrative offices. The four upper floors house laboratories, including molecular and cellular biology, DNA and molecular pharmacology, tissue culture, and protein chemistry. Each specialised laboratory has its own offices, equipment rooms, and support areas.

ZymoGenetics' work philosophy creates an open, interactive environment that enhances scientific productivity. The renovated facility features numerous common areas. The centre bay of the building is the focal point of its interior, both spatially and functionally. A sloped glass wall at the entry extends full height to the bottom of the existing roof trusses. Balconies with space to meet and talk surround this three-storey space. From the entry, the main floor opens to the opposite wall, allowing views of the lake beyond. This openness is repeated on each floor.





Waterfront view (top) shows quality of original 1921 building. Interiors (above left and left) show through-laboratories with lake views, and lobby sculpture. Distant view (above) shows fibre glass exhaust stacks



Curved, patterned brick spandrel panels (above) are a unique feature. Brick detailing is elegant throughout

Tucson Arizona State Office Building, Tucson, Arizona 1992

The new State Office Building completes the development of the state property located on West Congress Street in downtown Tucson. The two existing buildings are similar in mass, but dissimilar in architectural style.

The building utilizes a large floor plate of 27,000 square feet for increased flexibility. A 9,000-square-foot open air atrium links the new building to the older structure at the southeast corner of the site; this atrium becomes the site's major orientation feature. The atrium also serves to shade the south-facing windows without interrupting views to the south (these offices also have views into the atrium). From the atrium, the visitor can go directly into the lobby of the new building, to the older State Office Building, to the meeting room on the second floor via the atrium stairway, or down the atrium stair to the cafeteria.

The curved wall on the north side of the building 1) forms a termination for the view westward along Alameda Street, 2) expresses the opening up of the building to the mountain views to the northeast, and 3) permits a smooth, uninterrupted shaping of the building along the property line that effortlessly maximizes floor area.

The primary material is red brick veneer in the same shape and colour as the east and west walls of the existing State Building to which the new building is attached. This creates a unified facade for the two buildings when they are seen together from the east and west. The atrium is steel-framed with aluminium louvers, panelling and architectural detail. The curving wall is patterned in red and cream coloured brick; the cream colour is consistent with the colouration of the apartment house directly adjacent to the north and the other structures in the area. Insulated low "E" glass and a reflective insulated glass in the ribbon windows is used.

This building combines traditional brick detailing found in the locale of the building with an original and seemingly spontaneous pattern of brick as its signature design element. This is meant to be a new building that comfortably coexists with older structures The traditional brick elements, headers, arches, copings, sills, etc, are simple but abstract. Likewise, the patterned curving brick wall is detailed flush, and combined with other brick details gives the building a sense of modernity.

Columbus State Community College, Harold M Nestor Academic Center, Columbus, Ohio 1993

Harold M. Nestor Hall is a building of the '90s. In its setting, it serves as both the major entrance to the campus and as an edge to the college quadrangle. To downtown, the building presents a "refined" facade curved to give the college a "proper front". To the campus, the building is more playful in contrast to the existing buildings. The protruding student lounge is on axis with the administration building.

Programmatically, the building houses a seminar centre, student lounges, a 375-seat lecture hall, laboratories, classrooms, and faculty offices. As a classroom facility, the building is a background building, but as a new face for the campus, it represents the College in Columbus. Although smaller than most Columbus towers, the elevator shafts claim their due on the city skyline. The materials are equally diverse. The granite theatre "box", the campus brick, the curtain wall, the diamond pattern brick, and finally the spotted corrugated metal all reveal different aspects of the building. Equally, the different window types express the different functions and orientations of the programmatic elements.

The building is most easily summed up as colliding systems where all are important, but none is allowed to dominate. The multiple centres of the gateway, building configuration, and the elevator towers are a good example of the interactive system which provides a different "reading" of the building with each experience.

As the new landmark classroom and administration building for this urban college, the five-storey, 128,000 square foot facility includes 48 classrooms and nine laboratories (biology, microbiology, chemistry, natural sciences, and computer sciences) to accommodate the college's rapidly growing enrolment. More than 80 faculty offices are located on the fourth floor along with reception areas, conference rooms, and adjunct faculty work areas. The facility includes a 375-seat auditorium which faces a performance stage and giant rear-projection screen, music rooms, student study and lounge areas, and conference rooms.

Courtyard view (below) and downtown elevations (bottom) combine to define edge of campus in urban fashion

Paul Warchol

Reception area shows airfoil "fins" and glass partitioning together with panoramic views

GNA (Great Northern Insurance Annuity), Two Union Square Tower, Seattle, Washington 1989

Located in the NBBJ-designed Two Union Square tower, the design for this rapidly expanding insured annuity firm incorporates an open office plan with workstations organised to fan out from the centre, thereby keeping the curves of the building and the views visible, as well as permitting perimeter circulation. The workstation footprint does not need to be reconfigured for growth and interdepartmental moves. Instead, adjustable, interchangeable components allow people to relocate between workstations of the same size and personalise their work spaces with ease.

Repetition of the architectural elements provides the seven operational floors with one corporate identity. Even the custom lighting fixtures, the dramatic focus of public areas, become objects of art. Inspired by the wind-filled sails of boats, these fixtures are made of perforated metal and sand blasted plexiglass. To offset their repeated use, and acknowledge the individuality of the employee, a different colour palette is used in the social areas of each floor, establishing each as its own special neighbourhood. The workstation areas remain consistent from floor to floor with passive, cool colours creating a more restful, contemplative space for staff. Public and private areas are further distinguished by warm incandescent lighting in the corridors and evenly lit task ambient lighting in work areas.

The same design elements appear on the executive floor, which contains five executive offices and 14,000 square feet of conference space. The importance of the Pacific Rim to the North West economy is quietly recognised here: the pattern and colour of large wall-like doors in the reception area were derived from a tea house at Katsura Villa in Kyoto; the custom case goods are of Japanese proportion and detailing. Despite the subtle Japanese influence, the floor remains unquestionably a western space. Its luxurious nature is expressed not by expensive finishes, but by generous space and glass walls that allow breathtaking views to become the primary design element.

Paul Warchol

Central Washington Hospital, Additions and Alterations, Wenatchee, Washington 1992

The 1992 addition of the new emergency and ambulatory surgery wings provided an opportunity to emphasise these two new entrances as well as to create a bold new image for the existing hospital's main entrance. To clearly mark these key entry points, NBBJ created three new "entry walls", brightly coloured to reflect the colours of the region's fruit: Granny Smith green for ambulatory surgery, Red Delicious red for emergency, and peach for the main entrance. The walls serve three purposes: to signal entry with vertical emphasis and colour, to provide support for translucent fibreglass entry canopies, and to frame views of the spectacular surrounding landscape through the wall apertures.

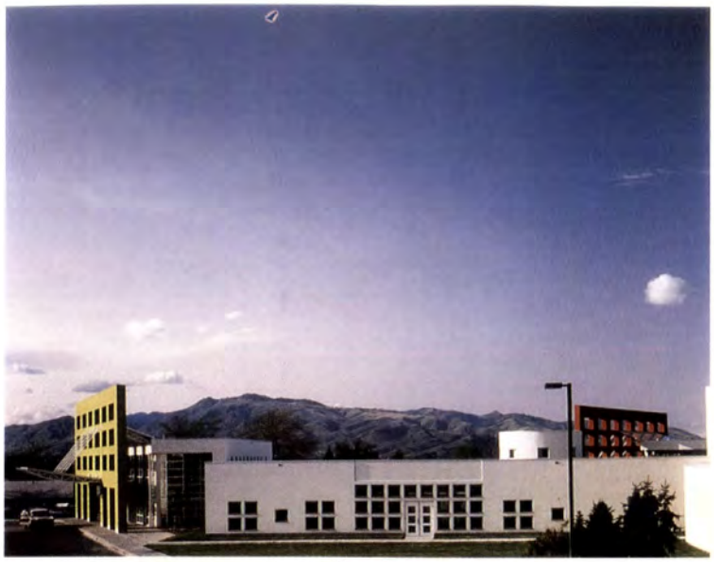
The entry walls inflect to respond to certain site conditions. The ambulatory surgery entry wall turns to frame views of Saddle Rock Mountain to the southwest. The emergency wing entry wall turns to the northwest framing views of the Cascade Mountains and makes it easier to see from an approaching ambulance on Red Apple Road. The entry wall at the main entrance is high enough to screen roof-top penthouses from view and clearly announces this previously obscure entrance.

The public waiting areas for ambulatory surgery and emergency occupy the wedge-shaped spaces created between the turned entry walls and the orthogonal treatment areas of the building. Each lobby is defined by an 18-foot-high glass curtain wall allowing maximum visual and light penetration into the building.

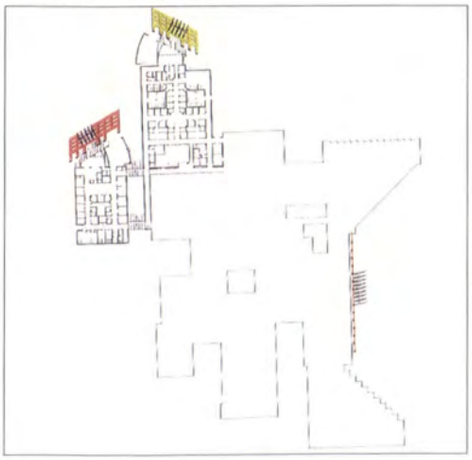
The new additions respond to the existing hospital's "high desert" character with load-bearing masonry construction and stucco exteriors. The treatment areas of the building are clad in white stucco with minimal fenestration to be consistent with the existing hospital. The integrally-coloured stucco used on the entry walls is the only colour statement on the exterior of the hospital.

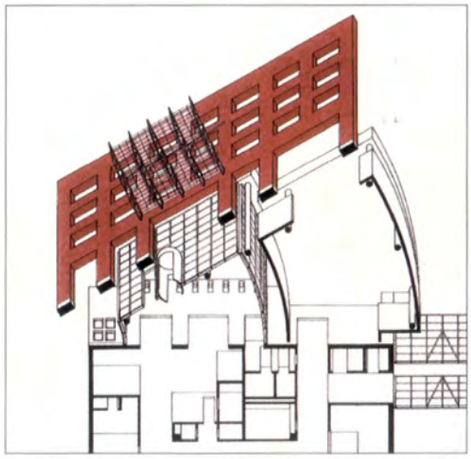
The emergency wing is a two-storey structure separated from the main hospital by a 25-foot courtyard. Two glass bridges provide direct access to the hospital. The upper floor clearly separates trauma, ambulance, and walk-in patients. The nurse's station is centrally located for staff efficiency and maximum control.

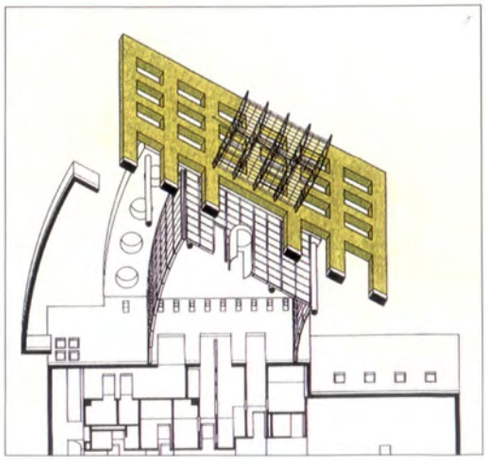
The one-storey ambulatory surgery wing is organised around two courtyards. Single-bed patient recovery rooms ring the courtyards, which provide natural light, pleasant views, and privacy. A central rotunda brings natural light to the nurses' stations and interior core of the unit. A dedicated corridor provides a clear route to the existing surgery suite.



Design is dominated by coloured perforated walls marking entrances that bring order to existing complex. Perforations frame views of mountains, porches provide shelter. Plans (below) show relation of walls to existing hospital







Swedish Medical Center, Seattle.
Southeast Wing Addition 1994

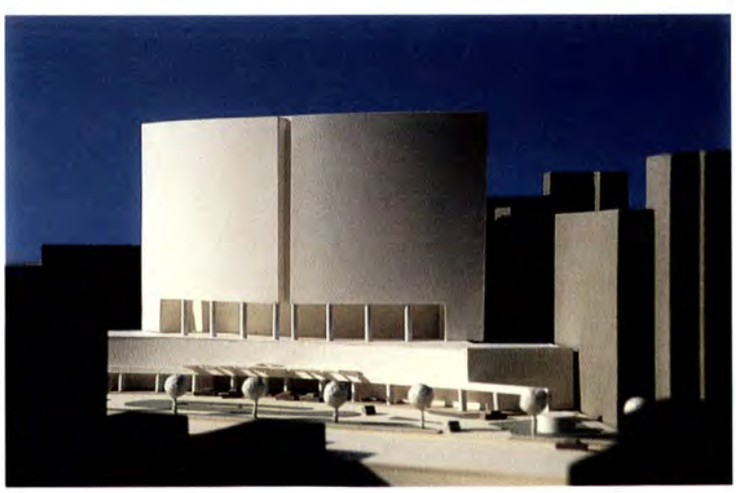
In accordance with NBBJ's master plan, first developed in 1970, the latest addition to this medical centre's campus is the Southeast Wing. The wing will include a main entrance and lobby, ambulatory care clinic, pharmacy, intensive care unit, 24 operating rooms with recovery beds, interventional imaging, medical imaging, special care nurseries, LDR suites, 180 nursing beds, central supply, and 600 subterranean parking stalls. The addition will add 671,000 square feet and 180 beds to the urban facility.

The wing, a triangular 180-foot-tall tower with a convex crescent-shaped front, will serve as the Medical Center's new front door. The tower ties the older, existing buildings together by firmly establishing a functional entrance and a memorable visual identity of the Medical Center. The entrance provides a clear sense of direction to the new lobby rotunda, a focal point for the campus by virtue of clearly marked portals leading to the major areas of the complex for inpatients and outpatients. The rotunda features an internally-lit dome, 24 feet in diameter.

The new entrance provides an access centre that integrates reception for all inpatients and outpatients. The ambulatory care clinic is linked to the new entrance; this provides direct access from the lobby to the clinic, outpatient surgery suites, and other important care areas for outpatients.

The integrated parking structure allows patients and visitors to enter and exit the hospital without ever going outside.

Project materials include precast concrete panels with a buff-coloured base and local quarried granite aggregate. The metal work has a silver metallic finish and window systems are clear aluminium.



Complete Swedish Medical Centre project includes crescent-shaped tower above completed podium

New Burger King interior features replanned workspaces, "road map" carpeting and a complete internal refit

Burger King Corporate World Headquarters, Miami, Florida 1993

Hurricane Andrew, which struck south Miami in the fall of 1992, brought winds of change for the Burger King World Headquarters. The hurricane's powerful winds and 20-foot wall of water damaged the exterior and totally decimated the interior of the 250,000 square-foot Burger King headquarters building. While the disaster was devastating to the company, Burger King's CEO was quick to see an opportunity to not only rebuild the headquarters but to revamp the corporate culture as well.

The vision for the new Burger King Corporate World Headquarters was an open office environment that promoted community and productivity. Clear definition of community and privacy was the key to creating a successful open office environment, one that would fulfil the corporate vision and achieve high efficiency space utilisation.

The open office design concept is organised around the metaphor of urban planning. On each floor, the central corridor is called "Main Street". "Neighbourhoods" of different departmental functions exist off Main Street. Neighbourhoods are for quiet concentration and Main Streets are for community interaction. This approach is an example of the overall design philosophy of balancing individual needs with the needs of the team. The message: every Burger King employee at every level plays an important team role, regardless of function.

While the Neighbourhood plan provides space where people can concentrate, it still does not provide total privacy when needed. NBBJ designed small two-to-three person conference rooms at the entrance to nearly every neighbourhood. The conference rooms do not require scheduling for their use and are immediately available to all employees for personal or business privacy needs. With 100 per cent of the staff going to open office configuration, NBBJ could achieve these rooms and still gain on space efficiency.

To enhance communications outside the private workstation or team environment, NBBJ reinforced the Main Street with strong community functions. In addition to the small conference rooms described above, large conference rooms, common gathering areas furnished with chairs and sofas, copy rooms, coffee rooms, and interconnecting stairs are also located along Main Street.

The carpet design grew out of a series of layers, the first layer reflecting the building's planning grid, the second identifying the central circulation path, and the third introducing the bold organic shapes and bright colours characteristic of the company's product. As the urban metaphor evolved, the walls defining each Main Street naturally began to mimic the contours of the circulation pattern, and in turn, the carpet. The resulting view is reminiscent of that on any major thoroughfare – where buildings and open spaces simultaneously shape and are shaped by the character of the street, which bends or straightens as necessary to highlight distinct points of interest.

The carpet is, in essence, a road map that leads employees to their respective destinations, offering a sense of discovery along the way. Neighbourhoods are defined by calm blue fields of colour on the water side of the building and soothing green fields on the park side. Colour intensifies at the Main Streets, where the mutually dependent relationship between walls and carpet is unmistakable. Together, the carpet and the walls signal the location of special areas – conference rooms, common areas, and service areas where chance meetings and interactions are likely to occur – and reflect the diversity of the Burger King environment.

Pomona Valley Hospital Medical Center Phase I Addition, Women's Center 1992

The Women's Center for Pomona Valley Hospital Medical Center represents Phase One of a Five Phase master plan. This 190,000-square-foot addition includes integrated inpatient and outpatient services for pregnant women and neonates. NBBJ researched national trends in alternative birthing concepts to help hospital administrators with the decision-making process. The Center can handle over 4,500 births per year and consists of 26 Labor Delivery Recovery Post Partum suites, 12 ante partum/post partum rooms, 2 Caesarean section rooms, a 20-bassinet well baby nursery, and support areas. The project also includes a 30-bed Critical Care Unit and a prototypical Medical Surgical Unit that accommodates a number of sub-specialties.

The main focus of the Women's Center is the maternity suite, designed so that family members can use the room without disturbing the mother. The suite consists of a bedroom area, a sitting area with a built-in convertible sofa, and a dining area. Daylight and wood finishes are used throughout the building.

Tree-lined boulevards and large date palm trees mark entries to the campus. The Women's Center has a circular entrance featuring fountains at the turnaround. The Women's Center takes advantage of the local sunny climate by creating a series of interior courtyards and accessible outdoor spaces at various levels throughout the building. The colour and material palette for the building consists of a red, Indian sandstone base, wall panels that are a light peach colour and windows that use a green patina finish as a cool contrast to the predominately warm Mediterranean palette.

Circular entrance drive (above) and two storey balconies (below) emphasise openness of design

Jane Lidz

USAF David Grant Medical Center, Fairfield, California 1988

This medical centre is the largest and most complex replacement medical facility in the history of the US Air Force. The medical centre is a four-level facility containing 808,475 square feet in three structures – the Main Hospital, the Dental Clinic, and the Energy Plant. The facility includes 298 acute care beds, 75 aeromedical staging flight beds, 52 dental treatment rooms, three hyperbaric chambers, two linear accelerators, and a magnetic resonance imaging unit.

The project is divided into three zones – nursing, diagnostic, and outpatient – defined by complex functional relationships and critical circulation requirements. Each zone can grow and change independently. The flexible building concept integrates a steel frame/steel truss structural system with modular rooftop components feeding mechanical and electrical services vertically through dedicated zones, and horizontally through interstitial zones to individual hospital departments. DGMC is the first Air Force facility to totally incorporate the interstitial concept.

Over 200,000 square feet of the medical centre is dedicated to ambulatory care. Its 16 specialty clinics are designed to serve 250,000 visits each year. All of the clinic reception lobby and central areas are located along a main corridor for convenient and efficient patient circulation. A modular, flexible exam room design makes all exam rooms and offices interchangeable by simply changing furniture. The structural bay module is designed to allow 9 x 11 foot modules to be laid out in any direction.

Other elements affected the building's form. The MRI facility and the hyperbaric chamber were two areas with special design requirements. The MRI, essentially a huge magnet, could not contain any ferrous materials and was thus designed with concrete-block construction in a cylindrical self-bracing shape. Because of heavy vibration from air compressors, the cylindrical hyperbaric chamber had to be isolated from the main structure. Even traditional functional elements, such as the nursing units and the dental clinic, had unusual design criteria. The shape of the nursing tower is a product of the study of functional efficiency. Each patient room required natural light, as did each treatment room of the dental clinic.

The 155-acre site also contributed to the medical centre's form. the Sacramento River delta has poor soil for supporting foundations and a high water table that prohibits basements. In addition, the entire region is Class Four earthquake zone. These factors require the building to be low and lightweight. Horizontal massing agrees both with the wide open flatness of the site and with the functional need for half of the building to have first floor locations.

David Grant Medical Center has received four national awards including a USAF Honor Award for "Completed Facility Design Excellence".

The project was completed without any schedule delays. A budget reduction of $25 million was achieved without sacrificing major services or programmes.

Children's Hospital and Health Center, San Diego. Patient Care Pavilion 1993

This world-class children's hospital, located in a resort area, is designed to meet the special needs of children while reflecting the regional character of San Diego. This new patient pavilion follows a master plan which began in 1987. The 187,000-square-foot wing houses 114 patient beds, emergency, specialty clinics, admitting/registration, a cafe, a gift shop, a chapel, a pharmacy, central storage, central plant expansion, an entry, and lobbies. It also includes a 1004-car garage, major street and utility improvements, extensive remodelling/reuse of existing areas, and years of advance planning with the City. It is the first phase of a plan to replace all obsolete facilities on the site.

This project represents an entirely new community image, complete with a larger scale campus site development which is a major departure from the primary 1950s facility. Every level, from the main entry to the mechanical penthouses, presents inviting human-scaled elements communicating that Children's Hospital cares for and about children. The use of familiar shapes associated with houses – windows, peaked roofs, patio doors, courtyards, and play areas – are used throughout the facility to provide psychological comfort for young patients. Circulation is easy to understand so patients will never feel lost. Thirty-bed nursing units are "neighbourhoods", each with ten "houses" (beds). Nurses live in the middle of each neighbourhood and can see each patient from their own "houses" (nursing station). The compact design gives the nurses immediate access to each child. The large proportion of single bed rooms increases flexibility for room assignments and patient census demands.

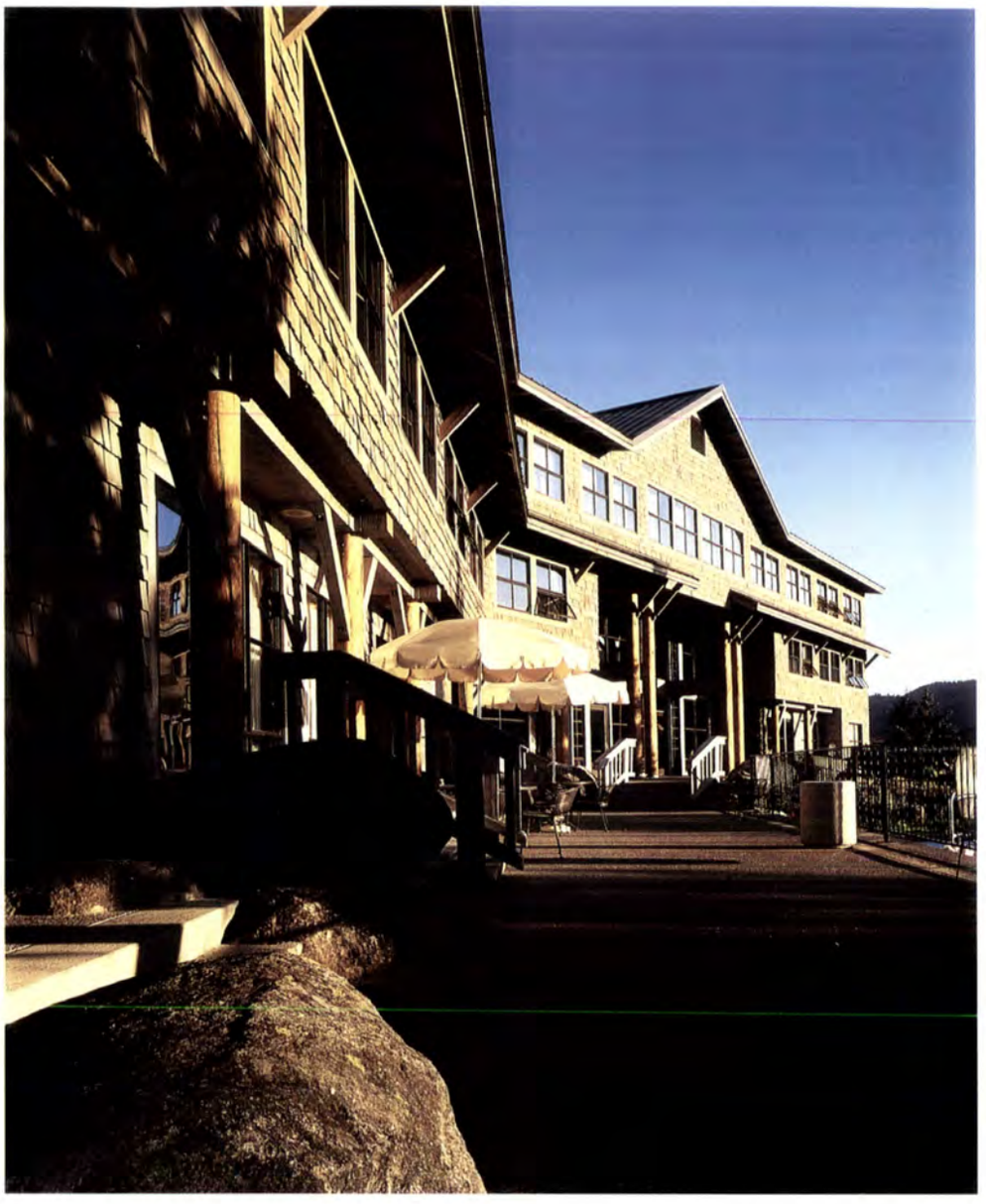
The upper exterior floors are a cream-coloured stucco juxtaposed at the base with a darker material of alternating masonry textures. The metal roofs are a bright clay colour. All refer to the San Diego regional character.

Other design features include an interactive wayfinding system, an extensive art programme and access to highly developed courtyards organised into active and passive activity zones.

The four-storey, 1004-car garage is a post-tensioned concrete structure with decorative concrete masonry exterior walls. It is a fully secured building with closed circuit TV monitors and limited access. No mechanical ventilation was required because of its hillside siting.

Design services included all exterior and interior colour and material selection and specification; planning and design of public area and patient rooms including furniture selection and specification; colour and material selection and specification for refurbishing of existing facility and master plan development; and integration and review of all signage for the campus.

Exterior (opposite page and above) shows doll's house forms and colours that run through the interior. Starry sky (right), clocks in every room (below right) and playground (below) respond to researched needs. Handgrip downpipe bracket (below middle) is typical of attention to detail



Steve Hall

Exterior and interior reflect traditional values of the North West in a modern guise

Sun Mountain Resort, Winthrop, Washington 1990

This 1,900-acre retreat is a phased development that includes the renovation of the existing lodge's meeting rooms, lounge, dining room, and kitchen. In the Gardner Building, complete revamping of the guest rooms included adding new bathrooms, fireplaces and walkway facades. The new lodge was added in the second phase and included a new entrance and reception lobby, with 50 new guest rooms, a boardroom, five meeting rooms, two restaurants, a lounge, and other facilities.

The resort, located on a mountaintop at the edge of the North Cascades, is reminiscent of the elegant lodges of early twentieth century America. The lodge and nearby Gardner building reflect the scale, colour, and simplicity of the surrounding wilderness.

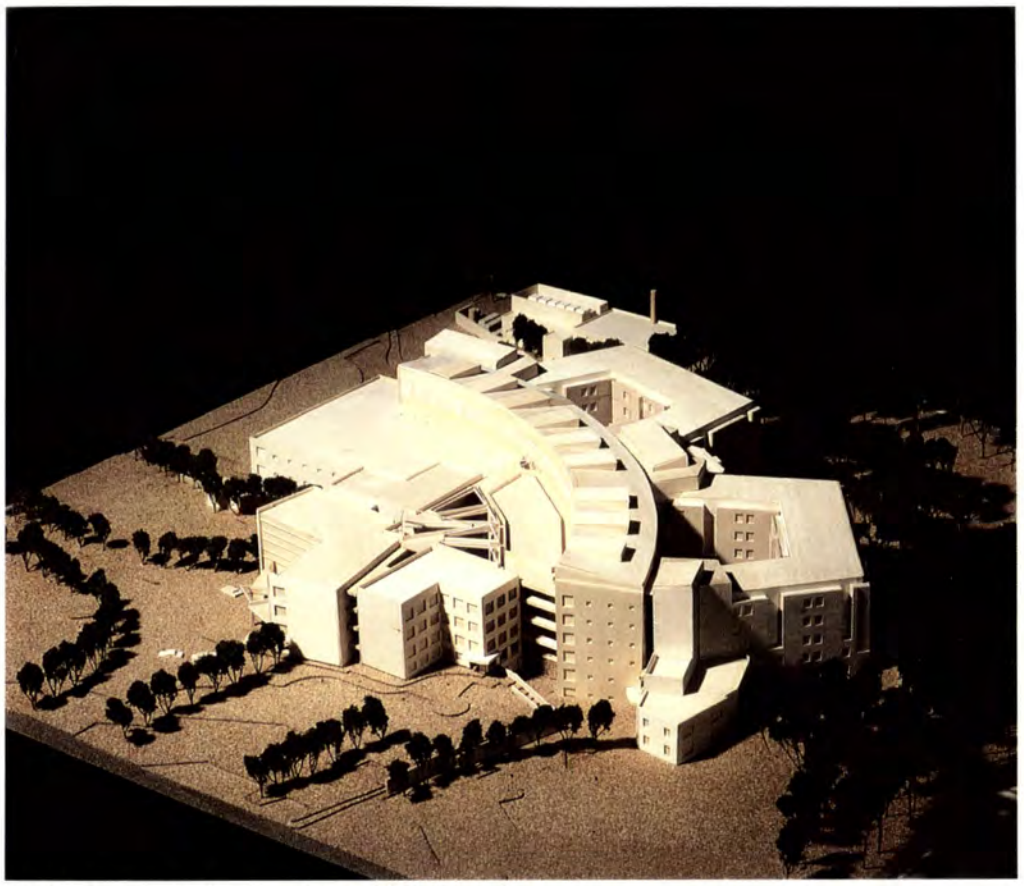
The lodge and Gardner building were designed to optimise the land for recreational activity, an important concern of the owner. During the development of the design considerable attention was paid to minimally increase the overall size of the new footprint, thereby mitigating the impact on the site.

The resort's structure consists of heavy timber framing in the existing and new portions. Both peeled logs and glue-laminated beams form the main structural elements. The majority of the materials used throughout the lodge are indigenous to the North West – large fieldstone and natural and stained fir and pine (cedar shakes, rough sawn beams and lodge pine poles, rough sawn trim, plywood ceilings and panels, bamboard and oak flooring, and carved fireplace mantels and wall panels).

Cedar shakes are the predominant exterior material for the lodge and Gardner Building, and serve to connect the buildings together as well as emulate the natural textures and colours of the surrounding landscape. A pre-weathering stain was applied to the shakes to allow them to reach a variegated patina approximating a natural state.

Due to the significant extremes in temperature experienced in Eastern Washington, all units (both new and renovated) were fully insulated which included replacing single pane glass with energy efficient double pane windows. The small gas-burning fireplaces in the guest rooms, which were added to the Gardner building, provide environmentally-sensitive resources of heat and ambience.

In the spirit of the grand lodges of the past, great care was taken to involve as many local artisans as possible in the building and furnishing of the lodge to create a strong tie between the lodge and the tightly knit Winthrop community. Rusted iron fixtures, carved ram's head mantles, a split log bar counter and check-in desk, as well as animals carved into wood panels, were custom-designed and then made by local log cutters, carvers and metal workers.



Model photographs show complex interlocking plan designed to minimise distances between doctors, nurses and patients. Patient rooms all enjoy garden outlook

Genesys Regional Medical Center, Grand Blanc, Michigan 1996

As the nation's first freestanding replacement facility featuring patient-focused care, the Genesys project represents a major "re-engineering" of health care delivery by the former St. Joseph Health System. Consolidating four hospitals and 900 licensed beds into one hospital and approximately 400 beds, Genesys has responded to the profound changes underway in American health care. Importantly, Genesys features a total integrated medical campus wherein physician offices are aligned by speciality with their respective (outpatient and inpatient) diagnostic and treatment spaces and inpatient bed areas.

NBBJ won a national design competition for this facility which is being designed for a new 440-acre suburban site. The facility's main point of origin will be an atrium space that will allow a smooth transition between the physicians' offices and clinical areas.

The selected site for the facility is a rolling, beautiful 440-acre campus for which NBBJ developed a comprehensive master plan that reviewed siting options for the facility itself and as well as a master plan and planning principles covering the following components:

- Land use and siting
- Traffic parking system
- Pedestrian and open space system
- Infrastructure and stormwater plan
- Master site landscape concept plan

The resulting campus plan represents an exciting opportunity to weave nature with wellness and health care through the sensitive use of pedestrian trails, natural environmental features, specially created features (including a respite park) and a health trail. A unique feature of the plan is that all patient bedrooms look out on green space and woods, not asphalt.

The plan also provides recommendations for future uses that reinforce the health park concept and how such uses can be integrated within campus, both functionally and architecturally.

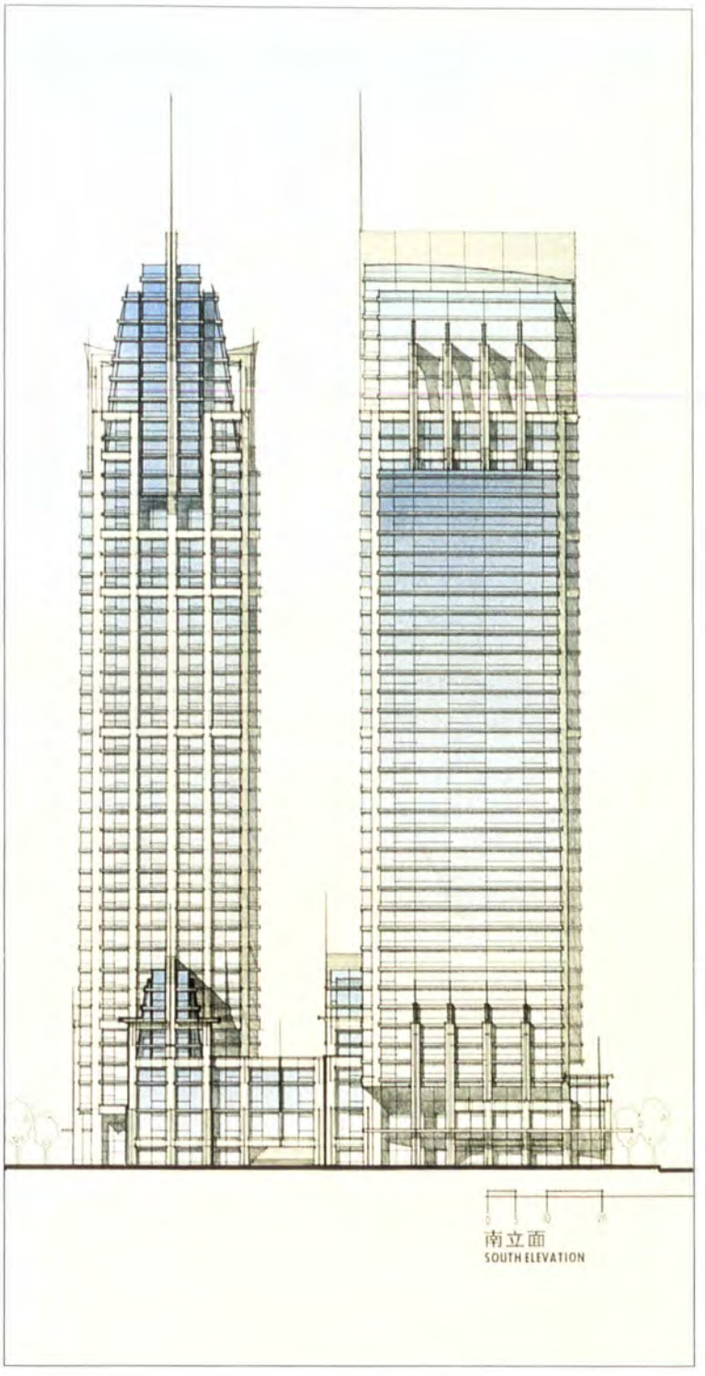
Fuxin Mansion, South Bund, Shanghai, China 1995

Fuxin Mansion serves as an important link between the formalised character of the Central Bund, the new Pudong area, Old Shanghai and the developing South Bund District. In recognition of this the design gathers the twin towers into a single and unified composition. The focus of this single expression is the intersection of Zhongshan and Fuxin roads which is the most important intersection in the district because it connects the Bund with Old Shanghai and the YuYuan Gardens. The unified composition provides a greater strength of distant views and creates a dynamic gateway to the South Bund area while allowing the eastern tower to address the Huang Pu River in a formalised and frontal posture, traditional in the historic Central Bund.

Site design envisions building masses distributed at the edges which form strong street walls and create a figural central open space which is elevated five metres above the street. This open space, which provides an upper level entrance to the two office towers and is lined with retail, connects the corner gesture to a sequence of upper level activity and pedestrian flow which is beginning to characterise the South Bund District. The developing series of figural public open spaces are connected by pedestrian bridges which eventually connect the District across Zhongshan Road to the Huang Pu River. The Fuxin Mansion design reinforces this sequence of events while maintaining strong connections to the surrounding streets.

The character of the two office towers is intended to embrace the modern roots of this building type. The facades are delineated in sweeping glass curtain walls which are intended to be highly textured within horizontal elements which reinforce the curvature. Each facade is slightly different responding to the variety of internal and external site conditions. Asian elements are introduced in the abstract to create a legible character rather than a specific identity. Subtle relationships between opposing curves at the top, the balance of horizontal with vertical elements and the sequencing of space and experiences combine to connect this design to its place.

Fuxin Mansion represents 102,000 square metres of mixed use, office and retail space. The two towers are 165 metres tall consisting of 38 floors. The podium varies in height from five to eight levels and represents 9,500 square metres of office and retail area.



Model shots and plan show how two twin towers and podium block enclose courtyard and respect height of existing buildings

Central Ohio Technical College, Howard E LeFevre Hall, Newark, Ohio 1993

The project is located at a small, commuter branch campus situated along the western, geographical demarcation of the foothills in eastern Ohio. The programme integrates two diverse disciplines within the same building: technical education classes (electronics and industrial technology), and the arts (dance, drama, music, and fine arts).

The design parti was derived from the building's environmental context as well as the dichotomy of combining both technical and arts education.

The building echoes the topographical changes as it rises from a one-storey building height on the west, to a two-storey height on the east. The eastern volume is crowned by an arched roof directly relating to the silhouetted hills surrounding the site.

Other design decisions were based on both contrasting and blending the arts and technology. Contrast appears in plan where the multi-storied concourse cuts programmatically through the building mass that was developed solely for its sensuous nature. The curved glass wall in the lobby/gallery seems arbitrarily placed in plan.

The blending is expressed in the wall-mounted mechanical louvers (technology) which are treated as two-dimensional art by canting away from the wall at the top, much the way a painting hangs away from the wall. The exterior cantilevered support truss, at the entrance to the lobby/gallery, embodies both technology and sculpture.

This blending and contrasting has also been carried through to the detail and materials. For example, end-grained wood, revered by artists and dancers but also found in industrial plants because of its loading capabilities and durability, is used for the flooring. The building exterior is composed of both rough concrete masonry units with brick protrusions and smooth, metallic wall panels.

NBBJ worked directly with this technical college to provide architectural services for this new classroom building. As the new focal point of the campus, the 53,000 square foot facility contains a mechanical technology/electronics lab; comprehensive integrated manufacturing lab; microcomputer lab; telecommunications technology lab; art, theatre, and music labs; and classrooms for drafting, CAD, and secretarial science. Also included are a lobby, faculty offices, and administrative offices.

Banded brickwork of the Worthington Kilbourne High School marches over changes in level without diverting watercourse (below). Auditorium and gymnasium rise above "brick strata" in different materials (left)

The Austrian Cultural Institute's crystalline form emerging from a row of boxy Manhattan buildings

Worthington Kilbourne High School, Worthington, Ohio 1991

The goal of the project was to create a building that made a visual contribution to the importance of education in the community. The design of the school responded to the following parameters:

- provide a non-institutionalised environment
- respond to the surrounding residential community
- allocate the flat, non-wooded site areas to outside programmatic activities
- minimise the distracting effects of peripheral site uses (trains/autos)
- create a school "living room" to encourage the students, staff, and faculty to come together informally and strengthen the sense of community and camaraderie
- provide a safe means of pedestrian access across the ravine from off-site parking areas to the football stadium.

The resulting building design is literally a "bridge over the ravine", an appropriate metaphorical response to the school's mission of providing an educational bridge from childhood to adulthood. The use of sloped roofs, detailed brick, residentially scaled windows, and building mass, which is broken down into smaller components, permits compatibility with the residential community and presents a non-institutional setting.

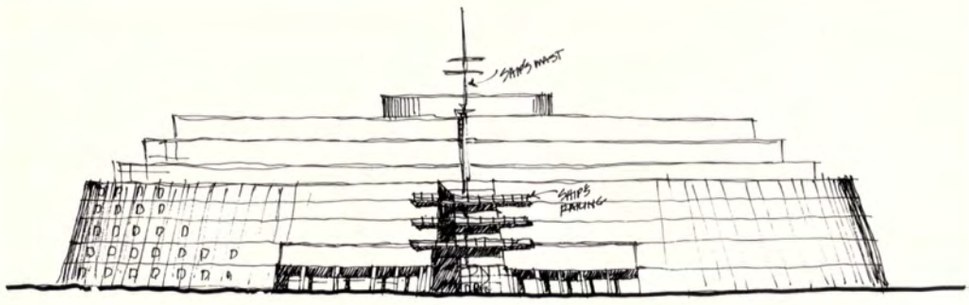
The commons is a two-storey, skylit space that overlooks the ravine to the east, and is the "crossroad" of the school. Adjacent to the commons are student activity offices, school store, auditorium, food service, library, bagel shop, and gymnasium which gives the commons a mall-like quality favoured by high school students.

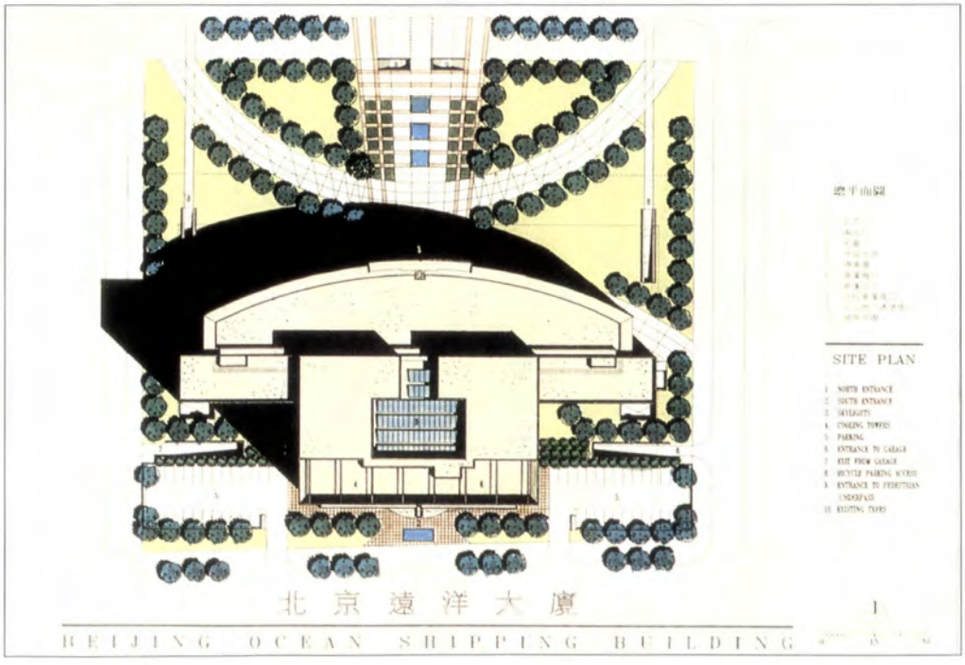
The design implements concepts that were developed during a broad based community effort which defined the "School for the 21st Century". The 272,000 square foot building provides facilities for 1,500 students, grades 9-12. The sports complex includes a football stadium with seating for 4,000, and baseball, softball, tennis, soccer, and practice fields.

Competition for Austrian Cultural Institute, New York, New York, 1993

The size of the property is approximately 6,000 square feet, the width of the building is 25 feet, and the total building height is 22 storeys. The design evolves around the concept of a multi-faceted stone crystal emerging from within the row of square and boxy Manhattan buildings. The building design contains exhibition space, reception areas, small theatres and all the offices of the Austrian Cultural Institute.

Computer-generated image (above) shows features derived from early sketch (right) with shipboard elements. Site plan (below) shows parking and landscaped areas





Ocean Shipping Building, Beijing, China 1998,

NBBJ has recently won a competition, in association with APEC Architects, Miami, for the design of a new 20,000 square metre headquarters building for Cosco, the China Ocean Shipping Company incorporating 71,000 square metres of shopping and offices.

The request that the Beijing Ocean Shipping Building "should be of Chinese traditional style...and be modern and with the characteristics of the ocean shipping industry" posed an interesting design challenge - to capture elements of traditional Chinese architecture and the ocean shipping industry all within one building, yet develop a design that is a compatible, aesthetically pleasing whole.

NBBJ's approach has been to draw from significant physical forms from both Chinese architecture and ships, combine them in a contemporary building that recalls, but does not directly copy, these significant forms.

Koo Foundation Cancer Center, Taipei, Taiwan 1997

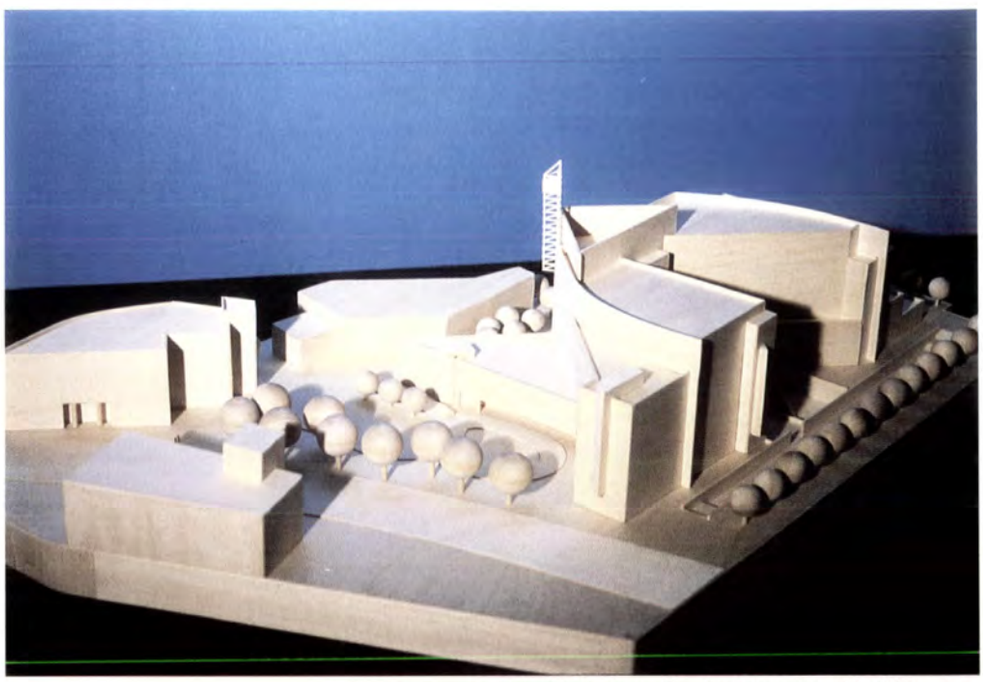
Embracing a blend of innovative American health care delivery practices and Eastern holistic medicine, the Koo Foundation Cancer Center is Taiwan's first comprehensive cancer facility and represents the vanguard of Taiwanese patient-focused care.

The Koo Foundation Cancer Center was formed in 1988 to be a major centre for the treatment and research of cancer, and is intended to be a centre of prominence for the entire Far East. The Cancer Center has a three-part mission.

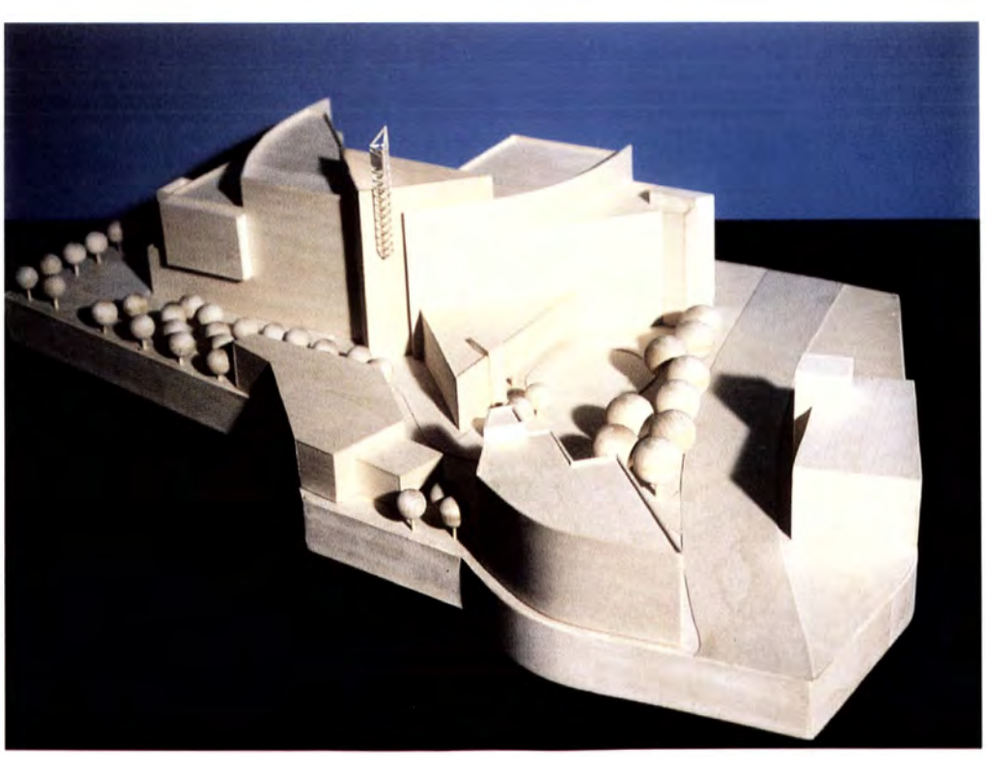
- Patient Care: the best possible care and treatment for all types of cancer.
- Research: significant contributions to the global understanding of cancer.
- Education: training of cancer specialists and education of the public regarding cancer.

Goals for the design of this new 700,000 square-foot building include adequate capacity, good functional relationships, pleasant and supportive environment, strong connection to nature, strong image and identity, and strong urban contribution.

The design concept of the cancer centre is to open the entire building to the natural tropical landscape of the island. Bringing the natural environment into the man-made spaces illustrates how nature can help in the healing process. The design concept fits into the native philosophy of *Feng-Shui* which is a harmony between beauty and nature/the environment. As part of these concepts, the centre features four different gardens, totalling 22,000 square feet, which can be viewed from patient rooms. The largest of the gardens is an 11,000 square foot courtyard containing water falls and a fountain to soften the man-made landscape. All of the gardens accommodate space for quiet reflection.



Model photographs show massing of buildings to permit penetration of gardens with water features



Roof vaulting reflects multiple gable ends. Plain interior relies on liturgical colour

Resurrection Lutheran Church, Cary, North Carolina 1991

NBBJ was commissioned to design a new 28,000 square foot replacement facility for a growing congregation that had decided to relocate to a new planned unit development. The site selected was an open meadow with extensive street frontage on the lower boundary and a mature treeline along the upper edges. The new complex was to comprise four major components – a church (seating 350 people with expansion capability); a fellowship hall with kitchen; administrative offices and education space for religious education as well as an active weekday pre-school programme.

The congregation wanted the church to:

- Embody a sense of the sacred
- Look like a "church"
- Be a "house" well lived-in and comfortable
- Be open and light
- Be a peaceful place in the midst of chaos.

The massing, materials, and colours used in the complex reflect the tradition of simplicity of the reformed church. Repetitive house-like gabled forms are collected together to build the larger form of the sanctuary and to anchor the remaining facilities with a consistent formal vocabulary. These elements are rendered in various textures of white masonry, standing in simple contrast to the rich landscape of the site. Covered walkways and a lych gate provide a key link between outdoor courts, gardens, and interior spaces. A formal arrival axis continues from gate and forecourt through the narthex to a garden. A cross axis leads from the narthex to the liturgical focal area of the worship space through a fanned seating plan.

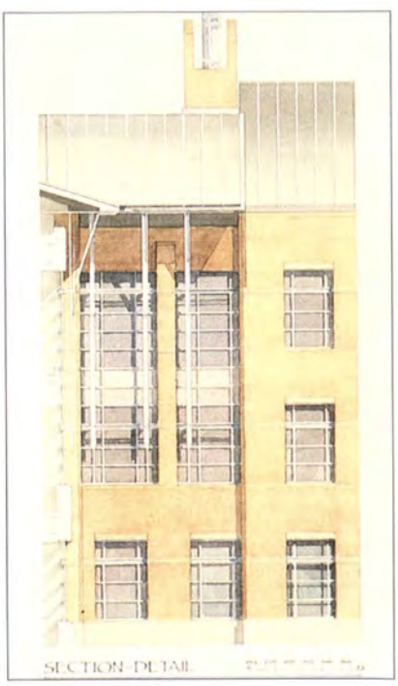
Inside, simple white forms provide a contrast to the richness of liturgical colour and natural elements of wood, stone, and flowers. Liturgical furnishings reflect the form of the architecture and particular attention was given to the altar and to the central apse (resurrection cross with backdrop of rugged texture and rich ceramic tile colour that together symbolise transformation).

Vertically emphasised brick cladding encloses staircases and enhances modelling of window openings

Medical Research Buildings at the University of California Davis campus, Sacramento, California 1992.

NBBJ master planned the entire Instruction and Research Zone and programmed and designed these first two buildings, totalling 77,000 square feet. The two buildings – a 32,600 square foot biomedical research facility and a 44,400 square foot clinical laboratory – are twin structures designed to create flexible environments that foster both collaborative efforts and private reflection. The Collegiate-scaled office component of each building faces onto the future quad; the larger laboratory component is housed immediately behind it. The two blocks of space are joined by a community stair.

The buildings are designed to be flexible. Using a kit of parts approach, the planning allows for flexibility in assignment of activities, size, shared equipment, and space. Medical Research Building II is designed for research, but will be used as temporary housing for the Center's clinical laboratory.



Model photographs show new tower addition and existing structures

Bed Tower Addition and Renovations, Rainbow Babies and Childrens Hospital, University Hospitals of Cleveland, Cleveland, Ohio 1997

Rainbow Babies and Childrens Hospital is a nationally respected university paediatric medical facility dedicated to excellence in family-centred care. Rainbow Babies and Childrens (RB&C) offers a full range of children's services in a compassionate and interdisciplinary health care setting. As advocates for children and their families, RB&C is committed to the highest standards of care. They define their contribution to the future of children's health through their teaching, research and innovative practice.

The primary goal of this project is to provide a positive, enabling environment that supports the physical, social and developmental needs of the child and family. RB&C will fulfil their commitment to children by instituting leading-edge technology to enhance family-centred care.

Overall Design: This health care facility will be planned from the child's perspective and with the needs of the family in mind. The environment will accommodate and acknowledge cultural beliefs and values.

Orientation and Circulation: The layout of the building will be readily understood and convenient to use.

Environmental Stimuli: In order to accommodate the differing needs of patients, surroundings will be varied, integrated, and balanced. To avoid under- or over-stimulation, patients and families will have some control over these surroundings.

Environmental Support for the Patient and Family: The health care setting will enable families to maintain normal daily routines as much as possible. Opportunities for social interaction, as well as privacy, are essential.

Staff work spaces will enhance feelings of self-esteem and comfort and promote competent performance. The overall design will encourage easy communication between staff, patients, and their families.

Emphasising family-centred care, this project will provide a new tower addition with 175 inpatient beds including critical care NICU beds; a new "front door" and image; renovation of the vacated bed tower.

The renovated bed tower will eventually house support services, offices, and education functions. NBBJ is providing long-term (master) planning services, programming, and full architectural services for this project.

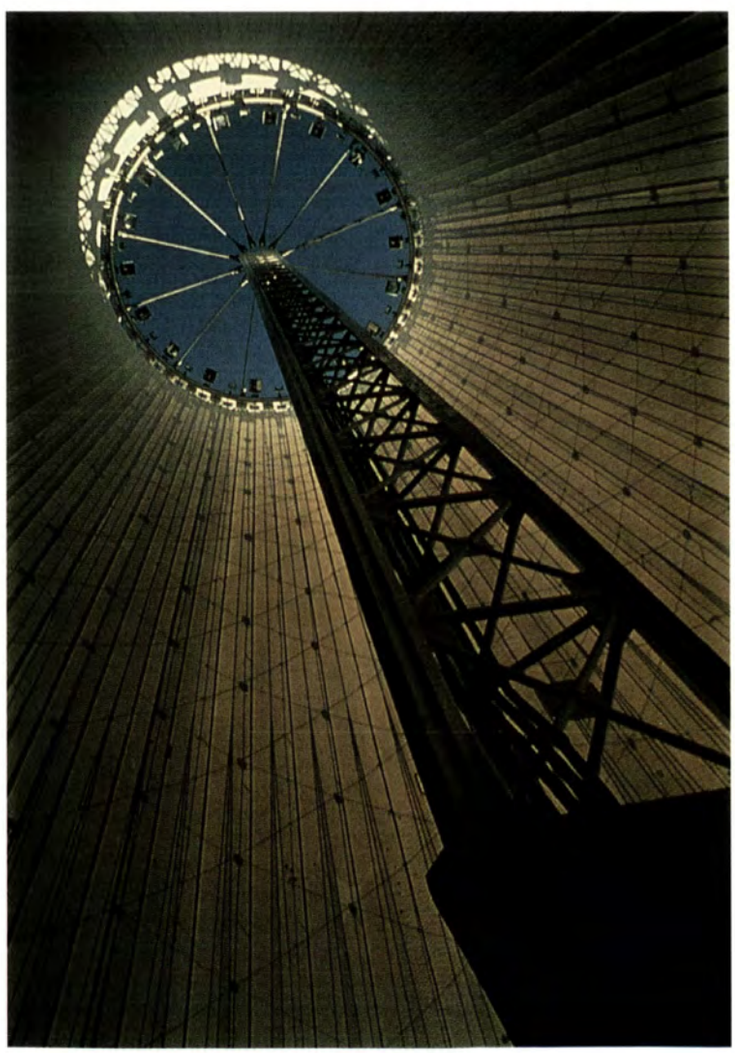
US Pavilion, Expo '74, Spokane, Washington 1974

The US pavilion consisted of a complex of three structures: at the west end, the permanent Federal Action Center; at the east end, an I-Max theatre with 850 seats; and in between, a one-acre exhibit area covered with a soft-shell-coated fabric translucent roof designed by NBBJ.

Designed to be a temporary structure, the translucent roof of the off-white, coated fabric spans 320 feet from a network of stressed cables. Massive earth berms provide a transition to surrounding grades, and the landscaping utilizes indigenous materials.

A fast-track schedule was imperative because design and construction had to be completed in 16 months. Construction began approximately three months after the design contract was signed.

The citizens of Spokane liked the structure so much they decided to keep it and incorporate it into a permanent park on the city fairgrounds. It is now used as an exhibit space and skating rink. In due course the teflon-coated glass fibre pavilion received a National Design Award in the General Services Administration, Biennial Design Awards Program 1975. It also received an AIA Merit Award – Seattle Chapter, 1974, and a National Architectural Award of Excellence – American Institute of Steel Construction, 1974.



The Spokane pavilion is an early and long-lived use of Teflon-coated glass fibre

STOP PRESS!

HELP US TO KEEP YOU INFORMED

In March (WA34) *World Architecture* expanded from six to ten issues a year. The practice Profiles have increased in length to 40 pages, and other international projects are covered in greater detail. We have also increased news coverage, appreciating that while a monthly magazine cannot break news in the same way as a daily or weekly newspaper, *World Architecture* is now in a position to comment more widely on the industry. Next month, WA36 begins a new series on in-depth country/regional reports in conjunction with data from Hanscomb Associates, the first of which covers Hong Kong and China.

From the beginning of the intelligence-gathering process to the end, and from one side of the globe to the other, *World Architecture* is now even better equipped to keep pace with your thoughts and let you know what is happening in your profession world-wide.

We are asking you to help us keep one step ahead with news from international practices. Please send me information on projects and competitions, and any other news relating to your practice. *World Architecture* will also publish news of architectural exhibitions, lectures and trade fairs, in forthcoming issues. Please keep me informed of relevant events.

I look forward to hearing from your practice in the near future.

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GLOBAL REVIEW

UP FOR GRABS

Expect a rush of refurbishment and redevelopment projects in Bulgaria, following the rapid privatisation of a quarter of the country's large industrial concerns. Some 340 state-owned organisations, including potentially highly profitable construction businesses and tourist companies, are earmarked for privatisation. The total value of the sale is estimated at US$2 billion.

The country's government is, it says, not taking too great a risk. It sees as its model the reasonably successful sell-off of former Czech state assets over the past few years. Citizens who want to participate have to pay the equivalent of just under US$10 in order to receive "privatisation vouchers" with a face value of US$470. The vouchers are then exchangeable for shares in the state-owned companies facing privatisation. How well the shares perform after that is down to the management.

This route is being taken because it is thought that overseas investors will not want to buy all the enterprises that are up for sale, as was the case in nearby Hungary: hence the subsidised sale to the people. Doubts are raised about the viability of many of the organisations in a free market, especially since many of them are burdened with debt. However tourist hotels and construction departments are among the enterprises deemed to be safer bets than others.

Potential Bulgarian investors, who will not be allowed to sell their shares in an attempt to prevent speculation, are no doubt pondering the fact that some of the plums of the privatisation programme, such as the state tourism agency, are not being offered to all and sundry but are instead being fattened up for sale to overseas investors.

VOLCANIC CENTRE

Eat your heart out, Etienne-Louis Boullée. Given the task of designing the "European Volcanism Centre Project", set in the extinct volcanic region of the Auvergne in France, the chosen architect Hans Hollein from Vienna reached deep into his symbolic rattle-bag.

Hollein certainly comes up with the goods so far as Boullée's idea of a felt, rather than reasoned, architecture is concerned. The project in question is to be sited near Puy-de-Dome, a town itself built on the plug of an extinct volcano, on what was previously 57 hectares of military encampment at St Ours les Roches in an outstandingly beautiful area. The president of the Auvergne regional council happens to be Valéry Giscard d'Estaing, the former national president who is not unaccustomed to the odd grand project. D'Estaing proposed a European Volcanism Centre back in 1992.

A competition followed. Hollein won in July 1994, having beaten off Ricardo Bofill, Henri Ciriani, Douard-Harland, Jean-Michel Wilmotte and 80 others.

Hollein states of his concept: "The complex is designed to be a place of experience transmitting the ideas and sensations in relation to volcanism. There is no separation between construction and landscape, not between underground and surface, and consequently neither between container and content...it is important for visitors on entering the Centre to follow a path that initiates them: descending into the abyss travelling to the centre of the world."

So entry into the museum will take you down below ground level before crossing a ramp set 30m over a rumbling hole giving off smoke and vapours. There is a simulated volcano rising from

Hans Hollein's simulated volcanic experience in the Auvergne, France

Christophe Camus

the ground, a spiral ramp going down 21 levels, a giant screen sunk into the basalt alongside, and a "sleeping garden" valley covered with a glass roof. A range of ancillary buildings are set conventionally along the approach route.

The cleverness of what some might well regard as radically megalomaniac architecture is that it can be said (as Hollein does indeed say) that it does not disturb the landscape. Indeed not. Any more than open-cast mining does.

It will cost FF300 million (on top of the FF1820m cost of the land) and construction will be under way by the time you read this.

THE YEAR OF THE SHOP

1995 seems to be a big year for global congresses. The second world congress of the International Council of Shopping Centres (ICSC) – and the first such omni-national event in Europe – took place in Vienna in March.

The theme of the congress is "Think global...act local" which is just as meaningful as such slogans usually are. ICSC is dedicated to shopping malls everywhere and there have been dangerous signs of saturation in some traditional western markets, so it comes as no surprise to find that one of the key speakers in Vienna was Dr Alexander Kirov, vice minister in charge of public works for the Federation of Russia. The Russians want western capital invested into shopping centres even more badly than the capitalist west wants to invest there. There is still the niggling difficulty of the indigenous people having no money to buy anything, however.

"Act local" appears to mean, according to the ICSC's Design Trends exhibition running in parallel with the congress, considering one of four world markets: North America, Asia, the "European Zone" and the Southern Hemisphere. That's all the Southern Hemisphere, including presumably both Melbourne and Sao Paulo.

DIGGING INTO PROBLEMS

When Los Angeles launched a scheme to transport the masses via subway and light rail systems, they could not anticipate the problems this would bring. Some US$5.7 billion is being spent on the subway; already 4.4 miles of the system are transporting passengers from the downtown area to Macarthur Park.

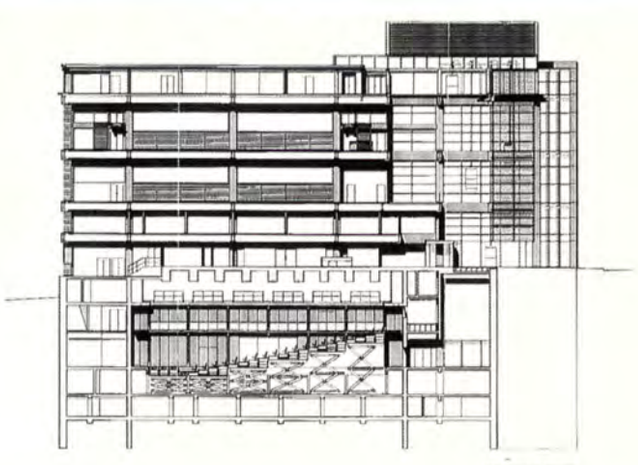
After experiencing a variety of problems in the first phases and believing them solved, construction on the Red Line began. Approximately 6.7 miles of twin tunnels leading to and through the Hollywood area, a US$1.4 billion project, is now experiencing severe construction difficulties. One contract worth US$165 million is expected to exceed US$200 million because of these problems.

But flooding, litigation and work stoppages haven't been enough to halt construction on the second phase of LA's new transit system. The eastern section of the Hollywood Boulevard tunnel flooded in July, 1993, causing a three-week closure and forcing the project nine months behind schedule. Tunnelling along the boulevard began again in January 1994. Another six-month hiatus began in August, further along the line, when foremen evacuated the tunnels becuase of fear of an imminent cave-in. This was after work had continued even though a four-inch sinkage had been discovered along some sections of the famous street. Ground sinkage at some points now measure nine inches. Two months later, in October, the federal government halted funding of future subway plans until such time as the Los Angeles Metropolitan Transit Authority was able to control the quality of work. Funding was reinstated once management procedures were changed. In February this year a further one and a half inches was lost.

Soil samples taken before tunelling began indicated that for strength and stability during construction the tunnels should be grouted. However transit officials did not order the contractor to do so for some six months after a construction management engineer recommended this, because the benefits would outweigh the costs involved. Metropolitan Transit association (MTA) officials believed that the concrete sheathing inside the tunnels would give the proper strength and that US$1 million could be saved by avoiding grouting. After work stopped it was discovered that some sections to be grouted had been filled instead with paper and plywood. and instead of steel braces, oak had been used which was consequently crushed.

Independent engineers, hired by the city, verified the problems. With additional measure taken by the city – a structural engineer and

Ken and Jennifer Armstrong's Japanese Foundation, Paris; the first purpose-built Japanese cultural centre in Western Europe
(Bottom) East-west section showing the below ground level auditorium



other city staff are on site daily for inspections – the original contractor and construction management firms continue on the project.

Business and property owners along the Red Line route have hired attorneys and formed Hollywood Damage Control and Recovery, Inc., in an effort to repair buildings whose problems included facades split from the foundations. This group has filed an administrative claim against the Metropolitan Transit Authority and additional litigation is anticipated.

As a natural consequence, the MTA has been battling with the public's perception of safety. The problems with the Hollywood tunnelling, said an MTA official, "makes our job even more difficult because we need to convince potential travellers that the subway is a safe, clean and efficient means of transportation."

JAPANESE IN PARIS

After an unduly irksome delay, the eagerly anticipated Japanese Foundation in Paris is now being built.

The Foundation – effectively Japan's answer to Jean Nouvel's World Arab Institute – was won in competition by Armstrong Associates, then of London, nearly five years ago. The corner site, by the Seine near the Eiffel Tower, however could not be exploited until a reciprocal site could be found in Tokyo for the French equivalent. While that matter was being resolved, Ken and Jennifer Armstrong, now resident in Paris, have had the time to refine their design considerably.

The most significant changes are internal. Where the competition-winning scheme featured a series of circular spaces, including a theatre, in the form of a drum rising the height of the building, dialogue with the client since winning has resulted in a complete rethink. The "black box" theatre and all the central spaces are now rectangular, forming a central "nave" of served space, and where the facade curves round the front of the site it departs from the structure of the building behind to define an open entrance courtyard.

The new auditorium, to be built below ground level since the building goes as far down as it goes up, is an ultimately flexible space ("salle polyvalent") where the entire floor is divided into sections mounted on scissor jacks, allowing any configuration of stage and seating. The theatre is to be clad internally in Linden wood, a traditional Japanese material.

The £18m building is the first purpose-built Japanese cultural centre in the world, apart from Krakow, Poland. As is the Parisian tradition, there will be a rooftop restaurant, and a complete Japanese teahouse, shipped over intact. Although most of the glass cladding is screen-printed with horizontal sun-reflecting lines, the prow of the building is left clear to provide an outlook over the river.

"It's now a lot simpler than the competition scheme" remarks partner Jennifer Armstrong. "The idea is to create a simpler, neutral backdrop to the activities taking place there."

The scheme has received the approval of France's feared aesthetic watchdog, the Commission des Abords. Everyone turns up here sooner or later: when the Armstrongs emerged from their meeting with the commission, they found Sir Richard Rogers waiting in the corridor to present his scheme for a Palace of Justice in Bordeaux.

Following an archaeological dig, the Japanese Foundation is due for completion in 1996.

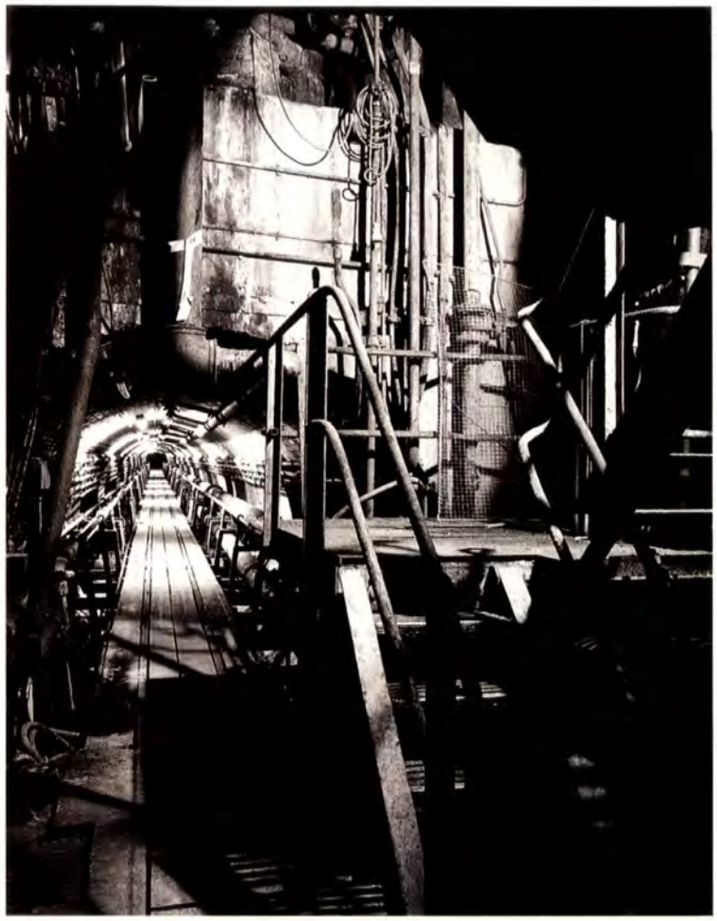
GOLDEN OPPORTUNITIES

When a fall of one per cent in European office rentals is seen as an excellent portent, then you know that things have been really bad. So it is with the outlook for prime property in continental Europe during 1995. A year previously, rents had been collapsing at an annual rate of nearly ten per cent.

The international property consultants Healey and Baker studied the runes in 11 European countries – Belgium, Czech Republic, France, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Spain and the United Kingdom – and concluded that things are looking pretty firm all round.

Although the UK has been leading the revival in the financial standing of office buildings – capital growth of 20 per cent for prime property during 1993-4 was not unusual – and the Netherlands saw the strongest

(Below) The oil and access tunnel to the jetty at Bankside Power Station, the site of the new London museum of modern art. (Photograph taken in 1993) (Bottom) The restored classical facade of 25 Nevsky Prospect, St Petersburg, masking the new city office block behind



Nuclear Electric Plc

rate of rental growth, the UK is not now seen as the horse to back. Rather, look for opportunities in the market that have come, or are coming, out of recession rather later: France, Germany, Holland and Spain are tipped to do in the next 12 months what the UK did last year.

As a concrete example, take the area around La Défense in Paris. This 750 hectare site, known somehow inevitably as the "Golden Crescent" has been developed by a French government agency for 38 years and now houses more than two million square metres of offices, making it Europe's largest concentration of office space.

The Golden Crescent is therefore an indicator. Ever since the ending of the 1980s boom, rents there have been falling because there were just too many offices looking for tenants. But the rate of decline slowed sharply during 1993 and 1994. "They have now reached a level which occupiers consider acceptable and are expected at last to stabilise" says the French property agency Bourdais. Shall we see a dusting-down of plans for new office buildings in Paris, not to mention Rotterdam, Frankfurt et al? We think so.

POWER HOUSE

The UK's answer to an international museum of modern art in London is soon to be realised, albeit late in the day. Sir Giles Gilbert Scott's 1947 power station on the south bank of the River Thames is to be re-designed by the young Swiss partnership Herzog and de Meuron, winners of the international competition from a shortlist including British architect David Chipperfield, Renzo Piano's Building Workshop in Italy and Tadao Ando in Japan. The exisiting Tate gallery at Millbank will be restored to a museum of British art.

There was some controversy over the competition procedure itself, due more to the inherent problems of international architectural competitions – most notably highlighted by the Cardiff Bay Opera House fiasco, at last resolved five months after the winning die was cast by Zaha Hadid – than anything more sinister. But the concern at the forefront of many Londoners' minds is more to do with the choice of site, than architect. If the Tate is in line for up to £50m from the British Millennium Fund, with a further £50m expected from private fundraising, why couldn't the trustees choose a new site and commission a suitably radical landmark worthy of the international recognition it will attract? London has yet to produce a significant contemporary monument to the arts, on a scale of the Pompidou Centre or Louvre pyramid in Paris. The building itself, which will open in 2000, must be a catalyst for visitors from around the UK and overseas.

The response from the Tate and the winning architects, who unsurprisingly admitted that had they had the choice they would have enjoyed the freedom of a new-build, is that their scheme for the new gallery will still produce a building of international significance for the twenty-first century, even within the confines of the existing power station. It offers exceptional hanging space and scope for expansion, and is already dramatic and monumental. Herzog and de Meuron are becoming experts at winning competitions, and are well known for their work in Switzerland and Germany. Let's hope that the partnership, chosen for their uncomplicated approach to user-friendly public buildings, will prove the critics wrong.

PETER'S PROJECTS

It is billed as "the first and only modern office building in St Petersburg" and it is not the controversial Peter the Great Tower (of which more in a moment).

The city office block at 25 Nevsky Prospect, developed by a consortium of companies including the Swedish company Skanska and the Chicago-based concern Golub, is open-plan, with integral parking, state of the art electronic security and fire systems, and full air conditioning. Like some similar buildings in Berlin or the City of London,

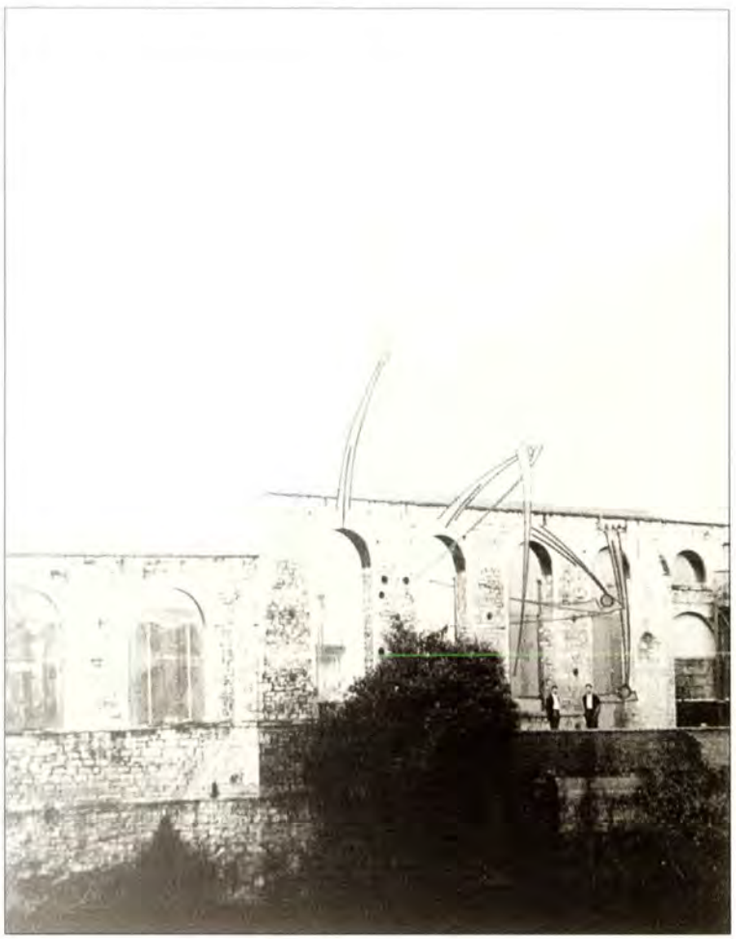
however, it is a "stealth" construction, hiding behind the five-storey, restored, stuccoed classical facades of historic St Petersburg.

The block, dating from the mid nineteenth century, had been badly knocked about and latterly occupied as tenements. The restoration, by Russian architect Sergei Sokolov with Errol Lonka from Finland, will return the exterior to something like its original condition: inside, only the courtyard and four stairwells will be preserved. Sokolov is well used to restoration work – his former partner, Nikita Jawein, has now been elevated to head of the Russian GIOP preservation agency – but the floorplates of the office interiors are laid out to an American pattern, according to John Howard of Globus.

This building, due for completion in spring 1996, will no doubt suit the international brigade of conservationists who bemoan the Peter the Great project. Bad news for them: Peter the Great is still on schedule, billed with pride as "St Petersburg's first real high-rise development". A share issue in late 1994 was confidently expected to raise 49 billion roubles for the 36-storey tower planned for Vasilievsky Island.

The usual reaction, that Peter the Great is the result of western money alone, is not quite true. Vasilievsky Island was earmarked by former Soviet city planners for a series of high-rise buildings many years ago. The only difference now is that they are intended to form a new business district. Vasilievsky will be to St Petersburg what La Défense is to Paris. Which means there will soon be sons and grandsons of Peter the Great. In the meantime, projects such as 25 Nevsky Prospect, and similar schemes in Prague and Budapest, are likely to command the premium, city-centre rents.

The 15 metre tall sculptural Bath Festival Tower by the "Self-constructing Architecture" group



THOUGHTFUL FOLLY

Could this be the shape of things to come? According to sculptor/engineer Peter Linnett, his Bath Festival Tower designed with Toby Blunt and James Rowe for this year's International Festival in the city, could be the first tenative step towards tomorrow's world. "Buildings which quietly erect themselves, with a minimum of noise and disruption, would be a fascinating move towards perfecting the city of the future. And if they can then continue to adapt to their users' needs in a similarly unobtrusive, yet visually exciting way, then perhaps we can start to develop a completely new approach to our urban environment."

The 15 metre tall sculptural tower will be erected in the heart of one of Britain's most architecturally important cities, and its metallic contemporary design will provide stark contrast to the predominantly eighteenth century city. It will grow in an almost continual state of transformation for the two week festival, and then disappear. The purpose of the tower is to excite a thrill of anticipation in the onlookers, and produce a visible result within a short timescale. The creators believe that "above beauty and elegance, it is the elements of apparent danger and uncertainty which draw crowds."

The team, the "Self-constructing Architecture" group, have yet to finalise financing the project, but are confident that the tower will materialise on schedule for the opening of the world-famous annual music festival in May this year.

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MILLENNIUM REVAMP

"Beaubourg in dry dock" says the headline in *Le Monde*. The maritime image is swiftly abandoned in favour of a description of the Piano and Rogers Pompidou Centre as a "bizarre UFO" (the French for which is OVNI, for Objet Volant Non Identifié), but mixed metaphors aside, the message is the same: this is the long-awaited revamp of the Beaubourg, at a cost of FF800 million, lasting until the turn of the century. It is Paris's major Millennium project.

The Beaubourg costs a lot to run anyway – employing a thousand people, it has an annual budget of FF420 million, which makes the cost of restoration seem really rather reasonable.

Already Piano and Rogers' neighbouring IRCAM experimental music centre is a building site, as it expands into the old wash-houses alongside. This year will see work start in earnest on the Pompidou Centre itself. Its carcase will be rejuvenated, it is promised. Its premature ageing has been noted well for years, as has the fact that Paris, while good on capital projects, is by no means good when it comes to preventative maintenance. A lot of catching-up has to be done.

Early work, while the building remains open, will include a new open-air sculpture court, new underground car parking, ground floor and lighting improvements. But from 1997, the place will close entirely for 30 months for restoration, repair, and complete internal reorganisation. The museum within the building, its collection now huge, will triple in size, precipitating a Chinese puzzle of movements around it. Even

when it reopens, work will continue. In all it is a six-year project.

The activities of the Beaubourg will however continue during the shutdown: exhibitions will be mounted elsewhere and tour the globe before finally returning home to roost in the revivified centre. This, it seems, was an express desire of the French culture minister Jacques Toubon, whose role is to pick up the pieces left by his flamboyant predecessor Jacques Lang. Toubon has already closed the Grand Palais, the Comédie Française and the Opéra Garnier for repair. With the Beaubourg shut as well, he feared his reputation as "Minister of Closures" would become permanent. So, the Pompidou Centre is taking the show on the road while Piano and Rogers (Piano alone for IRCAM) come back for a second bite at the magic cherry.

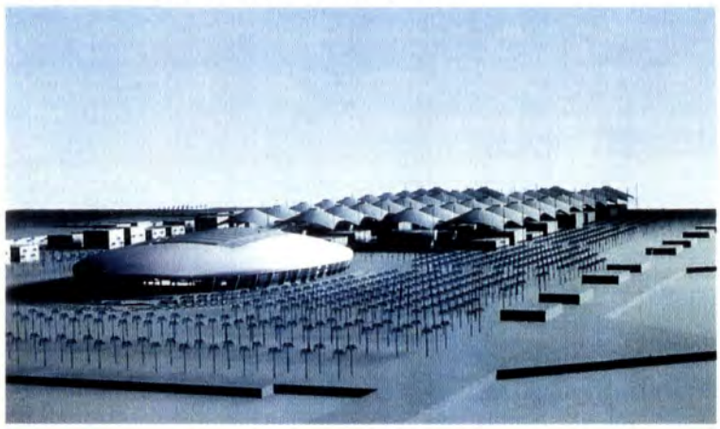
LISBON EXPO

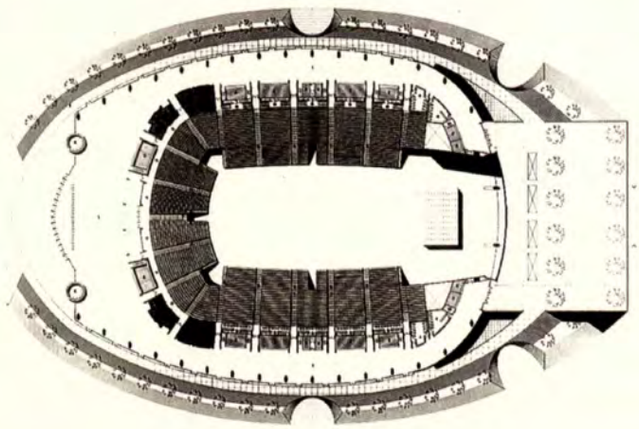
Portuguese architect Regino Cruz has linked up with American giants Skidmore, Owings and Merrill to design the £25m "Utopia" multi-use pavilion at Lisbon's Expo '98.

"Utopia" is the somewhat optimistic name for what is not really an Expo pavilion so much as a covered sports and concert arena of a type very familiar in the United States and elsewhere. Sporting and cultural events, concerts and family entertainment are promised in the 17,500 capacity building.

The form of the Cruz/SOM building is moderately unconventional. All Expos have themes and the theme of Lisbon '98 is "The Oceans: a Heritage for the Future", which reflects Portugal's maritime and exploratory past, and is meant to imply ecological concern. In response to this, "Utopia" has roof blades, a little reminiscent of Renzo Piano's Menil Gallery in Houston, that are meant to be a sailing-ship metaphor.

Regino Cruz/SOM Lisbon Expo "Utopia" pavilion





"Utopia" will take its place at the centre of the 50 hectare Expo site on the Tagus river. Construction starts in July 1995 for completion in October 1997. Materials include Glulam timber frame, aluminium roof cladding and timber louvres on glazed walls.

The Expo is part of a larger, 300 hectare riverside regeneration project for Lisbon: Expos and Olympics alike are now expected to be regeneration catalysts.

CRACKING THE SHELL

"It's nice to rediscover shell structures," says structural engineer Stephen Morley. "It's a technology that's rarely used now. It was very common around the time I was born."

Morley is referring to a big new savings bank building in Kiel, designed by Hamburg architects Bothe Richter Teherani. The Sparkasse bank is, in its way, a big traditional banking hall, infilling a site between a nineteenth century building and a 1960s building. Morley is one of the brightest of the new generation of design engineers. Formerly of YRM Anthony Hunt, then in his own Manchester practice, he has now merged with the London avant-garde engineering practice of Atelier One (the new joint name is unknown at the time of writing).

The Kiel job is the first combined effort for Morley and Neil Thomas of Atelier One. While Thomas has been dealing with a structural glass box containing cash machines, Morley – who has a track record in stadia and sports buildings and the creative use of concrete – has concerned himself with the thin-shell, prefabricated roof vaults of the building.

The significance of the shell vaults is that they are to be used as climate controllers. Cast into each shell is a capillary mat, through which water will be passed at any desired temperature. Used as a chiller device, passing icy water through the shells will create downward vortices of cold air, cooling the banking hall beneath without recourse to airconditioning.

"It's only extending the normal characteristics of concrete left exposed," says Morley, who has previously worked closely with other architects on the climatic-buffer aspects of massive masonry. The Kiel project is thought to be a first. It may even revive the 50-year old fad for shell concrete construction. □

BUILDING IN AUSTRALIA

Australia consists of two land masses: mainland Australia and Tasmania. It lies on and extends south of the Tropic of Capricorn in the southern hemisphere between the Indian Ocean and the South Pacific. It is the smallest continent and the sixth largest country with an area of 7,682,300 square kilometres. Australia's neighbours to the north are Papua New Guinea and Indonesia, to the east Polynesians and Melanesians of the Pacific Islands, and New Zealand to the southeast.

Climate: Being in the southern hemisphere, Australia's summers are from December through February. Summers are generally hot, particularly in the interior, west and south arid or semi-arid regions. Northern Australia is hot all year long and has a summer monsoon season. The temperate climate areas are in the east and southeast. Tasmania and Mt Kosciusko have snow fields in winter. Australia's rainfall varies greatly within the continent.

Population: 16.2 million, 88% urban (mainly on the east coast), 12% rural with an average of 2 people per square kilometre.

Language: English.

Ethnic Composition: European (95%), Asian (4%), Aboriginal and other (1%).

Capital: Canberra.

ECONOMIC DATA

Consumer Price Index: 1980=100

1990	1991	1992	1993	1994 (est)
218	225	227	231	235

Exchange Rates: Australian $ per US$

1990	1991	1992	1993	1994
1.29	1.32	1.45	1.48	1.29

TRAVEL AND BUSINESS INFORMATION

Time Difference: There are 3 time zones on the Australia continent.

	Hours Ahead GMT	Hours Ahead EST
The Eastern States	10	15
South Australia and the Northern Territory	9.5	14.5
Western Australia	8	13

Queensland and Western Australia are the only time zones that remain on standard time throughout the year. The remaining territories add one hour for Australian summer time.

Currency: Australian Dollar ($A), divided into 100 cents.

Business Hours:

Government: 8:30-4:30, Monday-Friday
Office: 8:30-5:00, Monday-Friday
Banks: 10:00-4:00, Monday-Thursday
10:00-5:00, Friday

National Holidays:

New Year's Day	January 1
Australian Day	January 28
ANZAC Day	April 26
Queen's Birthday	June 10
Christmas Day	December 25
Boxing Day	December 26

Good Friday and Easter Monday (March-April) are observed on different dates each year. They change yearly in accordance with the lunar cycle.

Airport Information: Australia has international facilities at Adelaide, Brisbane, Cairns, Darwin, Melbourne, Perth and Sydney. Kingsford Smith Airport is 11 kilometres from Sydney and Tullamarine Airport is 26 kilometres from Melbourne. Local air service is excellent with the two major airlines being Ansett and Quantas.

Dialling Code: Australia's country code is 61, the international dialling-out access code from Australia is 0011.

GENERAL CONSTRUCTION INFORMATION

Construction Outlook: Australia has a comprehensive construction industry, which is always a barometer of the economic state of the nation. The building industry is currently coming out of a very low period arising from the recent recession in the Australian economy with the main areas of activity being in Brisbane, North Queensland and Sydney. The Melbourne market is currently busy, but this is expected to be very short in duration with prices remaining very competitive as will also be the case in Adelaide, Canberra and Perth.

Rates of Inflation: For 1995 the rate of inflation for the building industry is estimated at 4 to 5% per annum.

Forms of Contract: There are several contractual forms available. Variations and combinations of these may be found, but these are the basic forms.

- Traditional Tender
- Competitive Negotiation
- Cost Plus
- Design and Construction
- Construction Management.

Traditional Tender – Tenders may be selected for construction on a "selected" basis or an "open" basis. In a "selected" basis tender the tenderers are selected by qualifications and experience in the type of project. In an "open" basis tender there are no restrictions placed on tenderers.

A project design team is selected by the owner which prepares complete design documentation. Tenders are called based upon the completed documentation and are usually lump sum. The successful tenderer is awarded the building contract which is administered by the architect.

Competitive Negotiation – Building plans are prepared from the schematic stage to the preliminary working drawings stage by the design team. Tenders are called from a select list of contractors for the following elements:

- Preliminaries
- Percentage for margins

- Percentage for off-site overheads
- Percentage for attendance on sub-trades
- Statement of time to complete with schedule.

A tenderer is selected and joins the design team. The builder prices each trade package as it is completed, usually by obtaining three competitive bids for each trade package.

Cost Plus Contract – The building contractor contracts with the owner to complete the project in accordance with the contract documents at cost plus a percentage of the cost. This form of building contract can be used with any of the contract forms. It is extremely important to define cost in this contract form. The "cost" usually includes all on site activities while the "plus" portion covers head office overheads and profit. The plus portion of the contract may be a fixed fee.

Design and Construct Contract – The owner requests a preliminary proposal from an organization, usually known as a "package dealer", for design and construction based on the project brief.

If the preliminary proposal is accepted by the owner, the "package dealer" prepares and submits the final development proposal, which in most instances includes a guaranteed maximum price of the project. The final development proposal would include schematic design drawings and an outline specification.

Construction Management Contract – In this form of contract the building owner usually selects the construction manager as an additional member of the design team after competition of the schematic design. The construction manager brings practical building experience to the design team. The construction activities are subcontracted for the various trades required. These contractors are selected on a competitive basis and enter into direct contract with the building owner.

Design Professions: The following consultants are normally used on major projects in Australia: Architects, Engineers (Structural, Civil, Mechanical & Electrical Services), Project Managers, Quantity Surveyors/Cost Consultants.

Contractors: The major national contractors are:

- Baulderstone Homibrook
- Civil and Civic
- Concrete Constructions
- Fletcher Constructions
- Grocon
- John Holland Constructions
- Leighton Contractors
- Multiplex

Barclay Mowlem, FA Pidgeon and Walpac are very large contractors in the considerable Queensland market.

Governing Codes and Standards: There is one common code for the principal requirements for construction in Australia: "The Building Code of Australia".

Seismic Data: Australia's volcanoes are no longer active, however there is much seismic activity in the eastern and western highland areas.

CONSTRUCTION MATERIAL AND METHODS

Material Availability: Materials are generally readily available throughout Australia with most materials made in the country. Imported materials may require consideration of lead times when planning projects.

Labour Availability: Labour has been generally readily available in the past except in the time of a boom in construction. There is currently some concern that certain parts of the country may see some shortages as the industry accelerates owing to the number of operatives who have left the industry through the recession.

Equipment Availability: Major construction equipment can be hired from plant hire organizations and is readily available.

CONSTRUCTION COST GUIDES (Effective 1995)

Pricing Manuals: Two pricing manuals are published in Australia, *Rawlinsons Australian Construction Handbook* published by subsidiary of a national quantity surveying practice, "Rawlinsons", and *Cordells Construction Price Book*. The following data is provided by Rawlinsons.

Approximate Construction Costs:
The following square metre unit rates are provided for rough comparison purposes. The prices provided are for the Sydney area.

	A$/m²
Warehouse - high bay	385 - 465
Office Building, 4-7 storeys, Shell & Core	965 - 1,115
Office Building, 7-20 storeys, Shell & Core	1,270 - 1,470
Mid Rise Hotel, three star (excluding fit-out)	1,630 - 1,800
Parking Structure - 2-3 levels	225 - 270
Low Rise (1-3 storeys) Apartment	425 - 515
Factory, large span, owner occupied	785 - 945

Regional Cost Variations: The following are approximate regional cost variation for several cities in Australia. Prices vary widely within each region represented. For information regarding a specific location, we suggest you consult *Rawlinsons Australian Construction Handbook*.

City	Index
Adelaide	101
Brisbane	95
Canberra	115
Darwin	122
Hobart	108
Melbourne	101
Perth	98
Sydney	100

USEFUL ADDRESSES

Master Builders' Federation of Australia
Construction House, 217 Northbourne Ave,
Turner
Canberra ACT 2601
Phone: (61) 06-249-1433
Fax: (61) 06-249-1373

Royal Australian Institute of Architects
2A Mugga Way, Red Hill
Canberra ACT 2603
Phone: (61) 06-273-1548
Fax: (61) 06-273-1953

Australian Institute of Quantity Surveyors
in Sydney
27-29 Napier Close, Deakin
Canberra, ACT 2600
Phone: (61) 06-282-2222
Fax: (61) 06-285-2427

Standards Association of Australia
1 The Crescent
Homebush, NSW 2140
Phone: (61) 02-746-4700
Fax: (61) 02-746-4785

Association of Professional Engineers, Scientists
& Managers, Australia
163 Eastern Road
South Melbourne, Victoria 3205
Phone: (61) 03-695-8800
Fax: (61) 03-695-9312

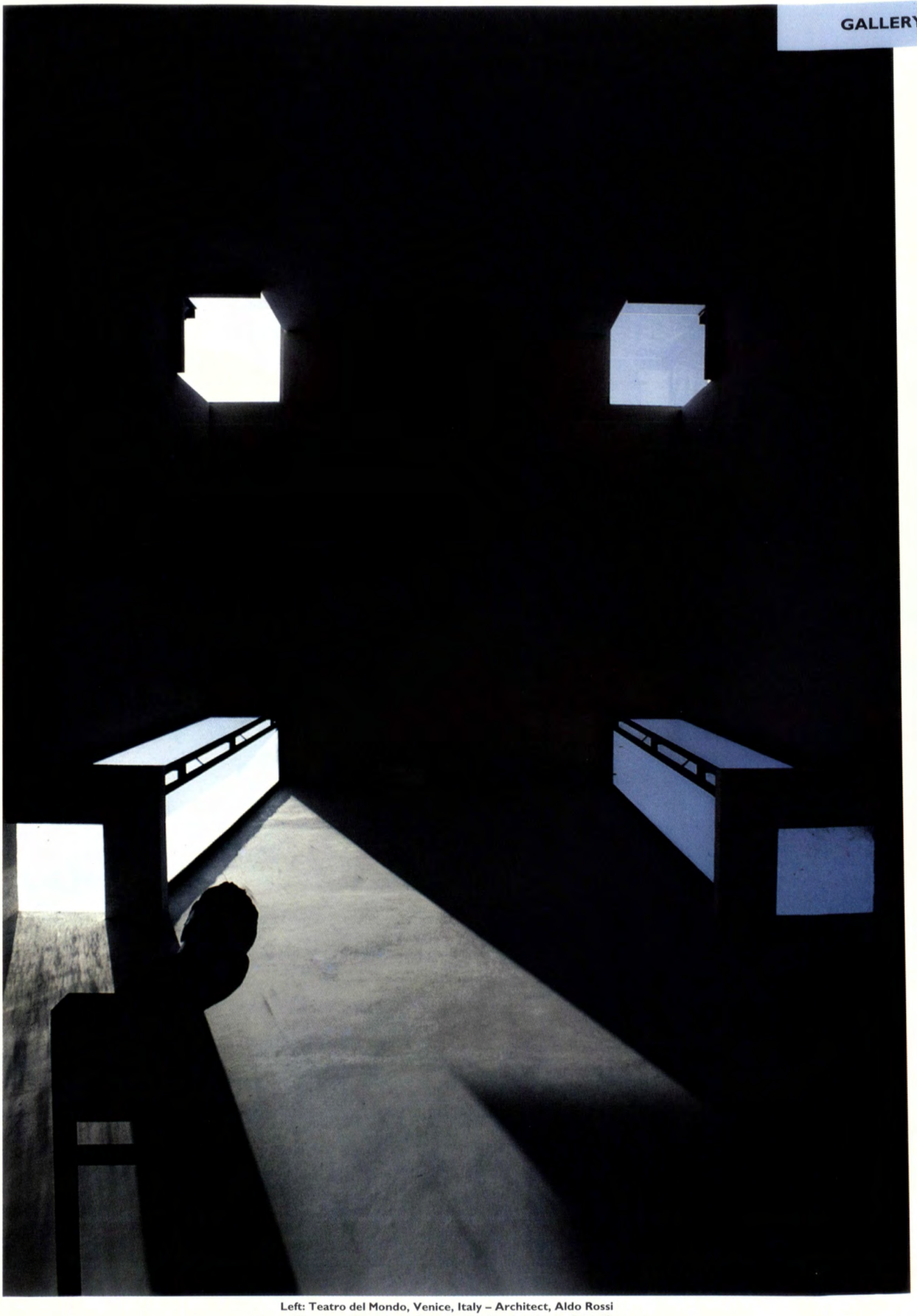
World Architecture *and* Hanscomb *wish to thank the Rawlinsons Group for assisting in the presentation of the information contained in this Country Report.*

ANTONIO MARTINELLI

The poetry of light has always been the aim of Antonio Martinelli's photographic research.

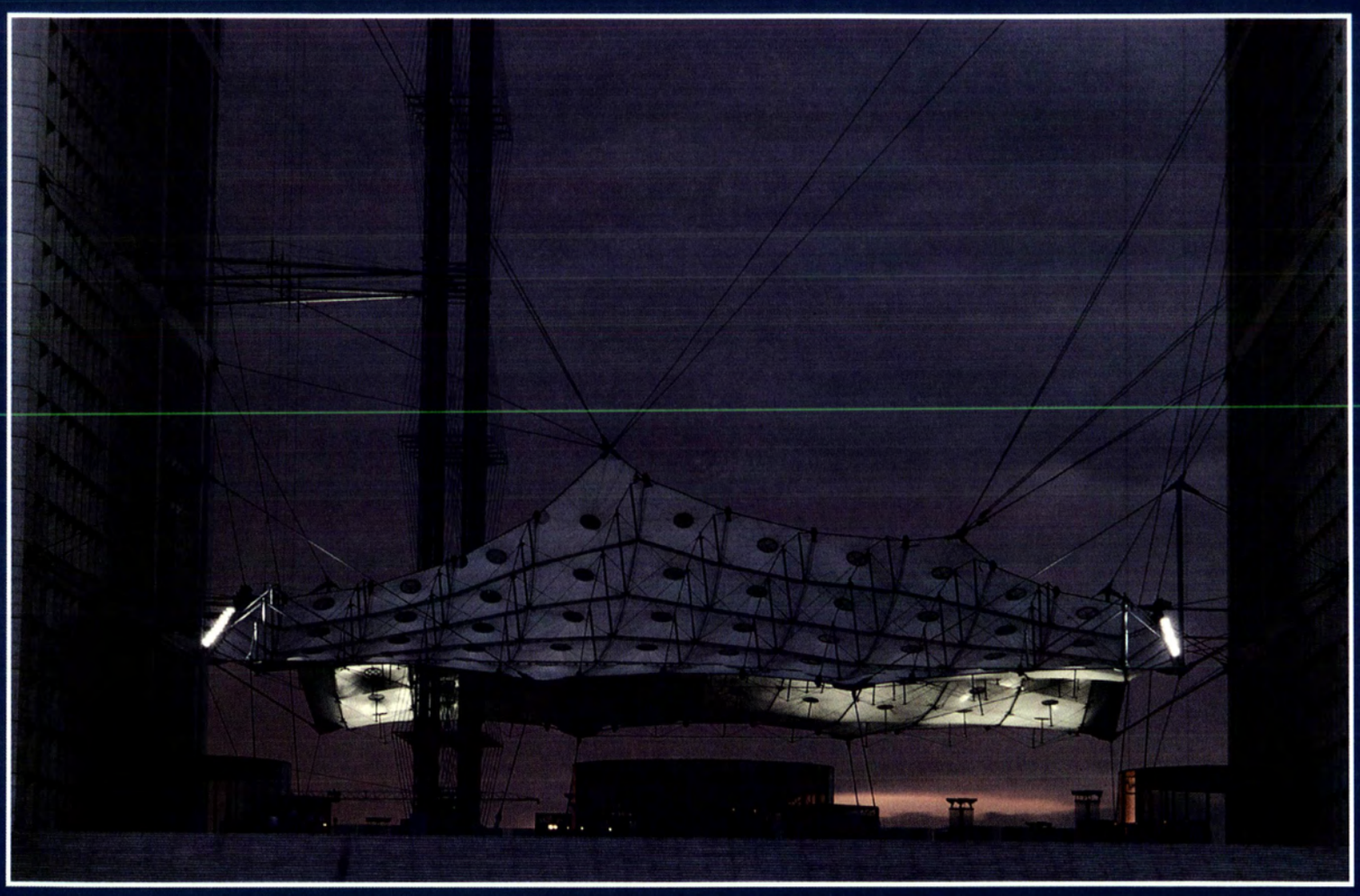
Antonio Martinelli graduated in Architecture at Venice University and is an internationally known photographer. He has worked in India, Italy, Europe, and Japan since 1978, publishing several books and magazine features on different architectural and geographical topics.

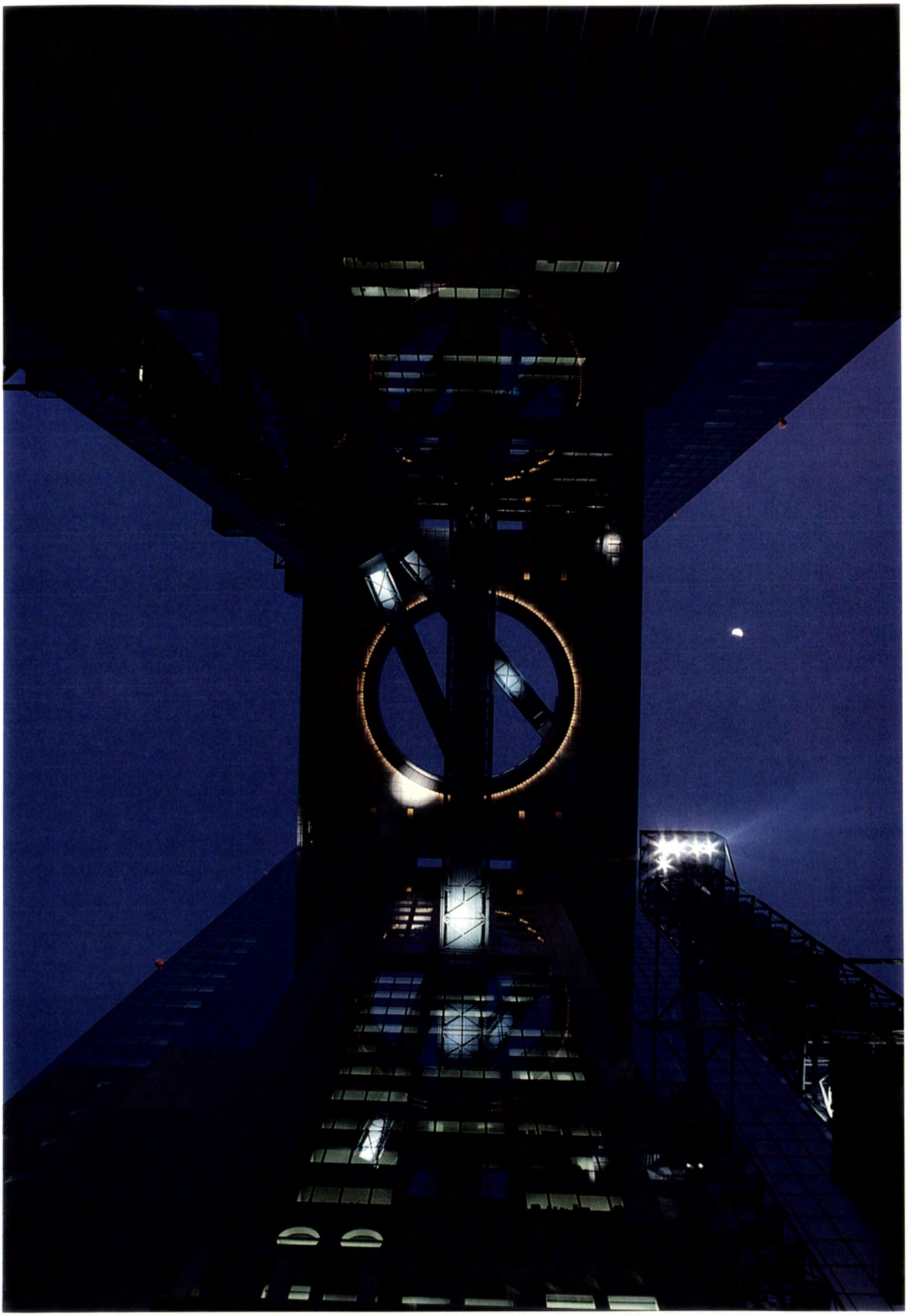
Antonio Martinelli can be contacted in Paris at (0033 - 1) 45 41 16 90.



Left: Teatro del Mondo, Venice, Italy – Architect, Aldo Rossi
Above: Gipsoteca Canoviana, Possagno, Italy – Architect, Carlo Scarpa

Left: Institut du Monde Arabe, Paris, France – Architects, Jean Nouvel and Architecture Studio
Above: Maison du Sport Français, Paris, France – Architects, Henri and Bruno Gaudin





Left: Grande Arche, La Défense, France – Architects, J O von Spreckelsen, P Andreu,
Above: Umeda Sky Building, Osaka, Japan – Architect, Hiroshi Hara

WORLD HYPER KITCHEN

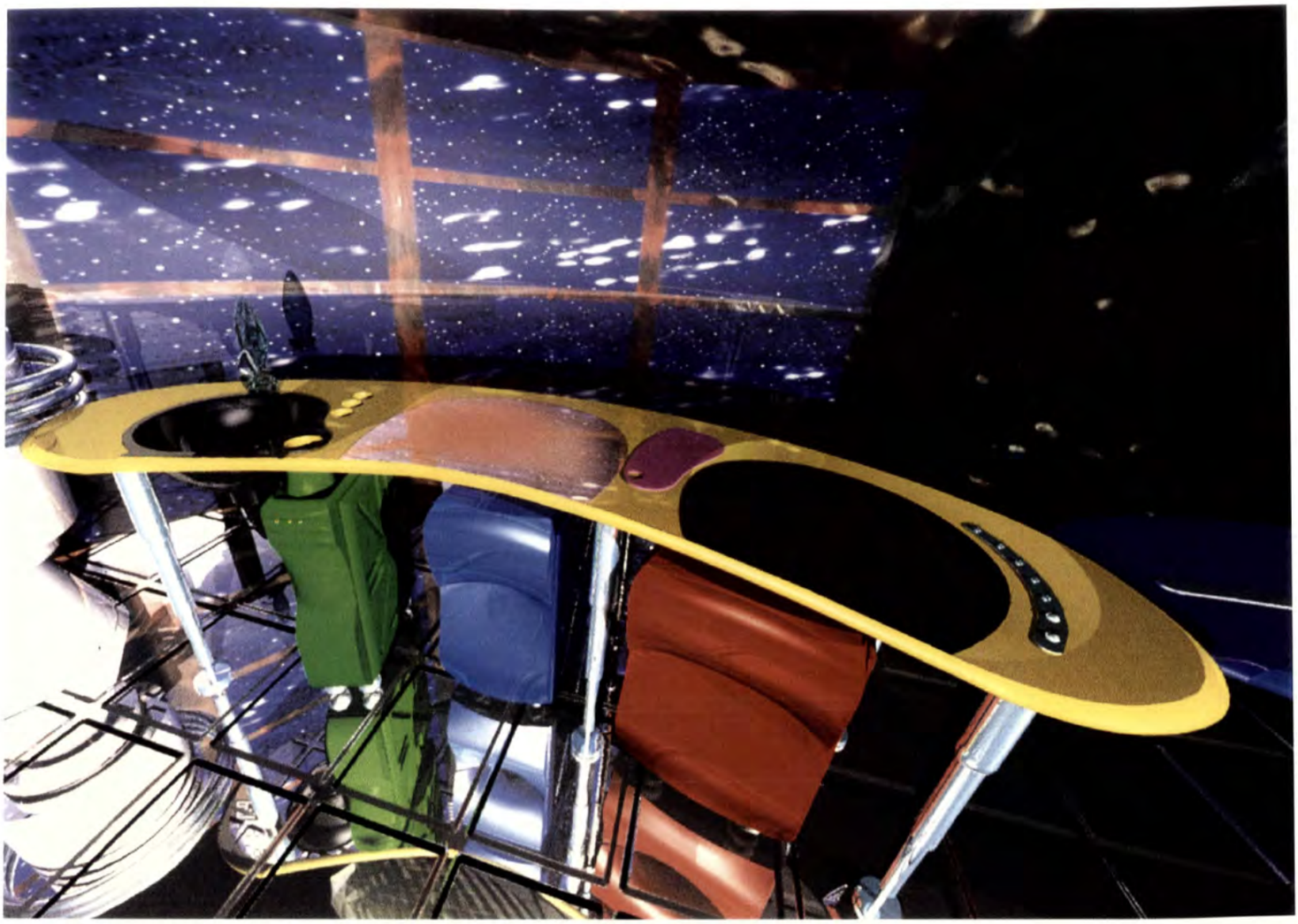
As urban densities increase there is a need to achieve a high standard of livability in a wide variety of spaces, from the small and irregular service spaces in existing dwellings, to the vast tracts of amorphous open plan office space left vacant by corporate downsizing and decentralisation. These trends, combined with an increasingly nomadic lifestyle for many people, require more flexible, portable and self contained solutions for domestic servicing. Michael Trudgeon's Hyper Kitchen project is a response to these social, economic and environmental changes. It follows on from his "Hyper House" published in WA23 *two years ago.*

Imagine a kitchen as a composite appliance, a loose docking of food storage, preparation, cooking and cleaning-up machines. They are all chosen by you, the cook, as a unique custom package on castors; perfect for your needs. When you move you take it all with you, so you don't have to start from scratch in somebody else's kitchen. The machines are compact and designed for reduced environmental impact in operation. They are electronically linked to a central computer that monitors and reports on their operation and connects the kitchen to the local Smart Store for shopping and reordering. The computer programme has an internal food inventory to aid the purchasing of food and researching new recipes.

Imagine a kitchen as a space not defined by structure but by activity, something designed to enhance the quality of the social ritual of eating. This kitchen is defined by a series of objects or tools around which people prepare food or mill in anticipation. It is a camp site, a mobile island installing a system of compact interchangeable and up-gradable, loosely connected modular service units, that establishes all the functions of a kitchen without the need for an enclosing room. The core is a wrap-around work surface, similar to a car dashboard, on six telescopic legs for adjustable work height. The individual machines sit beside, over and under the work surface to create a kind of linear factory for food preparation from freezer to consumption. The technology required for all the machine variants shown already exists, although not necessarily in the kitchen.

A number of two metre high mobile pantry and crockery draw units park to form a convenient back wall of storage. Docked into the pantry is a Smart Kart, containing refillable and removable storage capsules for bulk wet and dry food stuffs. This is removable and has a fold down under carriage, in order to function as a shopping trolley. It also locks into the boot of your electric city runabout allowing no hands containment from supermarket to pantry. Purchase information from the Smart Store on your swipe card can be directly entered into the Maitre D' computer programme to update your food inventory – as explained in detail later on.

The supermarket or Smart Store where you shop no longer packages most food stuffs. The store is filled with dispensing machines, like petrol pumps, for food. Your "smart" credit card gets you access to the dispensers, debits your account and loads up an inventory of purchases for you to download at home. Light translucent roll-away screens, containing active noise-damping units, are included for space division and



visual separation, if required.

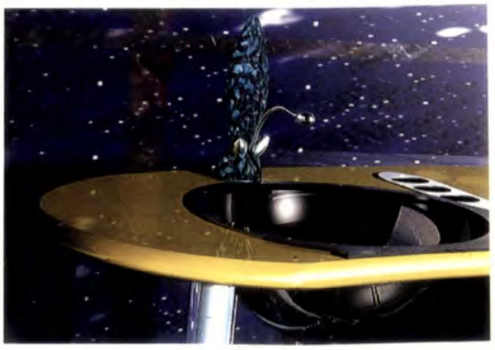
Flexible umbilical cables connect the Hyper Kitchen to electricity, fresh water and waste services with a quick fit Drybreak universal coupling (similar to those used in formula 1 motor racing refuelling). It does not require professional assistance for hook up. The coupling sockets for these services are mounted in the floor.

The materials used to surface the modular elements range from brightly coloured hardened plastics to natural wood. The organic forms and very bright colours are a deliberate departure from the tyranny of the antiseptic sterility of the hospital metaphor. The design of the kitchen need no longer be principally concerned with hygiene. It is concerned with participation and can be continuously refined, expanded and upgraded to suit your personal requirements without fear of losing your investment. While all the elements are mass produced any individual combination is unique.

The centrepiece of the kitchen is a bright curved, biomorphic work surface. At one end is a circular, energy efficient, Fluoro-carbon free fridge, opening vertically. Along the main work surface is: a put-down and preparation area between the fridge and the sink, and a swirl-sink with built in water jets to rinse vegetables and dishes more effectively with less water, like a spa. Behind it is a programmable tap for different water temperatures with a built in hi-pressure water filter. The clear filter head allows you to preview your drinking water. The hot and cold taps are flexible rubber stalks. Four disposal chutes beside the sink are for separated waste disposal. This

The central island work station showing the service machines below: a waste disposal capsule, an ultrasonic dishwasher which uses sound to shake the dirt free of the dishes, and a rack mounted enclosed cooking unit containing a convection micro wave oven and a flash bake oven. This unit is designed to contain other below-bench cooking systems in the style of audio equipment racks

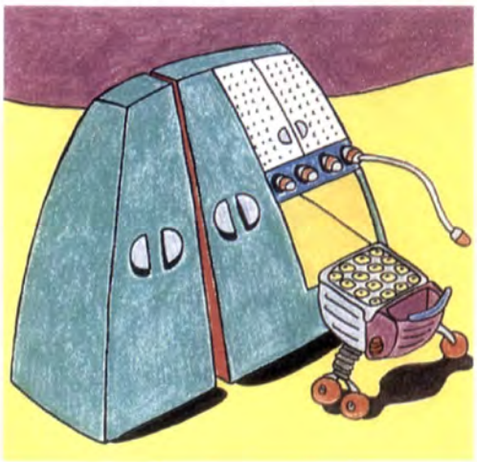
(Below left) The work station with overhead service cloud. Partially translucent screens in the background divide up the interior space and reflect unseen foreground furnishings
(Below centre) Part of the circular, vertically opening "superdimensional" fridge
(Below) A programmable tap for different water temperatures, with a built in hi-pressure water filter. The clear filter head allows you to preview your drinking water. The hot and cold taps are flexible rubber stalks



The centrepiece of the kitchen is a bright curved, biomorphic floating work surface on 6 telescopic legs that are easily adjustable in height. At one end is the circular fridge and at the other the pivoted breakfast bar.
Below the work surface are a number of mobile systems, among them a green compartmentalised waste disposal capsule with a front mounted LED display to alert you when the compartments are full

The floating cloud provides further services. These are a micro herbarium and alfalfa garden with watering system and artificial light source, a condiments and dried herb dispensing unit, an overhead task light source combining diffuse and adjustable spot lighting. A retractable interactive LCD screen suspended below the cloud provides access to the central kitchen computer. Electronically connected to this is a pen sized food probe and a multi head programmable pill dispenser which can swing down from the end of the cloud when in use. Concept drawing

Docked into the pantry is a Smart Kart. This contains refillable and removable storage capsules for bulk wet and dry food stuffs. Once docked in the pantry the core of the Smart Kart acts as a foods dispenser. The wheels fold away. Any of the interlocking containers that make up the core can be removed, replaced washed or stored elsewhere



The supermarket or Smart store no longer packages most food stuffs. The store is filled with dispensing machines like petrol pumps for food. Product advertising including videos cover the dispensers. Your smart credit card gets you access to the dispensers, debits your account and loads up an inventory of purchases for you to download at home

The removable Smart Kart shopping trolley that also locks into the boot of your electric city runabout allowing no hands containment from supermarket to pantry

The Maitre D' computer programme. Appliance Control, micro scavenger control screen. This programme controls the pod of tiny micro machine scavengers like electronic cockroaches that eat dust and food scraps to clean up the kitchen. After sucking up food spills and dirt the micro scavengers wait for the "mother" vacuum cleaner to pass by and transfer their meal. The machines are programmed to avoid light and noise, to protect themselves from being trodden underfoot and prevent them from getting in the way. When their batteries run low the micro scavengers seek the nearest power point to recharge

leads directly to a roll-away compartmentalised waste capsule below. The compartments are for food waste, plastic, paper and glass. The soft rubber stoppers pop out when pushed down. The compartments are self sealing to prevent odours permeating the area. Slide away bench mounted digital scales are included for weighing food stuffs.

The main preparation area is fitted with a traditional, removable and replaceable, Jarrah chopping block. A surface embedded electric motor is included for multi purpose extension tools – food processors, juicers, etc. This projects from a heat resistant plate used to store hot utensils. A ceramic, fully programmable, electromagnetic cooking surface is placed at the end of the main work surface. It has an integrated drip tray at the leading edge and is completely smooth for wipe down cleaning. The cooking tools, such as barbecue, wok ring or high speed heat rings are all interchangeable to facilitate any cooking style. The cooking tools are operated by the touch sensitive control panel to the right of the cooking surface.

A removable and pivoted breakfast bar projects from the end of the central island for food preparation and fast eating. This can be swung around to create an enclosing preparation area or swung back out of the way to the far side. In the centre is mounted a horizontal "lazy susan" rotary condiment pallet. At either end is a contact activated heating strip for warming prepared food. This can also be used to activate the new generation of fast foods that cook in their own bags via the heat strip.

Below the central island work surface are a number of mobile systems An ultra-sonic dishwasher which uses sound to shake the dirt free of the dishes, requiring less water and detergent, and a compartmentalised waste disposal capsule with a front mounted LED display to alert you when the compartments are full. The capsule is rolled out for garbage collection. No further handling of the garbage is required. A rack mounted enclosed cooking unit contains a convection micro wave oven and a flash bake oven, able to cook a pizza from scratch in 50 seconds! This unit is designed to contain other below bench cooking systems in the manner of audio equipment racks.

Above the central island bench hangs a floating cloud providing further services. These are a micro herbarium and alfalfa garden with watering system and artificial light source, a condiments and dried herb dispensing unit, an overhead light source combining diffuse and adjustable spot lighting. A retractable interactive LCD screen suspended below the cloud provides access to the central kitchen computer. Electronically connected to this is a pen sized food probe and a multi head programmable pill dispenser which can swing down from the end of the cloud when in use.

(Below) The Maitre D' computer programme interface, main menu. (Below right) Food monitor access screen

(Below, from top to bottom) Appliance control access screen. Inventory of food stocks screen. Recipe book index and access screen. Nutrition access screen. Nutrition sample screen

Behind the central island sit the storage capsules. These include a mobile crockery storage and display unit, a mobile pots, pans and lids storage capsule and a mobile pantry and larder with a built in bulk wet and dry foods dispenser. A pod of tiny bio machine scavengers, like electronic cockroaches eat dust and food scraps to clean up the kitchen. After sucking up food spills and dirt the micro scavengers wait for the "mother" vacuum cleaner to pass by and transfer their meal. The machines are programmed to avoid light and noise, to protect themselves from being trodden underfoot and prevent them from getting in the way. When their batteries run low the micro scavengers seek the nearest power point to recharge.

The Maitre D' computer programme features a retractable interactive LCD screen and a pen probe. All functions are voice activated or touch screen. The monitor can be wiped clean after use. The screen is suspended below the cloud. The hand held pen probe works by infra red communication with the overhead computer. The computer programme is divided into six parts:

1) Inventory of food stocks. Purchase information from the Smart Store on your swipe card can be directly entered into the Maitre D' computer programme to update your food inventory. The inventory is divided into refrigerated and pantry food storage, meat, vegetable and delicatessen food stuffs. Information on the quantities of food available can be imported into the recipe programme. By storing patterns of use the inventory programme will advise the household on impending shortages.

2) Recipe Book. This contains a vast store of recipes, able to be amended, appended, removed and added to. The recipes can be accessed and grouped in various different categories. Whole new cookbooks can be entered on CD-ROM. Each recipe displays both text and a "how to" video along with final serving and presentation suggestions.

3) Nutrition. This contains nutrition and diet information including food stuffs and diet supplements. Recipes can be selected, and diets can be formulated, to conform to a desired regime. The relative nutritional values of food stuffs can be examined. The programme can offer basic advice on health problems including possible allergic reactions and vitamin deficiencies. The pill dispenser can also be programmed from the computer.

4) Food Monitor. This programme contains an encyclopaedic store of information on available food stuffs; meats, vegetables, dried foods, liquids and condiments. Their appearance, weight, size, origin, flavour and usage is documented. A remote food probe can be inserted into fruit, vegetables and other foods to determine their freshness and even to identify them.

5) Appliance Control. This programme monitors and can control all the appliances in the kitchen. Dishwashers, stoves, ovens and cleaning equipment can be centrally timer-controlled and you can receive a warning if any machine overheats or breaks down. This programme controls the pod of tiny micro machine scavengers.

6) Entertainment. The computer functions as a video phone, answer machine, VCR and TV. □

Credits

Design: Michael Trudgeon
Prototype maquette: David Poulton
Materials: Polyurethane coated MDF
Size: 950 x 3700 x 900mm
Computer programme implementation: Joseph Brabet
Further computer graphics: Glynis Teo
Rendering: James Murray
Drawings: Cassie Fahey
Photography: Dominic Lowe
Hyper Kitchen was developed for the exhibition The Domestic Revolution, *curated by Michael Bogle at the Hyde Park Barracks, Sydney 1994*

(Bottom) Redevelopment project for Hannover Postkamp, invited competition, 1993. (Opposite page) The practice's first major commission, a university Institute of Applied Micro-electronics in Braunschweig, 1984-86, using a precast concrete structural frame

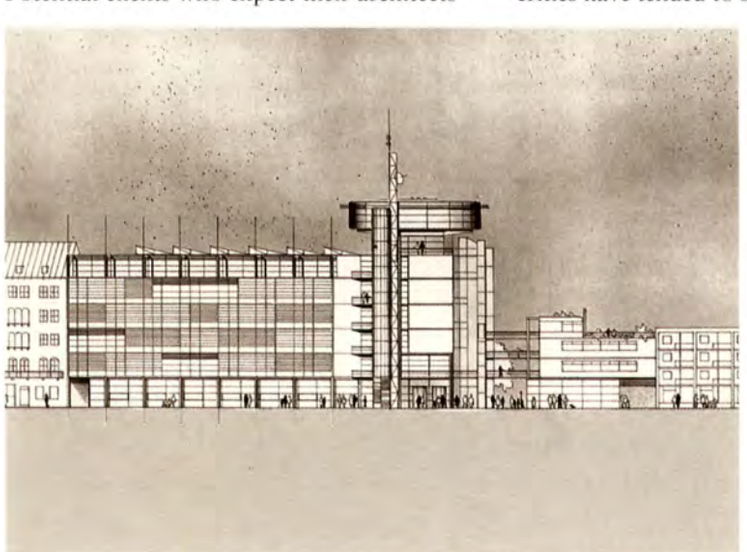
PUTTING SCHULITZ TO THE TEST

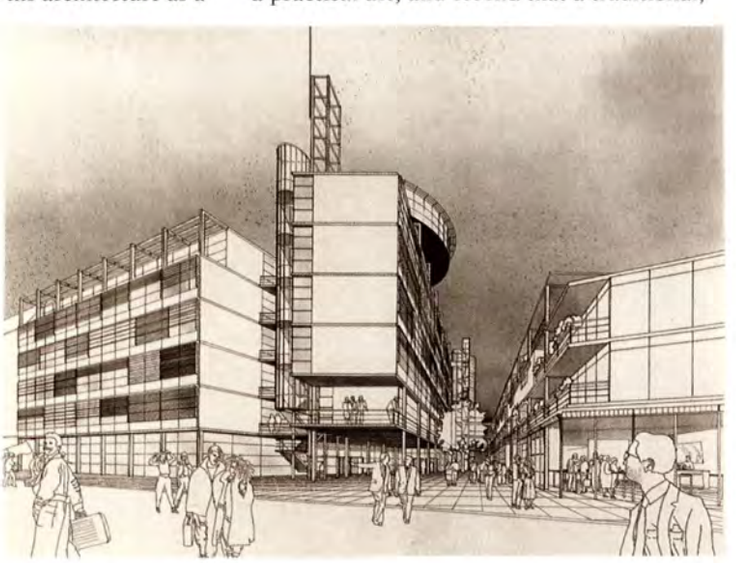
Helmut Schulitz was in California in the formative "High Tech" years of the 1970s. There he developed a prototype for an open building system known as TEST. On returning to live and teach in Germany, Schulitz demonstrated his commitment to this flexible system by using a kind of High Tech version of a timber frame for his new home. Although specialising in smaller commissions, a current project is for a three-phase business centre in Berlin for Datev, a computer software company. Colin Davies believes that this building could mark Schulitz's entry into the first rank of German architects.

Helmut Schulitz divides his time between his practice in Braunschweig and his professorship at the local school of architecture. The balance is equal. He is neither a practitioner who just happens to be involved in teaching and research, nor an academic with a sideline in practice. For him the two activities are inseparable and each informs the other. At college he teaches architecture as an essentially practical art and at the office every job has some element of experimentation and exploration. It is this relationship that gives his architecture its toughness and integrity. Potential clients who expect their architects to do as they are told and deliver the goods with no questions asked are in for a surprise. This is an architect who answers back, who has a wider agenda, and is prepared to stick up for what he believes in even if it means losing the commission.

Over more than 20 years of teaching, research and practice in America and Germany, Schulitz has cherished a vision of architecture as the lucid expression of the process of building in an industrialised world. Ever since he built a steel framed house for himself on a dramatic sloping site in Beverly Hills, critics have tended to see his architecture as a German/American offshoot of High Tech. The house, built in 1976, has an exposed steel frame with lattice trusses and walls of profiled aluminium and glass. It is the sort of dry-assembled, kit-of-parts architecture that British architects like Norman Foster, Richard Rogers, Nicholas Grimshaw and Michael Hopkins developed with such vigour and conviction throughout the seventies and eighties. There are certain similarities, for example, with the roughly contemporary Hopkins house in Hampstead, London. Schulitz is an admirer of British High Tech and his architecture shares some of the same influences, for example the Californian "Case Study" houses of Charles Eames, Rafael Soriano and Craig Ellwood, and the work of architectural "outsiders" such as Buckminster Fuller and Jean Prouvé. Like the High Tech architects, Schulitz rejects the monumental tradition of western architecture, and instead seeks to realise the architectural potential of industrialised production.

But whereas, in its later phases at least, the High Tech style became just that, a style, in which the visual excitement of tension structures and exposed ducts became more important than the practicalities of building, Schulitz's architecture has always been firmly based on a systematic approach to construction. This might have something to do with the fact that before he went to architecture school he served a full three year apprenticeship as a bricklayer. That experience has left him with two firm convictions about the nature of architecture: first that it is essentially a practical art, and second that a traditional,





The steel-framed house Schulitz built for his family in Beverly Hills, 1976, conceived as a prototype for an open system known as TEST

heavy, laborious and mainly site-based craft like brickwork is an inappropriate form of construction in an industrialised society that makes available a range of lightweight, mass produced components and the machinery to assemble them quickly and efficiently on site.

After qualifying as an architect, Schulitz got a job developing building systems for the Bavarian government but the programme was cut short by a moratorium on public building imposed by preparations for the 1964 Munich Olympics. He therefore decided to take up the offer of a post graduate fellowship at the University of California. Having completed the course, he returned to Germany but opportunities to build were still limited and before long he was back in California, combining teaching, practice and research, and setting the pattern for his future career. His research was mainly into building systems – not heavyweight, inflexible, "closed" systems of the European type, but "open" systems, concerned more with rules of combination, permutation and variation than with the production of a limited range of specific components: not so much a kit of parts as an abstract matrix.

For anyone interested in developing new ways to industrialise the building process, California in the seventies was definitely the place to be. Charles Eames and Konrad Wachsmann were both working in Los Angeles at the time, and Ezra Ehrenkrantz was developing the famous SCSD school building system. Rogers and Foster passed through and learnt what they could from these pioneers but Schulitz was on the spot, developing systems of his own. The Beverly Hills house may look like an exercise in the High Tech style but it was actually conceived as a prototype for an open system known as TEST. For Schulitz, the visual qualities of the materials and components used were less important than the dimensional discipline controlling their combination. He went on to apply these ideas in a number of elegant one-off houses in Los Angeles, but these were always seen as fragments of a larger project, both in the sense that they were experiments in the rationalisation of the construction process and in that they could be repeated and combined to form larger urban ensembles. In 1978, for example, he produced a project for the redevelopment of a deteriorating downtown area of Los Angeles known as El Centro in which a version of the TEST system was used to produce flexible low cost mass housing for a community of largely seasonal farmworkers.

Schulitz returned to Germany in 1983 to take up a Professorship in Industrial Building in Braunschweig, a city of a quarter of a million people close to the old east/west border and somewhat in the shadow of its more prosperous neighbour, Hannover. In Britain, teachers in architecture schools are often young architects who need a small but steady income to support their embryonic practices. The relationship between teaching and practice is mainly an economic expedient. If the practice flourishes, then the teaching career is abandoned. In Germany, however,

Schulitz House, Braunschwieg, 1985. Standardised lightweight components on a timber frame with ingenious "up and over" insulated panels - open for the summer (below) and closed over the windows in winter (bottom)

A one-off design for a pitch-roofed, split-level house in Lehre (above and right)

Friedhelm Thomas

only mature architects who have proved themselves in practice are thought to have sufficient wisdom and experience to take responsibility for the education of the next generation. Some of the country's best known architectural names hold professorships, and these are active teaching posts, not merely honorary positions. For example, one of Schulitz's colleagues at Braunschweig is Meinhard von Gerkan, founder of the big Hamburg Practice Von Gerkan, Margand Partners.

But Schulitz had no desire to build a big practice in Germany. He was happy to maintain the equal balance between teaching and practice that had been his West Coast way of life. His first step, as in Los Angeles, was to build himself a house on the outskirts of town – a comfortable home for his family, but also a demonstration piece and, as always, an experiment in building. The house is a single storey, framed building, using standardised lightweight components on a rational dimensional grid. But this time the High Tech label does not stick, for the frame is of timber, not steel. The roof beams are, however, braced by steel tension members. This is not just an architectural conceit, a kind of High Tech version of a timber frame, but a genuine attempt to apply the principles of lightweight, long span structures on a domestic scale. The inventive, problem solving method is applied also to the question of environmental control. Ingenious "up and over" insulated panels cover the glass walls in winter, leaving the glazed roof of the courtyard or "wintergarden" to provide natural light in the living spaces.

The practice's first major commission was for a university Institute of Applied Microelectronics in Braunschweig. This is a three storey building with offices, laboratories and a lecture theatre strung out along a full-height, top-lit circulation concourse. Precast concrete was chosen for the structural frame because it was precise, systematic and quick to erect but, unlike steel, did not need to be fireproofed. As usual in Schulitz's work, the practicalities of building were more important than aesthetic preference. There is no doubt, however, that an aesthetic preference that might loosely be described as High Tech does operate. The technical, machine-like quality of the building comes from secondary components like the aluminium framed infill panels and, especially, the complicated apparatus of metal access balconies and motorised fabric sun shades bracketed off the concrete frame. There are High Tech touches also inside the building, in particular the so-called "stratification tubes" – simple mechanical devices, frankly exposed to view, which assist the natural "stack effect" air movement in summer and can be reversed in winter to provide passive solar heating.

Since the completion of this building eight years ago, the Schulitz office has undertaken a wide range of projects for a wide range of clients, from one-off houses like the pitch-roofed, split-level house in Lehre – a piece of California brought to a German suburb – to big industrial buildings like the Bosch factory

in Berlin-Spandau. In this latter project, won in limited competition, the combination of steel structure, mechanical plant and exposed ductwork owes something to Rogers' Inmos microchip factory in Wales. Schulitz is happy to acknowledge the similarity, but insists that the form emerges from a logical analysis of the functional problem: how to introduce mechanical services into a production space without compromising flexibility.

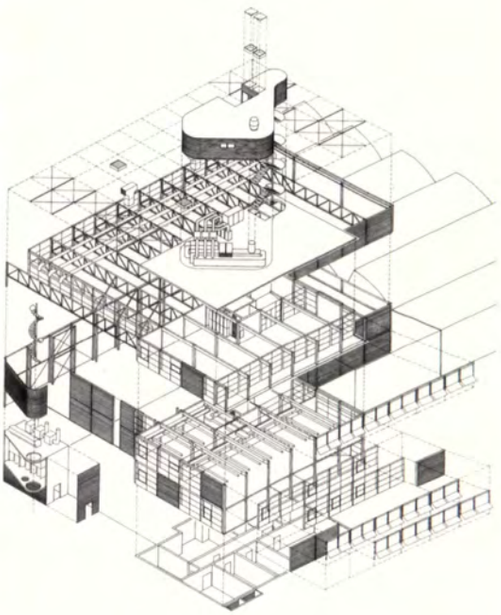
Bosch factory in Berlin-Spandau using a combination of steel structure, mechanical plant and exposed ductwork. The final realisation of the project (bottom right) was in collaboration with PPS of Karlsruhe

The Bosch project was in fact only partially realised and Schulitz was obliged to work in a joint venture with PPS of Karlsruhe, with detailing and production drawings carried out according to Bosch's own building standards. Compromises such as this are perhaps a result of Schulitz's determination to limit the size of his practice so that he and his younger partner, Braunschweig graduate Stefan Worbes, can be personally involved in all design decisions. The office, though well equipped and professionally run, nevertheless maintains the atmosphere of an atelier. The conversation is not about marketing or profit margins or professional indemnity, but about design. Alternative options are proposed and discussed, exploratory models are built, details are agonised over and, when necessary, plots are hatched to convince reluctant clients of what is architecturally right. The handful of permanent assistants are mostly young and are mostly there to learn. In the run up to a competition entry, of which there are many, the numbers might swell to 25, drawing on the pool of talent provided by Braunschweig students and graduates.

Projects currently on the drawing board include a mixed urban development in Hannover, a sewage treatment plant at Salzgitter and a big, three-phase business centre in Berlin for the fast expanding Datev company, which provides computer software for lawyers. This last project proposes four long, straight, parallel office blocks overlaid on a kind of artificial hill containing car parking and computer rooms. It demonstrates Schulitz's confidence in dealing with large scale projects and, if successfully realised, it will mark his entry into the first rank of German architects. It is a project he faces with some trepidation. While he welcomes the prospect of graduating from houses, factories and research institutes to high profile public buildings, the pressure to expand will make it hard to maintain the research-based, atelier approach. Already there are plans to move the office out of the converted shop unit it currently occupies into a purpose built block, financed by Schulitz himself, on an awkward triangular site near the centre of Braunschweig.

Meanwhile, the practice continues to build small and medium-sized buildings of outstanding quality. The latest is probably the best yet: another research building, this time for the Computer Integrated Manufacturing Institute in Braunschweig. It displays all the best qualities of Schulitz's architecture: the clever plan, which combines three floors of offices and laboratories with a full height machine hall in a single economical form; the inventiveness of the steel structure, fireproofed by a new method which preserves its machine-like character; the breathtaking precision of the detailing; and, above all, the humane aspect of the building which, despite its rigour and essential seriousness, avoids any pomposity or monumentality. Like most of Schulitz's buildings, it is hidden away on an unprepossessing backland site. Architecture like this deserves a bigger stage and a wider audience. □

Computer Integrated Manufacturing Institute in Braunschweig. Schulitz's latest medium-sized project displays the best qualities of his architecture



COLD STEEL

Continuing World Architecture's *series of perspectives on different building materials, Tim Ostler looks at the impact of cold-formed steel on the housing market. Australia and Europe are following close behind progress made in the United States, where cold-formed steel now accounts for 10 per cent of all house framing systems. The main obstacle remaining is consumer resistance. But if the gleaming effect of galvanized steel were exposed in the manner of early Brutalist architecture perhaps this prejudice would be overcome.*

A range of light steel cold-formed sections

Pace the overused quotation, but if Mies van der Rohe was right, then God is made of metal. The cult of the detail that Mies began could not have existed without the unique precision of industrially-produced metal, more often than not steel.

For architects since then detailing has become a universal intellectual pursuit. But the detailing of steel is qualitatively different from the kind that prompts architects to write into architectural magazines pointing out the flaw in last week's DPC detail. It may have lost its mystical dimension but steel detailing remains an aesthetic game, the goal, apart from economy, to maximise the expression of precision and mathematical elegance.

Mies's followers fanned out in several directions. In his Case Study House No 22 of 1959, Pierre Koenig took the vocabulary of hot-rolled industrial sections and made it chic, a domestic conversation piece. But even as a consumer durable, detailing was fundamental.

An Image of the Bridge of the Future. *First prize NCE competition winner. Designed by David Marks Julia Barfield Architects, UK, with Jane Wernick of Ove Arup & Partners, 1988*

"Steel," said Koenig " is only as good as its detailing... In order to make exposed steel acceptable in the living room it must be so well detailed that the joining connections are imperceptible." In *Modern Movements in Architecture* (1973) Charles Jencks pointed out that this degree of refinement was only possible with the development of arc-welding.

Charles and Ray Eames's house represented a more open, democratic interpretation of steel frame design that proved closer to the spirit in which steel is viewed today: not as an object of worship but as a means of flexibility.

"The beauty with steel," says Peter Trebilcock, an architect with BDP in Liverpool, England, "is that like Meccano you can unbolt it, you can weld it, you can put holes through it, you can strengthen it, you can increase its loading capacity. You don't have to worry about locating the reinforcement. Knocking holes in certain types of concrete is problematical. So steel-frame buildings lend themselves quite readily to flexibility and adaptability."

Meccano was the original steel-frame building system. Its inventor Frank Hornby was an élitist who chose deliberately not to make it too easy to use. But it caught on with successive generations of children – amongst them many future architects.

No studies have been made of the effect of childhood building toys on later architectural style, but it is hard to imagine that Meccano had no influence upon the aspirations of the post-war profession. At the very least, Meccano as a word entered the English language, in the process introducing a very specific concept into architects' consciousness.

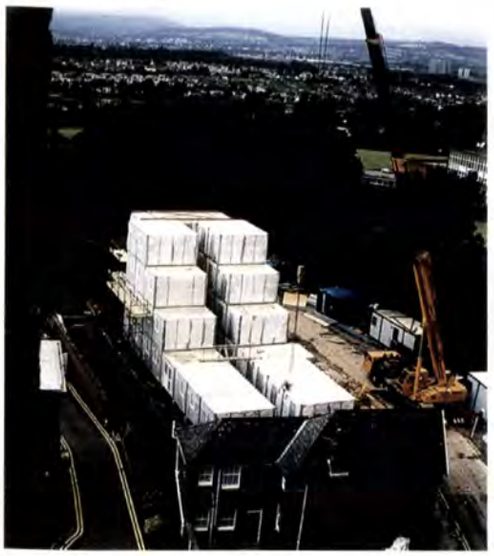
Of course that concept had to be modified almost out of recognition to produce a practical system for real buildings. Perhaps the closest to a large-scale Meccano is Dexion, which, while suitable to construct whole mezzanine floors, is not intended for whole-building applications. Many of those systems developed for schools in the fifties and sixties, such as SCSD, a 1962 project by Stanford University and the University of California at Berkeley, in appearance at least were closer to the Eames model.

The popularity of steel for multi-storey construction varied around the world with economic conditions and the structure of local industry. In Britain steel was eclipsed during the sixties and seventies by reinforced concrete, due to increasingly stringent fire regulations. But in the eighties it enjoyed a revival with the development of economical sprayed fire resistant coatings and the introduction of fast-track construction methods.

Now, growing understanding of the behaviour of steel in a fire is likely to further liberate steel designers, as regulations based on the behaviour of individual elements give way to more precise requirements based upon whole-building effects. In Britain this was highlighted when a fire in a steel-framed building in the City of London took place before full structural fire protection and sprinklers had been installed. Although individual members were distorted, the overall structure remained firm.

To test this and other phenomena, Britain's Building Research Establishment has now constructed an experimental steel-frame building. The "Experimental Large Building

Prefabricated container system by Trinity Modular Technology was used for this student residence in Cardiff, completed in less than half the average construction time



Test Facility" built inside a giant airship hangar at Cardington in Bedfordshire, is one of the rare buildings that can genuinely claim to be "functionalist", without any architectural pretensions whatsoever. Perhaps, "existentialist" is a better name for this style, for its function is above all to exist, and to be observed in its behaviour. By the time it is demolished sometime this year, every stage in its construction, cladding, loading, use and demolition will have been monitored and documented. BRE spokesmen speculate that amendments to fire regulations resulting from the lessons learned from this building could save industry £30 million a year.

In steel buildings products gradually evolve to integrate fire protection and building services. Some of them seem obvious when seen for the first time. One such is Slim Floor Construction, developed by British Steel. This involves using Universal Columns instead of Universal Beams to span between columns. Welded to the bottom flange of the UC is a wider steel plate upon which rest either precast concrete or deep steel decking. The result is a slim slab of perhaps 2-300 mm for an 8 metre span with automatic fire resistance and with a clear space beneath it to accommodate services. Michael Hopkins and Partners used this system for their offices for IBM and MEPC at Bedfont Lakes near Heathrow, where it allowed room for cable management above the slab and air-conditioning below.

With the recent shift in taste towards a more biomorphic interpretation of structure, the use of steel as an expressive medium has burgeoned. In Britain, after years in which hot-rolled sections seemed doomed to be straight, the promotion by the Angle Ring Company of its curving service helped to shape architects' ideas by virtue of its very availability. Trusses are also now more frequently curved to match the fashionable barrel-vaults; while more expressive yet is the growth in the use of castings, which when used as junctions between more conventional sections can give the whole structure a sense of greater integration.

The most celebrated examples were the gerberettes that Peter Rice introduced to the Pompidou Centre, following a lead set by Kenzo Tange. These giant objects, reminiscent of whale vertebrae, must have made a bizarre sight being delivered at dead of night from Krupp's foundry in Germany. They have certainly left their traces on the collective architectural imagination. But at the time when they were made, casting was a very expensive way of forming structural connections, because of the need for a series of trial castings. With the development of computerised solidification analysis this need has greatly reduced – and so has the cost. As a result, even relatively unassuming buildings such as David Marks and Julia Barfield's watersports centre in Liverpool have been able to benefit from this technique.

But the most significant development falls at the opposite end of the scale. As Pierre Koenig was building his minimalist palace in the rarefied if smog-laden air atop the Hollywood Hills, hundreds of feet below, steel structures of a wholly different kind were out cruising for burgers on Sunset Strip, making a wholly different statement to a rather larger audience. And the visible parts were made, not with the hot-rolled steel beloved of the Miesans, but of cold-formed light gauge steel – "sheet metal" as the surplus bodywork tended to be called.

Already familiar as a material for Z-section roof purlins and lintels, profiled and composite cladding panels and a vast miscellany of hardware, cold-formed steel is starting to get the industry very excited.

According to Peter Trebilcock, who last year wrote *Building Design Using Cold Formed Steel Sections*, cold-formed steel now accounts for 10 per cent of all house framing systems in the United States, a market traditionally dominated by timber frame. Similar progress is being made in Australia and Europe.

Significantly, many of the companies now competing in this sector are divisions of plasterboard manufacturers. Starting with the supply of cold-formed sections as angel beads their involvement spread to the supply of steel studwork systems to internal walls, later adapted to dry lift-shaft construction and on to full structural building systems.

Naturally, there are also representatives of steel manufacturers. SureBuild, British Steel's contender, already has approval from all the relevant bodies in the UK to allow it to make inroads into the housing market. The biggest problem remains one of overcoming consumer resistance.

In the non-domestic market this is less of a problem as long as the structure is decorated

(Below) Steel framed house during construction showing celotex insulation

Fire protective coatings by Mandoval – steel construction spray coated (below left) and clad with pre-fabricated panelling (below)

Terrapin Matrex cold-rolled beams during construction

with the necessary symbols of tradition. Using a volumetric system called Trinity Modular Technology, developed from prefabricated lift shafts and shipping containers, a student residence in Cardiff was completed in 14 instead of the more typical 40 weeks. Progress shots of this building are somewhat disorienting: a succession of shots of what appear to be packing crates being stacked four storeys high is followed by an apparently unconnected shot of a bland residential building in brick.

It is representative of the disguise under which steel is invading the housing market – not just in ultra-conservative Britain but all over the world.

Trebilcock is not discouraged by the fate of past efforts by the timber-frame industry to challenge the dominance of masonry construction. "Yes, there will be initial reluctance, as there was for timber frame. But at the risk of sounding like a steel salesman, steel framing systems don't have the inherent risk of fungal attack, of the same degree of fire problems..." What about rust? "Rust? Well if it's galvanised, the BRE and British Steel themselves have got laboratory test results stating that the standard normal galvanised stock will last indefinitely in a housing frame situation."

For Ray Ogden, Steel Construction Institute Reader at Oxford Brookes University, England, his enthusiasm prompts him to make some fairly provocative statements.

"Over the last couple of years, the technology's grown on me to the point where one looks pragmatically at a piece of timber and questions whether timber is actually a sensible structural material. I'm beginning to doubt it. Timber's obviously got enormous deflection problems, because trees bend in the wind – that's what makes them stand up; now in a building that's a positive disadvantage. Also, there is propensity for creep and shrinkage, because the material's full of water."

According to Ogden, for domestic buildings the longer spans possible with light gauge steel mean that quite often intermediate supporting walls can be avoided. "There are no problems of shrinkage; the structural members are less deep, they're less heavy so they're easier to erect, and on a cost-to-cost basis they're highly competitive with timber."

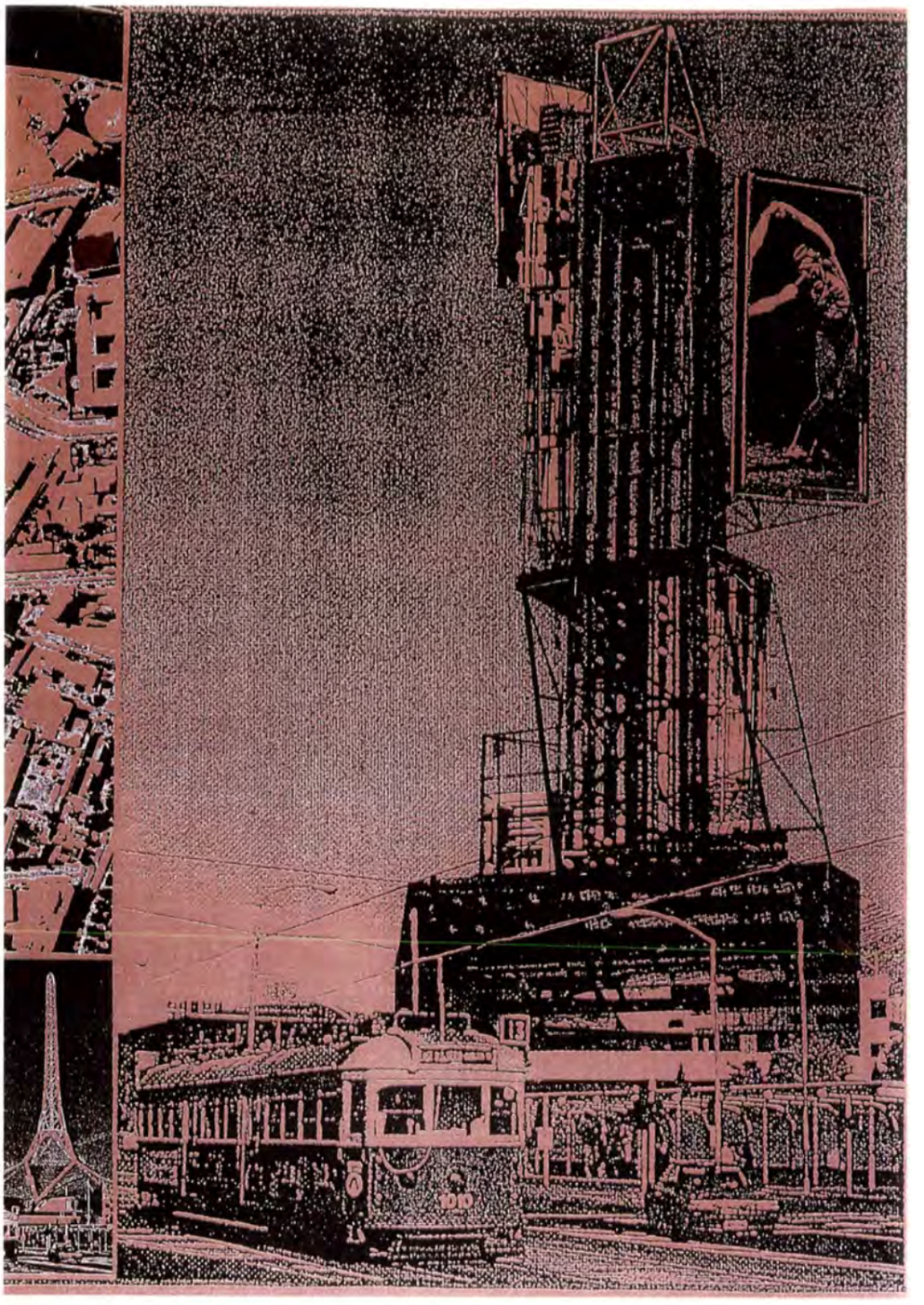
Steel manufacture will always be a heavy industry. Hot-rolled steel's heroic quality derives not only from its mass and the shape of its eternal, mathematically-derived standard sections. Its method of manufacture is positively Wagnerian, forged as it is (figuratively speaking) white-hot in a furnace. The effect is to lend it an integrity and monumentality that Mies and the early Brutalists such as the Smithsons drew heavily on and extended to the whole building. Seen in this light, it seems a waste to conceal it as the frame of a fast-track office block – let alone encase it in concrete for fire protection.

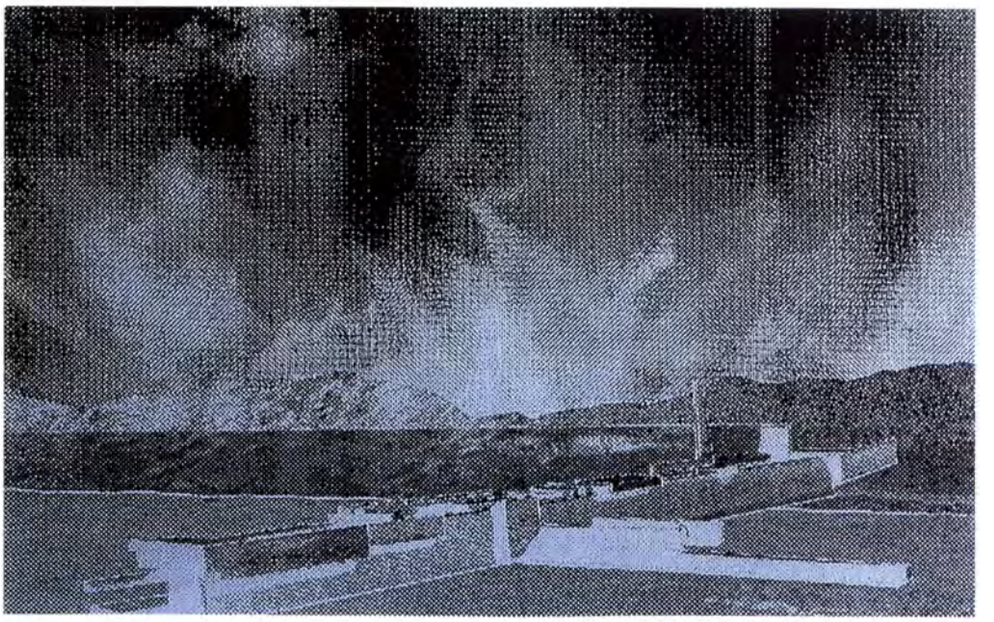
Compared with this, light gauge might seem flimsy, an upstart. But by happy accident, the galvanised finish used to protect steel from rust gives it the appearance – at least when new – of shining armour. A house under construction, its aluminised insulation framed by what appear to be sticks of silver, possesses a gleaming ethereal quality. It is wholly at odds with the humdrum cladding materials it is doomed to wear as a talisman to make it acceptable to the average house buyer. □

Editor: Georgi Stanishev

THE MACHINE IS A HOUSE FOR WORKING IN

What happens when the ideology of electronic technologies replaces the traditional notion of architectural context? Here Peter Zellner, a young experimental architect based in Melbourne, Australia, argues for the creation of "intelligent" architecture.





(Top) Melbourne Arts Centre Media Tower, project, 1994. Commissioned by the Melbourne Age *newspaper, the electronic tower is aimed to screen performances from the State Theatre hall (Right) Jetty House, 1992. An architectural exercise to form a model for living both on land and in water. Like its namesake, the house is conceived as a line, crossing two distinct conditions*

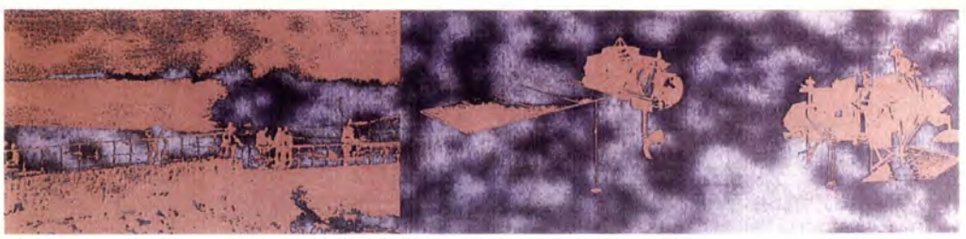
I arrived in Australia in 1989, from Los Angeles. My position as an Australian architect is at best questionable and still developing. My interest in Australian architecture stems from the fact that many of the experiments carried out in LA by the Case Study Architects in the 1940s and 1950s found some resonance in Australia during the 1970s and 1980s. My father worked for Charles Eames, and so I grew up in an architectural environment. Many of the technological ideas, espoused by Eames some 40 years ago, reappeared in the work of the Australian Glenn Murcutt, whose architecture I greatly admire.

My interest in producing architecture in Australia is concerned with the country's traditional geographic and cultural isolation from American and European discourses. Today this sense of isolation has given way to instantaneous global communication and the evaporation of time/space distances by electronic technologies and, unfortunately to LA-style suburban growth. There are now new common denominators in the environmental culture of cities worldwide, and it is because of this that I try to centre my understanding of architecture around international issues rather than developing an Australian architectural idiom per se.

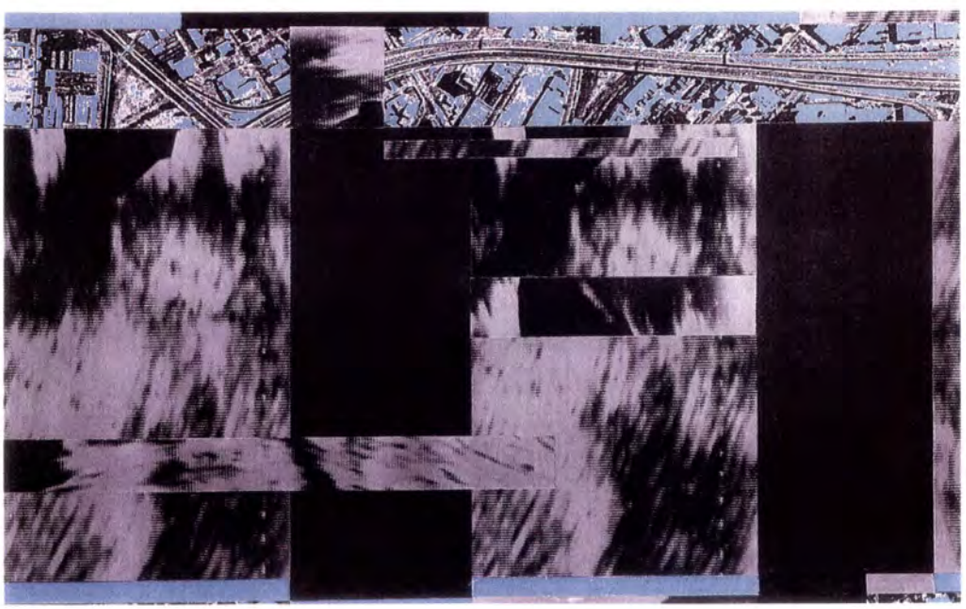
While I was a student, like many other students around the globe in the late 1980s, I was fascinated by the work of Morphosis. Their attitude to assembly context and technology always struck me as being very astute and wry without being glib or, worse, totally cynical. Later, in 1992, I met Neil Denari when he exhibited his work in Sydney. His energetic work encompassing architectural production, popular culture, technological innovation and human communication, remain an important source of inspiration for me.

On a different scale, Peter Wilson's writings and his understanding of architecture in the post-industrial city have deeply affected my thinking. Wilson, ironically an Australian based in Europe, was astute in identifying a new critical space: an indeterminate urban field, equal at all points. My experiences in LA, Tokyo and Australia have confirmed his

(Below) Kuala Lumpur Mini-Tower, project, 1994. Experimental 10 storey high model building for commercial development in a hyper-dense Malaysian city. The blank south-face of the mini-tower is surfaced with a digitised skin that responds to changes in weather, noise and light conditions, lending the building a chameleon-like quality

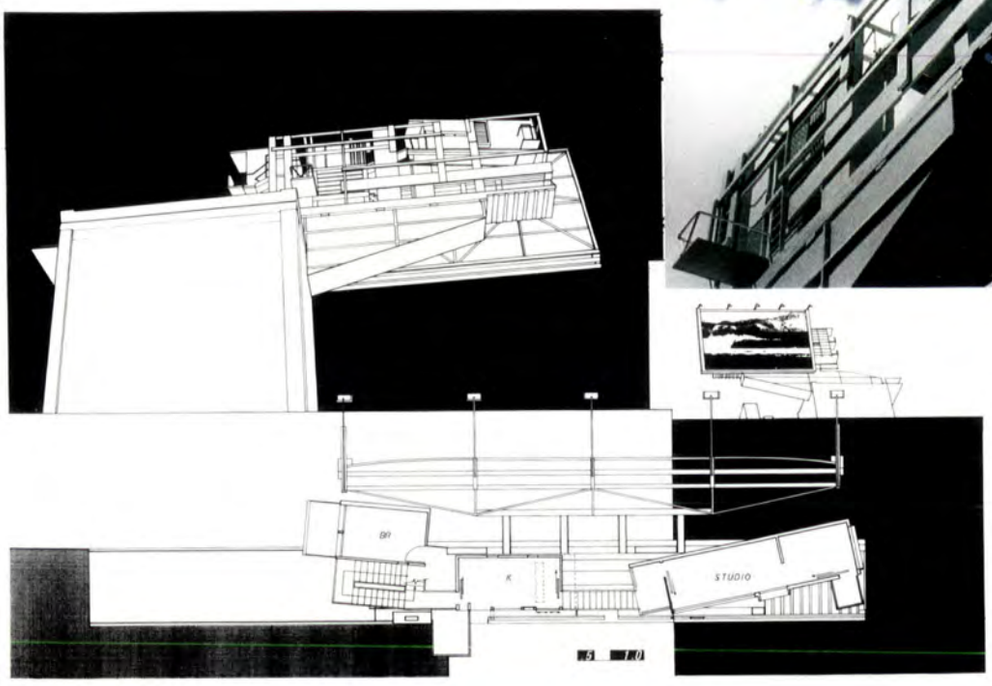


(Left) Takiron Sound Corridor for the City, project 1993. This competition asked entrants to consider how sound might be used to design space. The entry projects a satellite, programmed to interrupt TV and radio broadcasts with the sound of crashing waves. Moving along a 100 metre wide corridor in the space over the city, the signal produces an "urban sound wave"

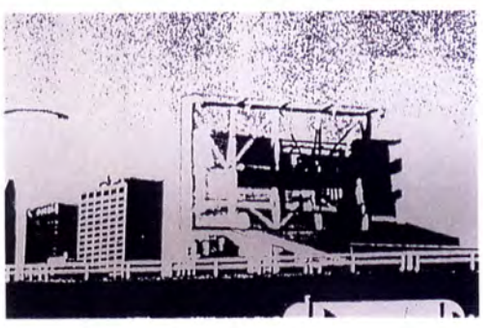


(Above) "A House with No Style", competition entry, 1992. A blank/black box, concealing a white digitised interior that can "playback" any architectural "stylisms" along its surfaces, this house suggests that any style or too much style might equal no style

(Left) Tertiary Zones, graphic project, 1993. A visualisation of the three zones of urban discourse: the space of physical inhabitation (blue); the space of electronic communication (silver); and the tertiary zone (black) - the space between the former conditions - a field open for exploration

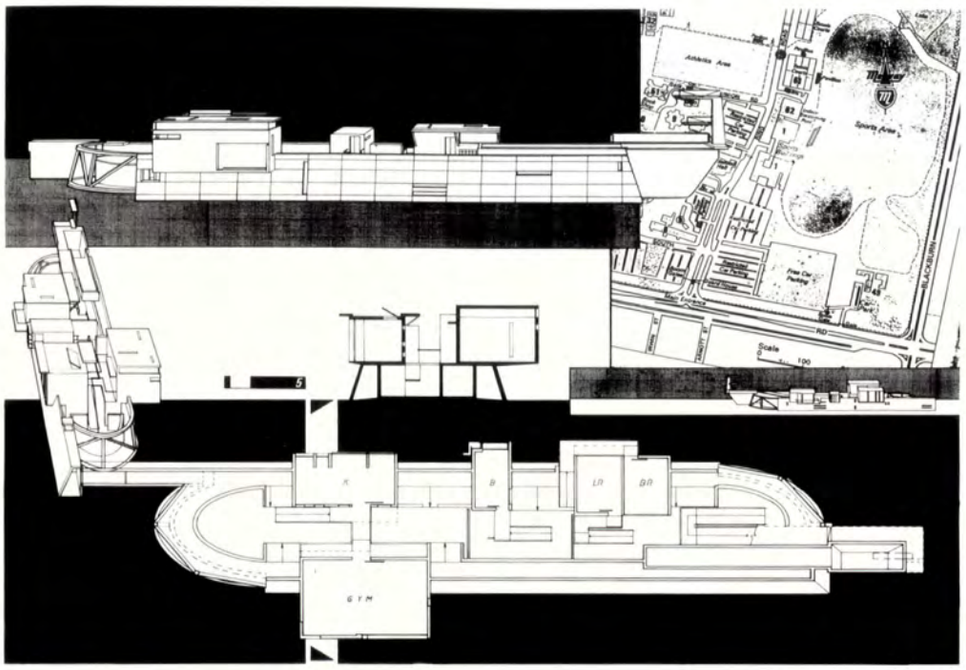


Screen House, 1994. The project studies the relationship betweeen programme production and site. Located at the intersection of two major arteries, the house is cantilevered off an existing five storey building, and co-opts the current site of the Coca-Cola sign. It should be used by a visual artist and contains: a) studios for digital film production, electronic broadcasting and a satellite link; and b) home entertainment and sleeping area. Electronic shorts are produced "in house" and directly screened on the billboard. A network of similar houses provides the possibility for permanent exchange of visual information world-wide



thesis: the real task for architecture today – whether the expanding Australian suburb or the new European city – is largely the same. It is the question of how to provide "navigation points", as Wilson calls them, in an urban formation lacking discernible order. How do we create architecture that facilitates a unique sense of place without just rehashing historical models? I must add here that Itsuku Hasegawa and Toyo Ito (See *Concept WA* 34) are addressing exactly these issues, and their work continues to amaze me.

In Melbourne, where I work and teach, there is a small group of architects who might be loosely termed avant-garde, if by this term one means architects working outside the usual concerns. A few are attempting to come to terms with producing architecture in a post-colonial or "fringe" culture, and have developed highly intellectualised theories for their work. They take as "sources" architectural models or ready-made works of famous architects, and rework them through various manipulations, in the way hip-hop or rap songs employ samples from other songs. Other young architects, like the Slovenian born Tom Kovac, are dealing with the poetic particularities of the region and their work seems more persuasive. An example of the tradition of "having no tradition" could be the work of Marc Newson, the furniture designer, who produced some radical objects which derived their exuberance from Australia's apparent lack of history or design culture. To conclude: the notion of architectural avant-garde today is far fetched, slightly dishonest and out-dated for me. I believe that the Second World War and the Cold War permanently severed any hope of genuinely carrying those agendas forward, at least at an architectural level. Wars reveal alot about our basic nature, with or without "progress" as such. That is not to deny the value of the technological advances made in other fields since then. But I don't believe architecture can ever be at

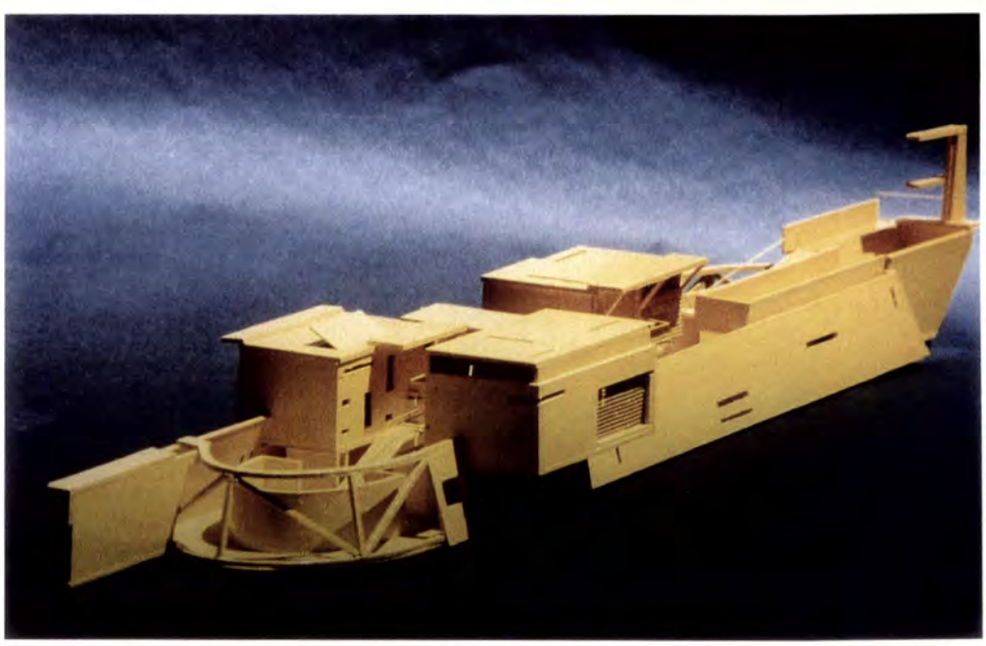


the leading edge again – if indeed it ever really was! If any field of endeavour is really set to deeply change the way we live, or our basic social relationships, I would say that the real avant-garde thinking today is more likely to be found in the fields, say of bio-engineering or nano-technology.

Four Houses

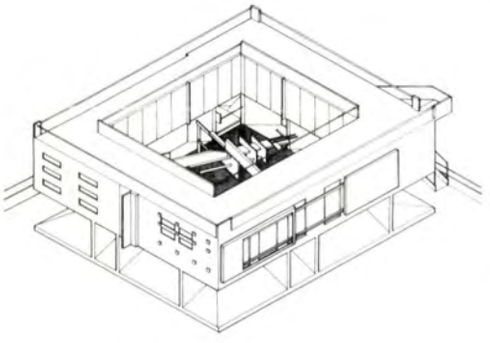
I am trying to develop marginal examples of how information based technologies might be applied to architecture. As such, the houses could be allegories for further architectural investigation. I believe that every architect should pursue agendas outside the prosaic demands of real buildings and hope that such experimentation might infiltrate reality, making architecture more reflective of contemporary technique and information knowledge.

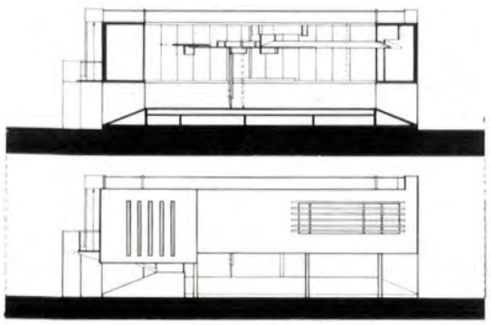
My concern in defining a space between architecture and electronics, between the real and the virtual, initially grew out of my interest in Virillio's writings and Stellarc's computer-assisted body manipulation. Other writers, notably Toffler and Guattari, have considered how electronics might re-inscribe work into the home. Toffler's electronic cottage was certainly a starting point for me. Lack of commissions drives me to invent new theoretical programmes and these houses evolved out of an ongoing dialogue of issues of contemporary urbanity. I strived to represent the houses



Track House, 1994. This project examines the relationships between body, architecture and sport media. It is situated on a sports field at the Monash University Campus, Melbourne and is to be used by an athlete. The programme of the house consists of: a) 100m running track, 25m pool, 5m diving board, sauna and spa; b) computer aided video recording facilities and satellite link up for broadcast; c) home entertainment and sleeping area. The Track House works as a measuring and training device. It is made to deny any direct movement between the different zones and rooms, thus keeping the athlete's fitness.

The video recording and monitoring of the athlete's performances make possible his participation in international competitions at home





Map House, 1994. A house for collection and reinscription of current environmental, ecological and political shifts in global scale. The house is to be used by a mapmaker, and should be partially accessible by mapwatchers. It sits on top of an entry to a Central Train Station, Princess Gate Plaza, Melbourne. The house consists of a satellite/radio link up with viewing stations, a computer lab, as well as the living area for the mapmaker. The changes in the physical, political etc systems are inscribed by a mechanically operated scribe on a large "Living" Map of the globe amended on a daily basis and viewed from the sun-deck above

in almost utilitarian fashion, employing photo-montage and accurate model-building, in order to lend the work some sort of "actuality" or real presence. I'd like all my unbuilt work to appear in an almost plausible state of existence.

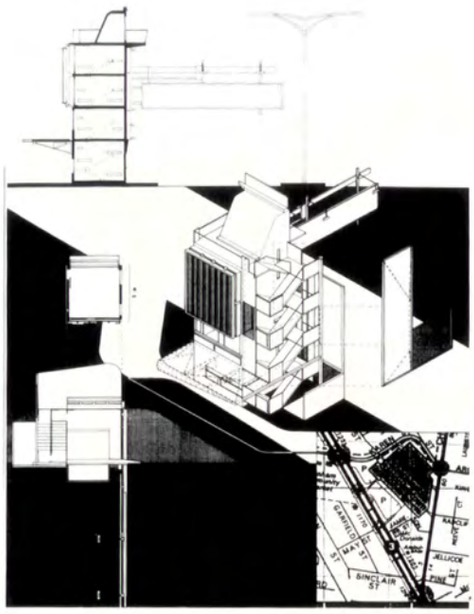
If these projects share any common ground it is in their equally extreme attitude towards the programme of the house, inversive in relation to the known Modernist formula. While Le Corbusier's call for the universally applicable, singular and pure House as Machine, suggested a uniform link between programme, function and appearance, I believe that the Machine as House of the late twentieth century, would suggest the opposite. The electronic machine working as a house is a multiplier of possiblities for choice and interpretation. It is eminently corruptible, impure and complex lending itself easily to hacking, "tweaking" and modification. As such it becomes a site for specific and singular programmes and activities. Thus each house project encourages a rather monastic attitude towards work, that might easily be interpreted as medieval in nature and not progressive at all. The houses would seem to facilitate specialisation of knowledge rather than worldliness, although this sort of expert training is increasingly being replaced by multi-skill education.

We are entering an era of massive transnational flows of knowledge, power, resources and populations. The opportunity to make dwellings that reflect, track or react to these factors not only opens new possibilities for human habitation, but, I think may address most properly the issue of limited natural and urban resources. As populations grow and space shrinks we must seriously consider how existing space and building types may be recolonised for new mixed and multiple uses. Industrial culture has wrongly led us to believe that the division betweeen the space of work and the space of dwelling is inviolable and sacrosanct, when for centuries pre-industrial cultures incorporated work, dwelling and social activity into shared spaces.

Technologies Transforming Reality

I think it was J G Ballard who said that "today everything is becoming science fiction". Technologies once only conceivable in the realms of sci-fi films and novels are rapidly entering our everyday lives. The Gulf War was more "1984" than 1994. So, once again untenable, imaginary notions have in fact become reality. Yet if we trace recent technological innovation, the opposite would seem to be the case. As our technology miniaturises or, more ominously, becomes "more natural" or bio-engineered, it threatens to disappear altogether. It is not the manifestation of the imaginary that is so scary – it is the dissolution, or disappearance of the very substance of architectural reality that is at stake, of form itself. Soon our lives will have "more" to do with "less" than Mies ever imagined! So, if one of the classic functions of architecture has been to help make our thoughts about technology legible or even to define them, how can we go about making architecture about the loss of physical technological reality if architecture has usually required technology to assert its presence?

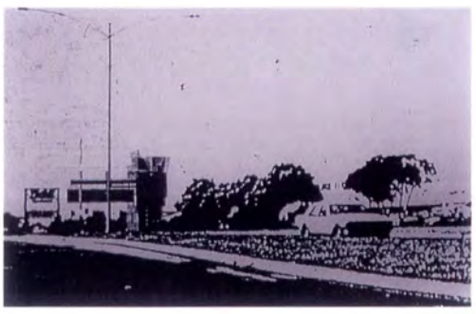
The internet has reduced physical structures like the circumference of the globe to a



third of a second and cultural constructs like borders to a matter of efficient signal bouncing. The space of human interrelationships is collapsing. This was pointed out by Virillio a long time ago. Does this mean that all that is real will soon be imagined and not seen? I hope not. But, probably, in the face of such massive change, we come back to some of the basic issues of human existence that enframe architectural production: the structure of habitation, the nature of human activity and communication, and the formulas by which our work and living conditions determine the framework of our cities.

With the fall of the Berlin Wall in 1989 we witnessed the collapse of one of the Grand Narratives of this Century. Instead, we are increasingly confronted with spaces of multiple narratives and fictions, floating in space, free and rootless. Our lives are led in the margins of this space, between jobs, relationships, dreams, etc, into a space of "betweenness". I would hope that architecture if it has any function left to perform in these times, might serve to anchor us down in the new physical and cultural "margins". Then these projects should serve as rhyzomatic islands floating on the surface of our urban and social network, trying to find new ways of bringing into question old notions of dwelling and the space between public and private domains.

I try to make an architecture that is active, reactive, interactive and dynamic. In setting such goals, I am again taking up the challenge of the impossible avant-garde and that is slightly naive and probably romantic. But how else can we make an architecture that positively affirms its futility in the face of tomorrow? □



Stack House, 1994. The house works as a fast-culture outlet, a library tower, housing an electronic stored collection of literature. The five-storey house is located in a parking lot of a shopping mall alongside a highway. It is designed to be used by librarians. The scheme combines the working area "book" pick-up, CD-ROM service, "floating" electronic sign-boards, with the home area containing living, sleeping and eating decks. "Books" are downloaded from electronic networks and are distributed in the form of CD-ROM disks so as to reconcile the classical with the consumerist culture of a "fast-food" chain

Gemona del Fruili House Extension, Italy

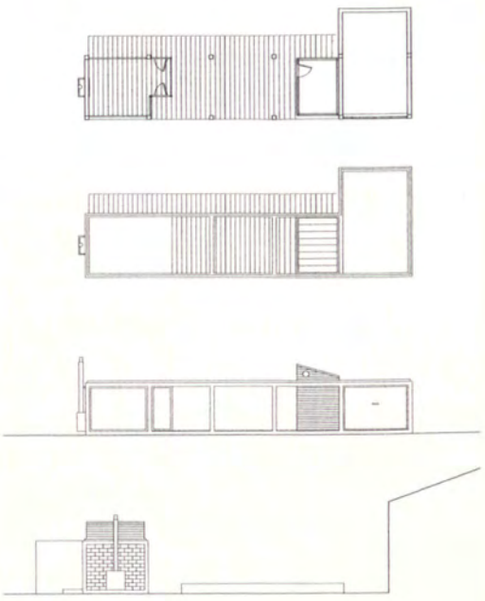
Architects: Massimo Lepore and Raul Pantaleo, Studio TAM Architetti Associatti, Venice

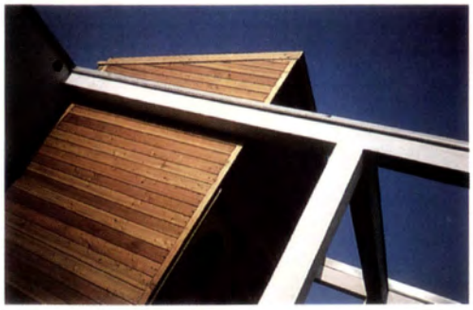
The building is situated in Gemona del Fruili, a small town north of Udine, Italy. Together with much of the surrounding area the town was almost totally destroyed by a violent earthquake in 1976.

In order to stimulate the reconstruction of the area a special programme for building regulations was instigated to allow each owner of a surviving house to build an extension of 50 cubic metres. This was intended to stimulate the transformation of a diverse collection of temporary structures, such as barracks, into permanent buildings.

The house successfully incorporates the wide variety of service spaces required within a one family home. The initial programme was for a garage, a laundry, a pergola and a drying space. The project is based on a simple structural frame connecting and "holding" three small autonomous buildings, one in glass, one in wood, and one in concrete blocks, which provide solutions to different needs.

The open space formed by the structural grid becomes a flexible shelter for outdoor life. Situated at one edge of the plot, the pavilion-like building defines a transparent limit to the house creating an "inside garden" between the two volumes and framing the majestic landscape of the mountains.





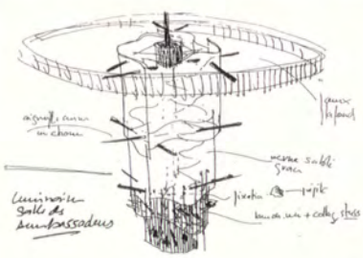
Renovation and extension of the Casino De Biarritz, France

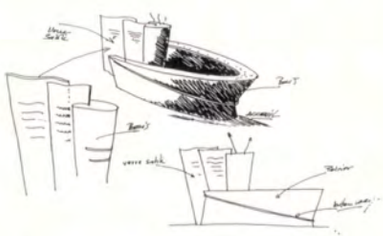
Architect: François Lombard

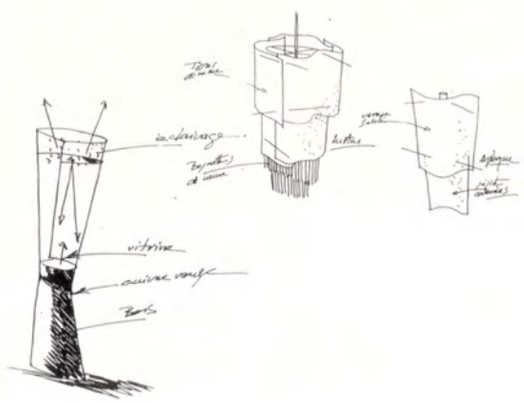
The competition for the renovation of the Casino in the famous resort of Biarritz, won by François Lombard in 1992, has been likened by the architect to a surgical operation. After lifting the skin, with the aim to restore its lost brilliancy, his team had to repair the arterial system of the building in order to provide new, modern public spaces. They renovated the facades and interior, added an extension and re-landscaped the "Grande Plage".

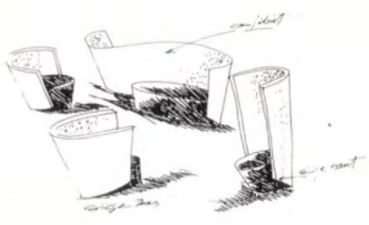
Two prestigious "public" floors have been created at beach and city level, and the basement has been dug out for a staff and service area. The stairs in the south corner linking the floors over which gambling activities are distributed, is a truly modern design. Natural light has been introduced into the building. Glass windows replace concrete block walls along the beach gallery thus brightening the restaurant, shops and swimming pool, and a new glass prism on the terrace lightens the pool and acts as a winter garden for official receptions. This contemporary element, constructed of stainless steel and glass, is in keeping with the 1930s facade of the casino.

References to the Art Deco style have been made through the use of strong lines, and materials such as sunblasted glass. In contrast to this rigorous style, curved lines used to echo the ocean and provide movement can be seen in the design of the carpets, furniture, theatre roof and flower beds. Underground parking has been created to restore the gardens. □









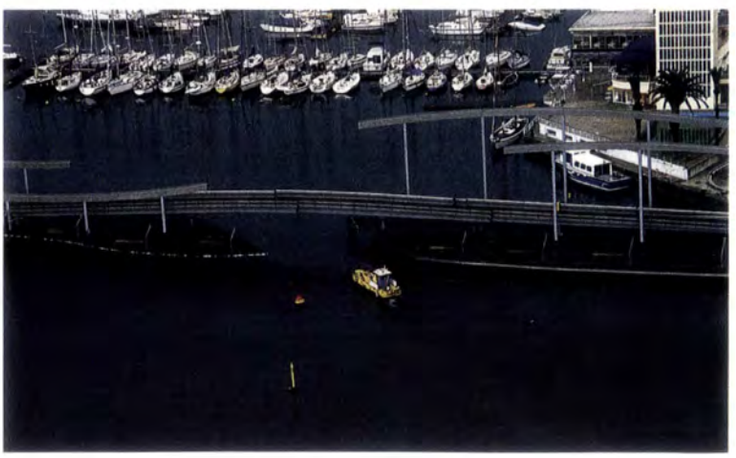
Footbridge, Barcelona, Spain

Architects: Albert Viaplana & Helio Pinon
Photography: Carlos Dominguez

In September 1994 "The Sea Quayside" footbridge in Barcelona harbour was opened to join the two shores of the Portal of the Pau and the Moll d'Espanya. It is the work of architects Albert Viaplana and Helio Pinon, and has been built not merely as a crossing to the new commercial development under construction, but also as a means of allowing viewers and pedestrians more space, and a new perspective, from which to enjoy the harbour.

The £2.5m project is built largely of weather resistant wood beams (bolondo or African teka), with a minimal use of metal and glass. Perpendicular glass panels, which diffuse the night light, mark the limits of the 300m length and 8-30m width, and the irregularity of the sinuous structure is designed to capture the attention. Viaplana is keen that the pedestrians play a vital role in the life of the structure: "The architecture needs actors, and should not just be contemplated aesthetically" he explained.

The floor of the footbridge includes a middle-section which rises to allow the passage of small vessels. The architects also had to consider the needs of 300 vessels moored to the Royal Maritime Club and the Royal Nautical Club, and have provided them with two crossings.



FUTURE TENTS

The formidable partnership of Nick Goldsmith and Todd Dalland dates from their years together at Cornell University in the 1970s. Together for almost 25 years, their company has gone from strength to strength. Combining low energy, fast construction and striking use of natural geometry, they have had no shortage of commissions, from permanent structures such as the DKNY showroom in Manhattan, to a temporary home for the Metropolitan Opera company and designs for the US military. Graham Vickers went to see them.

Pier Six exterior

Bob Davis

Elliott Kaufman

Here are some diverting trivia about flexible structures.

In its pre-war heyday America's premier circus company used about 300 tents to stage a show, carrying its own diesel plants to generate electricity. Following World War Two, mounting labour costs and freight charges made such large-scale tenting impractical and in 1956 John Ringling North announced that his Ringling Brothers and Barnum & Bailey Circus would in future appear only in permanent buildings.

Not long afterwards, in the early 1960s, two strikingly similar ideas were being independently advanced by two widely-separated proponents. In 1964 the late Ron Herron produced his famous "Walking City" project of mechanised buildings on the move, whilst concurrently (and with a rather different agenda), engineers at the John F Kennedy Space Center, Cape Canaveral, were building a 42-storey movable structure with caterpillar treads to travel between rocket-assembly area and launchpad.

I am indebted to Nicholas Goldsmith of FTL Architects for the Herron/Space Center comparison, with which he prefaces his own account of how FTL recently came to design a lightweight, transportable opera house. FTL is currently working for both Ringling Brothers and the US military, of which more later.

Goldsmith and his fellow principal Todd Dalland first became preoccupied with the possibilities of lightweight structures, with fellow classmate Denis Hector, when they were students at Cornell in the early 1970s. They have since seen youthful enthusiasm slowly but surely become translated into a substantial if unpredictable body of work that revolves around the idea of flexible buildings in general and tensile fabric structures in particular.

Somewhat incongruously, FTL, champions of the lightweight, temporary and flexible, are located in built-to-last premises on the Lower West Side of Manhattan. Even the

The temporary home of the Metropolitan Opera Company

Michaell Lent

FTL were selected by "Seventh on Sixth" for the Bryant Park shows, a high-profile twice yearly event on the New York fashion calendar

Michaell Lent

Michaell Lent

elevator's floor-indicator eschews new-fangled electronics, being of the rugged rotary mechanical type like an old-fashioned automobile odometer. However, the view from their office is architecturally encyclopædic, taking in their own tensile structure for the Jersey ferry terminal near Battery Park City, the Woolworth Building and the World Trade Center (which they witnessed, first hand, almost becoming a temporary structure itself when the notorious bomb went off in February 1993).

FTL was once Future Tents Limited, and Goldsmith says that they changed it to initials because it was sending out the wrong message to clients who associated tents with, well, tents. One suspects that they were equally glad to lose a dubious pun.

Goldsmith explains the firm's set-up.

"Quite apart from FTL Architects we have a joint company with Buro Happold, called FTL Happold. We have their engineering software, and here in the office there are engineers who trained with Buro Happold... but that's rather jumping ahead."

Todd Dalland takes up the story.

"We first met in architecture school at Cornell. There we would get a formalist indoctrination during the day – which was a fabulous process with some excellent professors – but after hours we were doing some alternative building of our own. Half the people we were interested in were engineers. We discovered Maillart, Candela, Freysinnet, Nervi as well as Corb, Wright and Mies. So we kind of started a little underground group pursuing some of these engineering/architecture/contracting ideas in lightweight structures. We developed a fascination with that sort of structure very early on. Now we've been together experimenting along those lines for almost 25 years."

If Dalland tends to deliver the factual, businesslike answers Goldsmith is the one inclined to offer helpful contextual details. "At that time, around 1970, the whole notion of alternative culture was very important", Goldsmith maintains. "We were looking at all the social forces that were affecting our generation, and trying to interpret their architectural potential. So naturally people like Bucky Fuller became very important. Maybe the things that attracted us originally are no longer the main reasons for the work we do, but I think that we were both drawn by the idea of portable, relocatable structures that used very little energy. Their initial appeal lay in the fact that they were fundamentally very efficient forms and based upon natural geometries."

Dalland adds – "But I've got to admit that one of the most attractive things about them was their visual quality; their shapes and forms appealed to us. We quickly discovered that form is about engineering and that materials are directly related to form and engineering. Once you start getting into these things you realise that you're really a kind of quasi-engineer. It was also fun to be in an area that was new and that not many people knew about. It was a process of discovery for us."

One of FTL's permanent structures is the Donna Karan fashion showroom in mid-town Manhattan, a renovated older building with a new rooftop structure added

Elliott Kaufman

Before they left Cornell, Goldsmith and Dalland had designed, built and installed lightweight tensile structures up to a 100-foot span for their own clients.

"We'd done our own marketing, our own design, our own engineering, our own business", Dalland says.

Was it relatively easy to get work on that basis at the time?

"We didn't really know if it was easy or not, we just wanted to do it" Goldsmith replies. "But I guess it was easier to do that stuff then than it would have been in 1989. Anyway they weren't huge commissions."

In the low tech beginning Goldsmith and Dalland were manufacturing patterns themselves.

"It was real hands-on stuff" Goldsmith recalls, "there was no computer technology at the time."

However, setting up FTL did not happen at once; it had to wait while its future principals acquired what extra experience they could, wherever they could find it.

"We couldn't go to engineering or architecture firms to learn about this" Goldsmith recalls. "Denis Hector and I went to Germany to work with Frei Otto for a few years and Todd worked with a space structures firm – but beyond that it was pretty limited. In America there simply wasn't a place where we could learn."

In the end Dalland founded FTL with his brother Ross Dalland, a structural engineer, "with some sewing machines and a typewriter". Goldsmith and Denis Hector returned from Germany to join him, and the link-up with Buro Happold ("our gurus") was established in 1979. Ross Dalland and Hector were with the firm until 1985 when Dalland left to start a private engineering practice, and Hector returned to academia.

"In the beginning we were still doing our own form generation, cutting with physical patterns and using simple computer programmes that we wrote ourselves", Dalland says. "Even when we weren't fabricating things we were still very involved in helping fabricators and installers develop the technology to do it. As for the projects, we were doing some standardised tent structures for a major American company, bringing tensile technology to the rental tent industry. Then there was an acoustical shell for the National Symphony Orchestra and some bleacher stands by the White House. Small structures, each of a few thousand square feet."

FTL has changed over the years, and currently employs between 15 and 20 people. It remains slightly unconventional, both in the way it has grown and in the disparate nature of its clients.

"We began with those rental tents, then some small pavilions (the first was in Baltimore, 1981), then larger pavilions, pavilions that were enclosed, and then fashion shows, because fabric seemed to work for fashion shows. Growing out of the fashion work we started doing more showroom work, retail work. These didn't include fabric as much, but they did use our concepts about the flexibility of space. So eventually we developed more into a conventional architectural practice, complementing our tensile and cable structures."

One of their permanent structures is the Donna Karan fashion showroom in mid-town Manhattan. DKNY is a well-known name, often dramatically publicised on those giant outdoor murals that Manhattan still favours.

"It was an old 13-storey office building that we renovated" explains Dalland. "And we added a new structure on top to tie the whole building together. It's basically a new building. For the rooftop showroom itself we used a lot of our ideas about flexibility – it turns into a fashion show one way, bleachers fold down from the wall, stairs move on cables – which all comes out of our interest in these technologies."

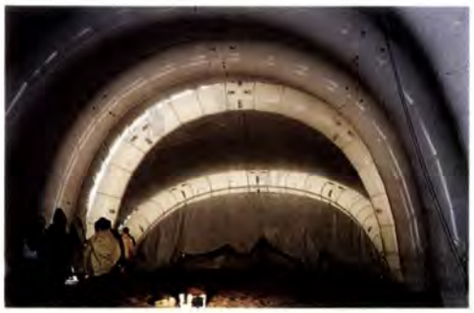
The fashion theme also emerged in their Seventh Avenue showroom for Carmelo Pomodoro where motorised polyester mesh screens and suspended panels create a sinuous and seductive series of interruptions to an uncompromising industrial shell.

In addition FTL were selected by "Seventh on Sixth" as architects for the Bryant Park shows, a high-profile twice-yearly event on the New York fashion calendar. Bryant Park is not a park at all, simply an unlovely city square for most of the year, but when the fashion glitterati descend upon it, it is FTL who oversee the standardised temporary structures and lay out the interiors for the international designers.

"We do quite a bit of work like that" says Dalland. "Our approach towards lightweight buildings is that it's easy to move a wall, a ceiling or the entire building, and so it's also possible to create an entire village that moves."

He is not just talking about the rag trade. The US military's Desert Storm experience endorsed the value of movable buildings, and Ringling Brothers have now reversed that decision of four decades ago and returned to tents. Both came to FTL.

Elliott Kaufman



(Left) DKNY interior. (Above) Temporary structure for the US military

The firm is also contributing to a million-and-a-half square feet of temporary city in the deep South for the 1996 Olympics in Atlanta.

"It will completely change the face of Atlanta for a couple of months" says Dalland, which, one imagines, can only be good news.

One of the firm's highest profile projects was the transportable opera house mentioned earlier. Officially known as the Carlos Moseley Music Pavilion and realised between 1987 and 1991, it was FTL's response to a request from the New York Philharmonic and the Metropolitan Opera to develop a portable music facility for performances on summer nights in different parks in New York City and environs.

Goldsmith explains. "It was basically six semi-trailer trucks that unfold hydraulically. The trucks arrive on site at six in the morning, and you can be ready to rehearse that evening's concert at eleven o'clock. Those trucks include the staging, the lighting systems, overhead systems, audio – the whole thing's wired and includes 24 speakers using radio broadcast frequencies. It really is a portable opera house."

The facility's central tripod is formed by three truss masts which unfold on site, being pushed up into a rigid structure by the trailers on which they are mounted; laser-technology co-ordinates guide the trucks. Probably more fun to watch being put up than to describe, when assembled the Carlos Moseley Music Pavilion actually looks a lot better than many of the permanent opera houses you can see. Goldsmith and Dalland need no prompting to agree, waxing lyrical about the inherent integrity of fabric tensile structures, the absence of "inside" and "outside" in the traditional sense, and the excitement of using a material "with no First World history" as Goldsmith has put it. "It began with the Bedouin tent, the native American tepee and the Asian yurt."

This enduring enthusiasm for the principles of temporary structure still informs their projects, which range from sometimes prosaic work for US tent suppliers like Armbruster, Anchor and Eureka! ("Affordable Elegance with Customer Appeal"), to the pure research, prototyping contracts and production contracts on ultra-lightweight buildings for the military. It may seem a jarring leap from the sixties of Ron Herron to the nineties of Norman Schwarzkopf, but for FTL you suspect the consistent appeal lies in the multiplicity of applications for tensile structures.

Dalland says "Some of the most interesting work we're doing now has to do with buildings supported by airtubes. Whilst a lot of this goes back to people like Richard Rogers and Archigram, we really are executing those ideas of walking cities and instant buildings now. We're exploring high pressure, small diameter airtubes with exotic fabrics, large diameter, low pressure airtubes with more common fabrics and using these for hospitals or officers' quarters, helicopter shelters or whatever."

Goldsmith meanwhile sees retail as another potentially significant subscriber to temporary buildings.

"I think what we're doing now is the tip of the iceberg" he says. "For example, Ralph Lauren did a clothing truck for his jeans not long ago. It toured around the college campuses and traded on the idea that parents give money to their children who first buy their books and pay their tuition fees, and then with the money that's left over they go and buy their clothes for the semester. That means you really don't need to have a retail outlet on site for longer than the first weeks of the semester. That's just one example. I think there's a real movement, at least in America, of having spaces fully used. That means having flexibility. It runs from retail to office also to exhibitions where so many times performing spaces sit empty and so you're building this thing for just three or four weekends a month."

Goldsmith now believes that our notions of what is "temporary" have changed, certainly from those enshrined in building regulations.

"We might work on projects where the building is supposed to last a hundred years, but we also do things where they say 'after two years this thing's gone'. Our traditional ideas of permanent and temporary are really too simplistic in today's society. You have to start to break that down into sub-categories of five or ten year spans, maybe even months in some cases."

In a profession where so many have been obliged by circumstances to consign the ideals of youth to the realm of nostalgia whilst wrestling with the more pressing problems of staying solvent at any price, it is satisfying to find architects Goldsmith and Dalland still passionate about re-interpreting the ideas that first fired their imagination at Cornell.

"What's curious about our work" says Goldsmith, "is that unlike so many architecture firms who develop a client base and a specialty, we never did it that way. We just started out with this technology – we had no idea exactly where it would lead us." □

COMPUTING

VISUAL LAWS

LOW RES HUMANS

CYBERSPACE LEXICON

SIMCITY 2000

Laying down the law on visuals

In May 1994 a new regulation entered French planning law. Part of the "loi paysage" or landscape laws of January 1993, the intention of the "volet paysagiste" is to ensure that proper attention to context is paid in any new development. The rule requires planning applications for any building over 150 square metres in surface area to be accompanied by photographs of the existing site in context, and at least one "visualization", as well as conventional plans and elevations. These visualizations can be either perspective drawings, collages or computer renderings. They must show the new building in its surrounding context, and in practice normally two visualizations are supplied, one showing the main facade of the project from eye level, the other an overall aerial view. The aim behind the new law is to give the public the opportunity to comment on buildings in the planning process in a more informed way. How effective the new rule will be in involving the public in projects is yet to be seen, but it has created new interest in architectural imagery.

When I met François Le Masne of Athrema, a bureau specializing in visualising architectural projects, we began by talking about the impact of this new rule on bureaus such as his. In principle, he agreed, the new rule should create business for those providing design services. But in fact several of the major agencies, offering services from Unix or Sun workstations, have either closed or moved out of the architectural field recently. Le Masne sees two reasons for this. Firstly, architects do not always have sufficiently large budgets to buy services off high-cost machines. Secondly, there are a number of visualization products available on AppleMac that would enable architects to produce simple versions of such work for themselves.

Athrema is an independent element in a group of bureau services, offering DTP and image processing, sharing offices in the 13th arrondissement in Paris. What then, are the kind of services he can offer? He began by explaining that his own training as an architect was supplemented by working for Softimage, a software consultancy company whose client list covers video games, animation effects, and design and architecture. This work took him into architects' offices around the world, so that when he was ready to set up on his own he had a clear idea of the computing needs of architects. He realized that there was no single programme that would meet all a project's needs, and so Athrema, the bureau he runs with Guillaume Hecht, offers a cocktail of different programmes to meet specific needs. "The main problem here is file

Two images created by Athrema: (right) interiors for the Paris Metro created on-screen to show new lighting effects, and (far right) an aerial view of an unbuilt factory on the outskirts of Paris

compatibility and speed of handling", explains Le Masne, "and that is where our experience counts. The starting point might be inputting plans and elevations via a video camera, then rendering it in digitized form with PowerDraw, cleaning up the details with Adobe Illustrator and then creating the final model in 3D Turbo, before using Pixar's Renderman and Soft'X's Beam to finish the visualization. Renderman is strong on colour definitions, and Beam offers the best algorithms for lighting effects, almost as good as the radiosity programmes currently only available on Unix workstations. And to fit the finished image into a photograph of the site we'd turn to Photoshop." Few architectural practices would have the capital or specialist staff to provide a similar service in-house.

Le Masne also sees offering visualization services as only a starting point of a wider consultancy programme, based on computing skills. For example, one of their clients is the AZUR insurance group. From producing visualizations of their new developments Athrema have moved on to providing them with a complete visual database of their property portfolio. This not only includes street maps, and plans and elevations of buildings and flats, but also details of tenants and rents. It also can be used to set up work cycles for redecoration and maintenance, for example, or to generate valuations and statistical information for accounting purposes, via a series of screen menus that are easily learnt.

"The company realized that they needed to put information technology to work for them, and while they could see how individual programmes would meet specific requirements, they wanted a structured system. We were able to provide them with a specially designed combination of programmes that would co-ordinate all the functions they were looking for, and which would only involve a single training programme for staff." Other clients have turned to Athrema for help with space planning, component simulation, and product design.

Le Masne sees the move into wider consultancy as not only desirable but probably necessary, given the speed at which existing programmes are developing additional features and falling in price. "Developers and property companies, as well as architects, are going to need specialized computer services increasingly, and we are excellently placed to supply these. The new law helps in bringing the need for visualization to the attention of architects, but already the market is expanding beyond simply collaging pictures on screen."

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Muddling through Cyberspace

The first letter I turned to in *The Cyberspace Lexicon* by Bob Cotton and Richard Oliver, was G, to see what the book had to say about William Gibson, who invented the term in his novel *Neuromancer*. Gigabytes, yes, Goraud shading, yes, Gibson, no. Gibson's name (and credit for his idea) is to be found under C for Cyberspace. Here at once is one of the main oddities of the cyberspace debate. This wholly fictional device, sited in an undetermined future, is cited as an actual, independent concept, a blueprint for the future. This is like using Ferris's *Metropolis of Tomorrow* as a street plan of Manhattan. In this process of colonising cyberspace the wit, irony and darkness of Gibson's trilogy is thrown away as well. Cyberspace has ceased to be a visionary concept, and become a catch-phrase. So it is here.

That said, this book offers a comprehensive, lucid and well-illustrated account of current developments in multimedia, virtual reality and computing. Malcolm Garrett's dynamic design, and a wide range of images, make the reader into a voyager into new technology. In visual/informational terms, the book probably comes as close as anything on paper can to an interactive publication. From synthespians via the horizontal blanking period to blitter and yuv, anything you need to know about the information revolution is to be found here.

The main drawback of the book is at one with its slippery title. While strong on information and research content, even the longer

Two screen images from SimCity showing the toolbar in the lower image

descriptive texts adopt a passive pose. The relentless optimism of those already working in the field fills the page. They are, after all, entitled, as pioneers, to their enthusiasm, but more critical distance should be expected from the authors. The social issues of access and privacy, and the philosophical issues of defining reality and perception in the new media (to take but two examples) are as important to us all as the nature of the new hardware. Significantly, neither Mitchell's *The Reconfigured Eye* nor Woolley's *Virtual Worlds* appear in the bibliography, nor are the issues in those books addressed except in passing.

In *Count Zero* the second book in the Neuromancer trilogy, a passenger in a robot-driven hovercraft asks what make it is. A Rolls-Royce, the owner replies: "they built a good car in the old days, the Arabs did." The layers of meaning and irony behind that remark, apart from giving the quality of Gibson's writing, show that his underlying notion of cyberspace is more equivocal and complex than Cotton and Oliver allow for in borrowing his word. Their definition of cyberspace, somewhat ungrammatically, is "the interconnected web of databases, telecommunication links and computer networks which perceptually seem to constitute a new space for human communication and action". Gibson called cyberspace "a graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding." To understand hypermedia we need not just facts, but some vision too.

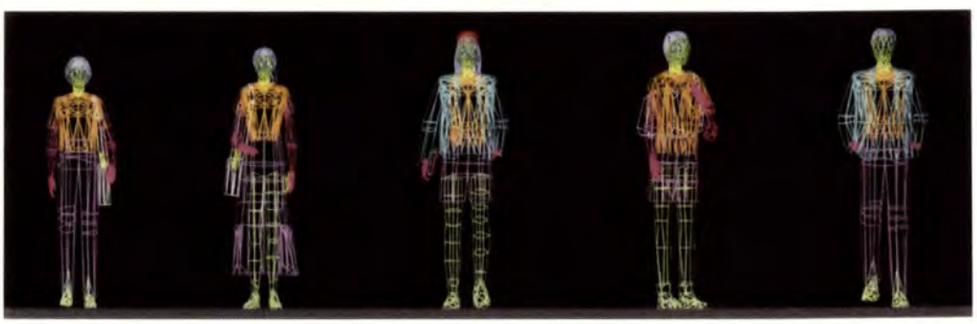
The Cyberspace Lexicon, *Bob Cotton & Richard Oliver, Phaidon Press London, £19.95*

➲ The only thing wrong with cities...

Imagine an empty landscape, with some hills, lakes and trees. To build on it roads and rail links, water supplies, power lines and stations, industrial, commercial and residential zones are needed. As the city grows, police and fire stations, subways and airports, parks and hospitals, schools and colleges must be created. This is the scenario proposed by *SimCity 2000*, a computer game produced by Maxis. *SimCity 2000*, an upgrade of the earlier *SimCity* game designed by Fred Haslam and Will Wright, runs on either Apple Mac or PC (386 or over) machines.

The player is the mayor, urban planner and city engineer in one. The aim of the game is to build and manage a city. The player has a choice of time zones from the year 1900 to 2050, a budget to work to, and a range of available facilities (power plants from coal to fusion, via wind, solar and microwave, for example.) Build a successful city – success is measured by the progress of the city budget, and by factors such as population, crime and pollution rates – and the game invites the mayor to build a mayor's house, or erect a statue in the mayor's honour! A series of on-screen newspapers keeps the mayor informed of the city's problems and desires. A series of commands in a toolbar on the screen allow the player to access different tasks. The landscape is divided on

People to people *software in use (far left) and examples showing how the complete figures can be built up from individual elements*



screen into tiles, each representing about one acre, and a number of different viewpoints and proportions can be selected.

Once the city or town in laid out, development is automatic: The Sims, as the inhabitants are called, build their own houses, office blocks, retail units. If the balance of facilities is correct, the Sims multiply, their presence shown by traffic on the roads and healthy tax revenues. If the mix is wrong, they leave, and with them the hope of a mayoral statue. This interactive element is what gives the game its sophistication. Relatively small adjustments can affect the growth rate exponentially, as the algorithms controlling the rates of changes are subtle.

The drawback from an architectural point of view is that while the citiSims (their pun) are happy and busy, architectSim is not to be found. Once the player has zoned out the different areas, what gets built there is decided by the citizens. And aesthetically some of it is pretty doubtful, particularly the lilac, lime green and puce used on the "lower-class housing"; there is a particularly gaudy church which has me, at least, reaching for the bulldozer tool to clear the terrain each time one appears. The municipal buildings are, in effect, microcosms of America: the library building is modelled on the Capitol, the suspension bridge on the Golden Gate, with Brooklyn's patina of rust, the mayor's house on a Louisiana planter's mansion, and so on. And a really successful mayor's revenge for the tastelessness of the population is the chance to build arcologies to put them in. As has been said, "the only thing wrong with cities is the people who live in them..."

The main aim of the game is not architecture, however, but urban planning and management. Its basic assumption about an ideal city is that it should be a growing one, an optimistic doctrine. But the game offers enough challenges to maintain the interest and the amusement even of those who deal with city planners in the real world.

Contact Maxis on (00 44) 171 490 2333 (UK) or (001) 510 254 9700 (USA)

➲ Low resolution humans

Low resolution people might seem a polite term for clients who can't make their minds up. But not so. Low resolution people can be suitpeople, casualpeople and studentpeople: static computer images that can be imported into either 3D Studio, AccuRender for AutoCAD or other 3D programmes as .DXF format files.

Rachel Rosenthal, the architect who developed the product as *people for people*, wanted to meet architect's needs for figures to populate their drawings and renderings at an affordable price. "Our clients are not making big budget ads or movies - they're architects making projects such as homes, schools and hospitals, to tight design budgets and not enough time." Individual sets cost $145, but in March both sets were made available on CD-ROM for $ 295. This contains both sets of figures (76 in all) in 3D Studio, AccuRender and .DXF formats, compatible with both PCs and AppleMacs.

Each set has male and female figures standing, sitting, and walking in different postures, as well as figures in wheelchairs and with crutches or walking frames. Each figure is a basic mesh to which a choice of clothing, hair and body colour can be attached at will. Clothing choices include ties, shirts, trousers, jackets and shoes for men, blouses, skirts, jackets, trousers and shoes for women – the only missing item seems to be a baseball cap! Each completed figure is a single 3D Studio Object or AutoCAD Block, so it can be scaled and moved around a drawing at will. Suitpeople come with dark formal clothes for business environments, casual and studentpeople in jeans or shorts, Tshirts and sneakers. Each set comes with a range of props such as books and chairs. A standard range of colours is supplied, which can be altered and amended at will. The sets come with a Lisp routine, PEOPLE.LSP, which contains commands for positioning the blocks into the model.

The careful design, range of choices and exceptional price of the *people to people* range makes it a product of real service to architects. As Rachel Rosenthal says "the human form has always been the supreme scalar device used in architectural rendering."

Contact Rachel Rosenthal at people for people, *1337-1/2 Cliff Drive, Laguna Beach, CA 92651 USA, tel (001) 714 497 9610, fax 714 497 2282* □

L'HOMME ORCHESTRE

(Well) Connected Architecture. *By Ian Ritchie. Academy Editions. 96 pp. £24.95 (hardback), £17.95 (paper).*

Reviewed by Michael Glickman

Why do architects do it? What is it that drives them, uniquely among professionals, to such pretension, such pomposity?

Dentists content themselves with bridges and fillings, accountants with balance sheets, lawyers – by and large – with a clean contract, a smooth divorce. None of these people produce volumes of half-baked philosophy. Your GP does not publish a book called "My Thoughts on Things".

Why is the practise of good architecture, the thoughtful making of buildings, not enough? Perhaps dentists, doctors, accountants and lawyers are simply – unlike architects – too busy. And perhaps, increasingly, success in our profession is equated with minor celebrity status.

This book is the equivalent of Kylie Minogue's view of the Exchange Rate Mechanism.

I assumed I was to review a book of Ritchie's work. The title should have given the game away. What are these brackets supposed to mean, or perhaps I should say "signify"? If there is a sub-Derida joke or ambivalence here in the heavy-handed Eisenman manner I have missed it.

The work is not examined. It is alluded to, and tantalisingly illustrated, in a manner which makes it clear that Ritchie wishes to be judged more by his pensées than his buildings.

The language is as inelegant as the ideas are banal. An early example: "Much has been said and written on the failures of Modernism, and many descriptions of post-Modernism have been proffered, without consensus or conclusion. It has often been argued that PoMo originated in architectural works (post Venturi's Las Vegas). Maybe the visual arts adopted PoMo through a rejection of the abstraction of Modernism rather than creation, or through adoption of seemingly unsophisticated popular expressions. The transfer of these visuals onto architecture, in a manner not unlike the transfer of technological images of high-tech, reflected society's preoccupation with the superficial."

It is all something like this. Stream-of-consciousness ramblings, sprinkled with tasteful little pictures which sometimes relate to the "text" and sometimes do not. Does Academy Editions, who have published some wonderful books, not have an editor in the house?

Seven full pages are devoted to a "dramatised discourse" on collaboration. This is the most embarrassingly self-regarding piece I have ever had to confront in an architectural book. It contains the following references to Ritchie:

"Let's get Ian in, he's great. He's respectable."

"He's a big time architect, eh?"

"Use that super pass card you used to jump over the turnstile the time we were over with Air France, you know."

"Listen, do you want your phone calls screened?"

And would you believe, after all this, he even includes a portentous three page warning against "individualisation and architectural heroes".

The introduction promises that Ritchie will "archive our past work in book form". The anticipation of this is quickly dashed by his threat that it will capture "not only the thinking ... but also the emotional aspects involved in participation, collaboration and conflict in areas such as tactics, risks and compromise so rarely apparent in architectural publications."

Please will he now give just a few moments to consider exactly why it is so rarely apparent.

Despite the evidence of this self-indulgent nonsense, there is a possibility that Ritchie is a decent architect. However, I could never employ him. He'd bore me to death.

SCHOOLS FOR SCANDAL

Architecture - Art or Profession? Three Hundred Years of Architectural Education in Britain. *By Mark Crinson and Jules Lubbock. Manchester University Press. 210pp. £35.00 (hardback), £10.99 (paper).*

Reviewed by Ronald Green

In a recent issue of the magazine *Architecture New York* Colin Rowe, the doyen of North American architecture critics, described architectural education as, "After the Russian Revolution, the two world wars, the Holocaust and Modern architecture itself, the greatest catastrophe of the twentieth century." Unhappily this comprehensive denunciation is not included in *Architecture - Art or Profession?* But had it been available at the time there can be no doubt that our two authors would have fallen upon it greedily, for it perfectly sums up their bilious view of the study of architecture that has provided each with a good part of his living since leaving school. In any case their book, whose spine is decked out with the ostrich feather imprint of the Prince of Wales's Institute of Architecture, and whose pages begin with a foreword by the Prince himself – that same Prince who once denounced the "Frankenstein professors" of the Architectural Association before going on to employ them in a Frankenstein school of his own – is not short of its own superlatives of guilt and recrimination. A glance at the introduction is enough to convince any reader that nothing remotely resembling an objective account of architectural education will adorn the pages that follow. All of which is a pity because the information gathered here is of intense though arcane interest and has certainly never been brought together from such a wide range of sources before.

Of Prince Charles's foreword much could be said. It is a classic of its kind, eliding a number of unsupported assumptions into a heap of allegedly self-evident truths before bulldozing them into a mountain of popular prejudice. Typical is its assertion that that professional specialisation is the cause of uniformity in the built environment, and that this in turn is what makes architects remote from the concerns of ordinary people. The muddle and want of logic here is pitiable, for the truth is quite the reverse and would have served the Prince far better. Professional specialisation leads not to uniformity, but to monstrous mutations like post-war high rise public housing, one of the most remarkable interventions of architecture into the landscape since the Middle Ages. It is the demystification of architecture into the enforcement of simple canons of popular taste that leads to crushing uniformity and the alienation of the professionals.

Unlike the Prince, who confines himself to stabs in the semantic darkness, the authors of the main text serve up a healthy series of chapters on the subject of architectural education. A feast of information that is spoiled

only by the way in which it is continually bent to the service of their own conspiratorial preconceptions. The most powerful of these is their theory that Modernism is in reality a covert "official system" that was developed to control the whole process of building design and construction in the years after World War Two.

Sadly, despite the entertainment value of this hypothesis, there is no way that this alarmist nonsense can be related to the present state of the 40 schools of architecture in Britain, with their 9,000 happy students, their bulging enrollments and their new at-a-stroke university status. In any case the attempt itself is bizarre. It has often been said that if Adolf Hitler had been admitted to the Vienna School of Art, there would have been no Second World War. Surprisingly neither Crinson nor Lubbock seems to understand that, however useless it might be, architectural education is good for everyone.

DIPLOMATIC BAG

International Territory: the United Nations 1945-95. *By Adam Bartos and Christopher Hitchens. Verso. 104pp. £19.95.*

Reviewed by Rebecca Flower

When the headquarters of the United Nations was built after World War Two it was sited in New York, as opposed to Geneva, the home of its ill-fated predecessor, the League of Nations. Why did this happen? Because, unlike the League, the United Nations was a quintessentially Modern project and where but New York could be regarded as the first city of Modernism? So writes Christopher Hitchens at the beginning of this fascinating little book, produced to commemorate 50 years of the UN and larded with anecdotes and time capsule photographs of one of the principal architectural results of the greatest outburst of idealism to follow the 1939-1945 war.

But if the geographical location of the UN was determined by the power of skyscrapers and the thumping beat of jazz, its architectural form was not. There was already a spectacular mixed-use developers' scheme for the chosen site, designed by the architect Wallace Harrison. In a flash it was turned into a fine UN headquarters "by means of a system of double entry bookkeeping which involved pencilling in the words 'General Assembly' where an opera house had been, and 'Security Council' and 'Trusteeship' in place of the different auditoria." By such simple drawing board tricks was a world institution founded. Nor was its financing more complex. The site on the East River was purchased from the original developer with a single cheque for $8.5 million signed by Nelson Rockefeller senior, who then gave the land to the UN in perpetuity. The height of the building was established in similar straightforward fashion by the year of its birth, 1945, therefore 45 storeys. Right at the top were Oscar Niemeyer and the three supervising architects appointed by the UN Headquarters Commission – Le Corbusier, Jan de Ranitz from the Netherlands, and Nikolai Bassov from the USSR.

When the project finally went on site it encountered a spirit of goodwill seldom met with in the construction industry anywhere on our planet. Professional fees were waived, suppliers agreed to fixed prices in a period of inflation, workers worked overtime for nothing, and justifiable claims for payments were allowed to drop. In artistic terms the building survived all the stylistic vicissitudes to follow. Today, 50 years later, its membership already more than doubled to 166 nations, the UN survives as an enduring monument to Modernism.

THE ACCEPTABLE FACE OF HIGH-TECH ARCHITECTURE

The Architecture of Richard Rogers. *By Deyan Sudjic. 4th Estate. 160pp. £28.95.*

Reviewed by Martin Pawley

Unlike most famous architects, Richard Rogers is not an inaccessible man. Or so it at first appears. From time to time he dines in his wife's famous restaurant in full view of the other patrons and is generally well disposed towards the media. A telephone call from a magazine requesting an interview will be fielded with the cheerful offer of an hour in the architect's "next media window", some two or three months ahead. The request will then be "pencilled in" for that time. When the time finally arrives, the interview will be postponed or take place implausibly late, but that is not rudeness, it is life in the fast lane. Rogers is genuinely obliging. The persistent journalist, like the patient gunner, will zero in in the end.

When the interviewer does encounter the charismatic figure, another kind of problem arises. Here is genius, the visitor is sure. But how to find it out? This is the problem faced on a larger scale by all Rogers biographers, and only the non-architect Brian Appleyard has ever successfully solved it.

Deyan Sudjic knows Rogers well. He has written about him and his work for years. Not scandalously, like Appleyard, perhaps, but perceptively, and not always with slavish devotion. The difference between the two biographers is that Appleyard expressed fascination with the events of Rogers' surprising life, while Sudjic is more impressed by the translation from architect to personality to political figure that has taken place in his subject over the last decade. The Richard Rogers brought to prominence as one of the triumvirs in the celebrated Royal Academy Exhibition Foster, Rogers, Stirling in 1986, is now more clearly seen as a figure on his own. Stirling is dead, Foster has become a world figure, with a larger office in Riyadh than he has in Battersea, and only Rogers remains, though also capable of global operations, still a local force, devoted to London's good causes, a trustee of this, a patron of that, an advisor on architecture and planning to the Labour Party. A man poised in fact to become the paterfamilias of all of architecture in Britain with the next change of government. And this in the end may be his epitaph. He understood in that troubled and disempirialised offshore island that such a position was open to a great architect. As Sudjic writes: "Most architects are too inept or unworldly to understand the elementary rules of social conduct which allow them to take on such roles."

Although well illustrated and readable in all except its tiny-type/big-pic graphic design, the text of *The Architecture of Richard Rogers* bears the imprint of summary and objectivity if not haste. The anticipated Sudjic insights are present, but sparingly used. In the end it is the absence of Rogers the person, pointed up by a revealing absence of direct quotations, that says it all. The next media window may not be for some time to come. □

REFLECTING GLORY

The American Design Company have produced an ingenious design solution for the temporary home of New York based jewellers, Lisa Jenks Limited. Corinne Calesso and William Hellow showed Lori Stocker how turning conventional design elements on their head can transform a loft into a glamorous, but comfortable, showroom.

All photographs by Elliott Kaufman

Form and function, when removed from their traditional contexts, will create exciting interiors. American Design Company, based in New York City, is comprised of two designers with a talent for metamorphosing common elements. Ceiling fixtures are transformed as wall sconces, doors become hanging wall art, and shelves are visually enhanced. The cumulative result keeps the eyes searching for the next surprise.

Corinne Calesso and William Hellow combined their skills to make a suitable work space and show place for their client, Lisa Jenks Limited, a jewellery, leather goods and table top accessory design firm. American Design was faced with a binding criterion: low budget for temporary housing. The company was in the midst of expansion and required new lodging; yet the expansion was anticipated to continue, so an interim solution was sought – and found – in a Flat Iron District loft. American Design Company used the building's skeleton as the basis of their work. Walls of varying heights remained untouched to save on cost. High ceilings with exposed pipes and air ducts were also left in full view, but given a new coat of paint. Most of the furniture was brought over from the client's previous offices and given a facelift.

A large angled wall greets visitors leaving the elevator. This wall, made of sandblasted fir plywood, serves to direct the traffic at the entrance. Employees veer left to the design and production offices, while clients enter the reception area.

At this juncture a brightly painted wall arrests the senses, despite being located at the far side of the receptionist's desk. Beyond the desk is a gallery of Lisa Jenks' work; oversized black and white prints are highlighted by the red-orange expanse.

The salon and conference rooms open onto the reception with doors, sidelights and glazed walls. The re-upholstered furniture from the previous offices are arranged to make visitors feel comfortable, even glamorous. References to nature and curly-cues, as seen in Jenks' jewellery and accessory designs are reflected in the colours and patterns of the fabric.

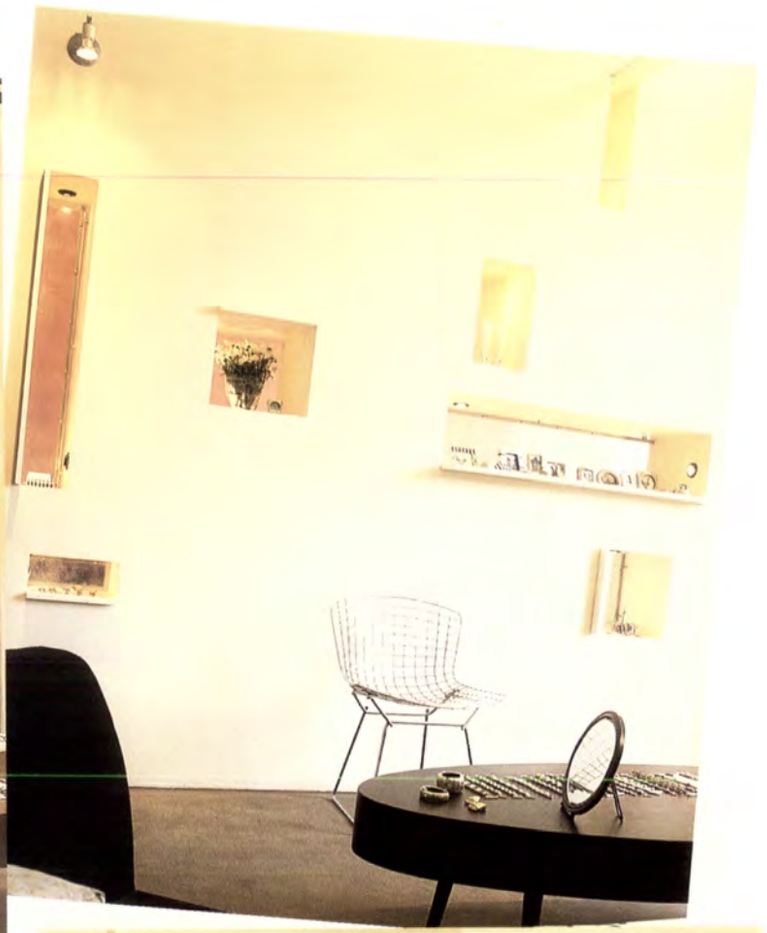
Neutrals were chosen to play off Jenks' use of silver. Tweedy materials in a beige/black diamond pattern adorn the armchairs for a business-like effect. But a different pattern was chosen for the sofa. A

(Opposite page) Detail of the displays when viewed from the conference room. Displayed objects appear as shadowy figurines. (Right) View from the salon to the reception area shows how the finished carpet edges create another plane of interest. The door, when open, slides into the adjoining conference room

(Above) The office partitions consist in part of louvred windows allowing for privacy when closed but inviting conversation and employee interaction when open. (Below) The reception area centres around the salon/showroom, the conference room, the gallery and work areas

(Above right) The conference room is distinguished by soft lighting provided by the showroom's lighted display openings and a translucently glazed wall. The showroom's door, when open, slides into this room and hangs as a wall divider

(Below)An intimate atmosphere is created by hanging a silk curtain at a distance from the high ceiling. Upholstery fabrics were chosen as they related in pattern and colour to those used in the Lisa Jenks Limited collection. (Right) The wall opposite the silk curtain features lighted cut-outs used to display jewellery and table top accessories. Lights by Hafele highlight the items while painted boards extend from the openings to add interest



(Above) Two layers of polycarbonate laid crosswise create a grid pattern for the salon door sidelight. (Right) A private office shows the use of polished stainless steel and black linoleum desktops. Metal grid chairs echo the conference room glazing pattern

Detailed view of the salon's display openings. Filon sheets stretched behind the items gives the openings a finished appearance

Parisian-influenced design, in black and cream, lightens the effect of the diamond patterns and makes guests feel at home.

Calesso talked about the need to bring the high-ceilinged space down to size: "We wanted to create an intimate atmosphere in contrast to the austere feeling in the lobby. We wanted a romantic feel." It was important that the jewellery and accessories should not be dwarfed by the surrounding space.

Part of the solution was to introduce a silk curtain along one wall. The material gives the illusion of luxurious intimacy as well as creating an ephemeral ceiling. Bordered in black, as if framed, the pale fabric hangs as a three-dimensional modern art piece. The curtain pulls back to reveal stainless steel shelving by McMaster-Carr displaying a variety of Lisa Jenks Limited products.

The salon door's sidelight adds natural light to the room from a surprising location, unexpectedly situated perpendicularly to the entrance. Hellow explained why: "We needed a way to join two walls and a sidelight seemed a natural resolution." The sidelight is made of two sheets of polycarbonate from Polygal laid crosswise to create the grid effect. This calls attention to the adjoining wall which features company products in a startling fashion.

The 18-inch thick wall has been riddled with quadrilateral cutouts of varying sizes. Each space is backed with Filon, translucent fibreglass sheeting, and contains a piece of board extending from the opening. Opposite the wood is a Hafele light fixture installed to accentuate the contents. Boards, located to the side, above or below the highlighted item now function as a means of creating shadows. The flat dimensions of the wall are thus broken with the light and shadows emanating from within.

Filon sheets are hung at varying locations throughout the display inset and create a visual effect of their own. When viewed at different angles the lights striking the Filon produce miniature rainbows.

Function takes another twist with the salon door. Hung from the top of the entrance rather than hinged, the door slides through an opening in the wall to the adjoining conference room. While the salon entrance is open, its door hangs in the conference room where it divides a full wall of Polygal's translucent glazing. The material allows light to pass through from the reception area while softly distorting the furniture and occupants in an ever-changing mural.

The conference room also has a rear view of the salon's conference wall. Here the varying locations of the Filon sheets render displayed items into shadowy figurines.

Plycraft chairs in the conference room originated from the owner's collection but were re-covered in two fabrics to match the new design scheme: black and beige. The pendant lamp is an American Design original.

The carpeting in the conference room is indicative of floor treatments throughout the loft. Hardwood floors were refinished and left for use with the occasional carpet or runner. Broadloom carpets by Bentley Mills have been bound at the edges giving a finished look like that of a custom area rug. Hellow said this elevates carpet to another level of fashion, giving a higher-end product for less money. The effect is one of reinforcing planes at different heights. It also gave American Design the capability to vary the colour and style of carpets from room to room.

Pendant halogen lamps, also by American Design, hang throughout the loft and bring the high ceiling down to the work areas. Another of their designs is featured in an office. A standard ceiling fixture was wall-mounted with a moulded piece of Rhodoid, a plastic used in jewellery and eyeglasses, to function as a wall sconce.

Workrooms are more austere than the salon and conference room but are warmed by the fir plywood walls. Customised desks by American Design combine linoleum tops by Forbo Industries and edge trim by New York Metal Moulding. Filing cabinets were painted black to match the work areas. Artwork is hung from Kenneth Lynch and Sons picture rods with brackets by Lamp Sugatsune America, similar in design to the pendant.

Jalousie windows abound in tropical regions to keep air flowing through the house. Furnished by Universal Metal Products, these windows found a home in the loft in a wall partition. Here they have been installed as a visual wall that allows for privacy when closed but invites conversation and employee interaction when open. □

NEW PRODUCT SHOWCASE

Welcome to *World Architecture* Portfolio, a new regular feature designed to provide the specifier with an informative and visual reference source of products available on an international basis. This month we focus on lighting, featuring both new products and the latest projects from a select group of international lighting consultants.

Each month *World Architecture* Portfolio will focus on a particular subject area. Coverage for 1995 will include architectural materials, building elements and interior products. A number of the international trade fairs will also be reviewed throughout the course of the year, and future events will be featured in the forthcoming Calendar section of *World Architecture*.

To allow us to continue to provide the specifier with topical information, we are inviting manufacturers to send us details of new product launches in line with our features list shown below.

Nicky Churchill, Product Editor
World Architecture, 3/6 Kenrick Place, London W1H 3FF, UK
Tel: +44 (0)171 470 7000 Fax: +44 (0)171 470 7007

WA 36	**MAY)**	**INTERIOR FITTINGS AND FINISHES** Bathrooms, kitchens, sanitary fittings and ceramics
WA 37	**JUNE**	**FURNITURE** Contemporary furniture including the latest from the Köln and Milan furniture fairs
WA 38	**JULY/AUGUST**	**BUILDING ELEMENTS** Roofing and cladding
WA 39	**SEPTEMBER**	**BUILDING COMPONENTS AND FITTINGS** Doors and windows, architectural hardware
WA 40	**OCTOBER**	**CAD SYSTEMS** The latest CAD technology available to the specifier
WA 41	**NOVEMBER**	**OFFICE ENVIRONMENT** Desking systems, partitioning, wall storage, office accessories including a review of NeoCon, Chicago
WA 42	**DECEMBER/JANUARY**	**EXTERNAL ENVIRONMENT** Furniture and fittings for public spaces, exterior landscape and lighting, recent projects by international landscape architects

WORLD ARCHITECTURE **PORTFOLIO**

Dormeuil House, London by Lighting Design Limited

Lighting Design

Artemide

A new version of the popular Tolomeo task light has been developed, designed by Michele De Lucchi and Giancarlo Fassino. The new fitting has been produced specifically for video terminal installations and features an energy saving 11W compact fluorescent lamp. The polished aluminium arms extend from a painted cast iron base.

Artemide Litech

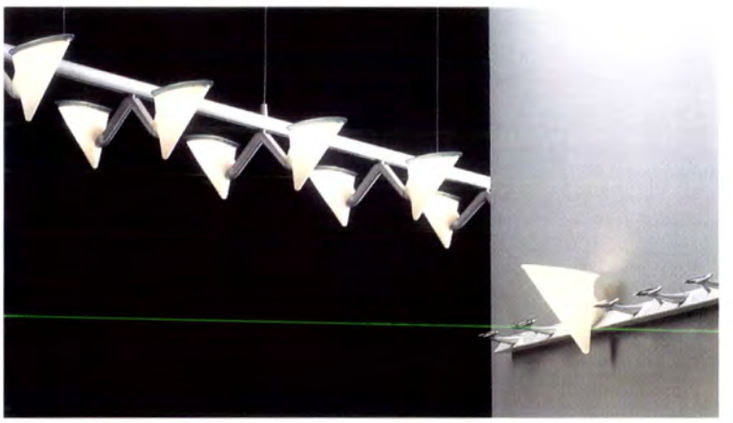
The spage-age Mowe is a wall/ceiling washer designed by F A Porsche for Artemide Litech. Manufactured from aluminium and steel, the fitting includes symmetrical and assymetrical versions powered by metal halide and/or halogen lamps. Mowe is suitable for direct/indirect lighting in offices, conference halls, exhibitions and museums. It is also available in suspended and floor standing models.

Artemide GB Limited
323 City Road,
London EC1V 1LJ, UK
Tel: +44 (0)171 833 1755
Fax: +44 (0)171 833 1766

Beta Lighting

The comprehensive range of high performance downlights from Beta Lighting includes fittings for high intensity discharge lamps, compact fluorescent, mains voltage, low voltage and Philips' QL induction lamp. The downlights are available with decorative floating discs and a variety of accessories. To complement this large collection, a new lighting control system has also been introduced.

Beta Lighting Limited
383/387 Leeds Road,
Bradford, BD3 9LZ, UK
Tel: +44 (0)1274 721129
Fax: +44 (0)1274 305007



B'Lux

Lobby is an extensive programme of wall and ceiling lamps designed by Jorge Pensi for Spanish company B'Lux. The fittings feature a satin etched polycarbonate diffuser, with various coloured trims, mounted as single or multi-light sets. The wall lights can also be supplied with cast aluminium coat hangers, as shown above.

Candell Lighting Limited
Unit 15 Wadsworth Business Park, 21 Wadsworth Road, Perivale, Middlesex UB6 7LQ, UK
Tel: +44 (0)181 810 6162
Fax: +44 (0)181 810 6225

Vianne

Douce Eva, designed by G. Schmit is a low voltage all glass table lamp. This functional fitting has a rotating head which allows the light to be focused on one specific area. Douce Eva is also available as a spot light system.

Cristalleries & Verreries D'Art de Vianne
47230 Lavardac, France
Tel: +33 53 97 55 05
Fax: +33 53 97 50 28

Reggiani

The sculptural Metamorphosi range of outdoor floodlights takes inspiration from natural forms. The three section fitting has been designed for complete freedom of adjustment. Free standing, wall fittings, and recessed projectors are all available with 70W to 150W metal halide or high pressure sodium lamps and are rated IP55 or IP67.

Reggiani Lighting
Giltland House
12 Chester Road
Borehamwood
Hertfordshire, WD6 1LT, UK
Tel: +44 (0)181 953 0855
Fax: +44 (0)181 207 3923

iGuzzini

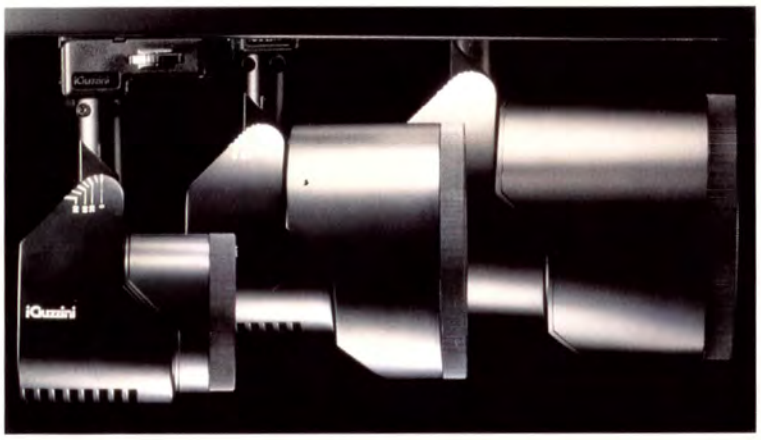
The Cestello lighting system (left) has been designed to give total control and flexibility of illumination, providing eight configurations and up to ten different lamp choices within each configuration. Suitable applications include galleries, museums, retail premises, and exhibition spaces.

Shuttle (below) has also been designed with flexibility in mind. The track and surface mounted luminaires have a rotation of 330° and a 90° inclination. One style of body and 15 types of lamp – from low voltage to metal halide, superspot to compact fluorescent.

Absolute Action

Absolute Action's fibre optic lighting systems have gained a worldwide reputation for reliability and innovation. From design concept to installation, the company has the capability to undertake the most rigorous and demanding contracts.

Absolute Action
Mantle House, Broomhill Road, London SW18 4JQ, UK.
Tel: +44 (0)181 871 5005. Fax: +44 (0)181 877 9498



iGuzzini Illuminazione UK Limited
Unit 3
Mitcham Industrial Estate
85 Streatham Road
Mitcham
Surrey CR4 2AP, UK
Tel: +44 (0)181 646 4141
Fax: +44 (0)181 640 6910

Staff Lighting

Requiring a recess depth of only 100mm, Staff's new FD2000 range of downlights achieve a high lumen output through the use of fluorescent lamps directing the light downwards, thereby minimising the amount of fittings required. Nine choices of lamp combinations are provided as standard and the fittings are compatible with Staff's range of decorative glass rings and cones in clear, frosted and blue glass.

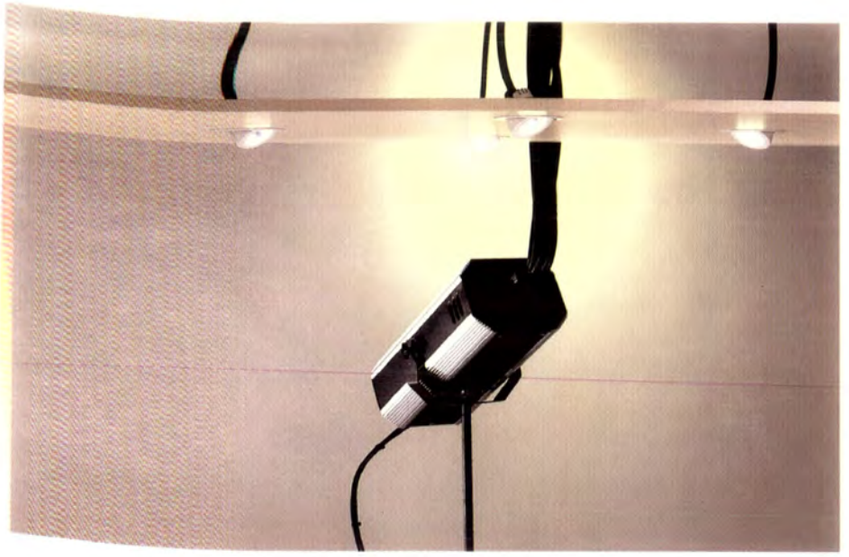
Staff Lighting
Unit 4, The Argent Centre
Pump Lane, Hayes
Middlesex UB3 3BL, UK
Tel: +44 (0)181 569 3639
Fax: +44 (0)181 573 3560

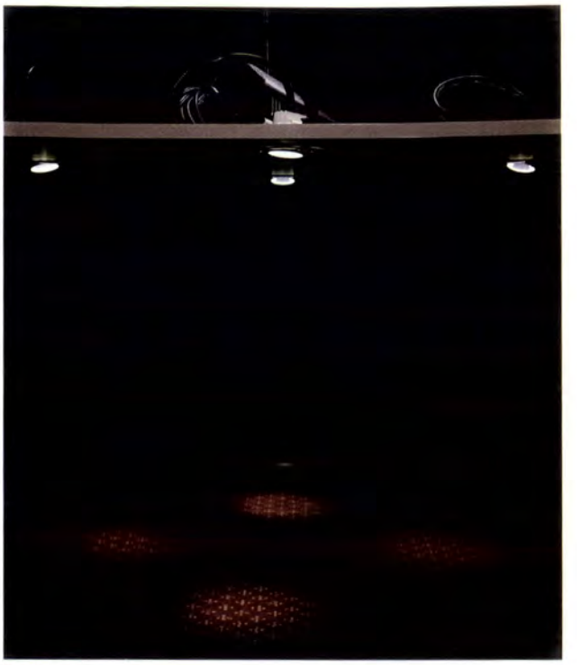
The stylish Lingotto range, shown below, has been designed by Renzo Piano and is suitable for both indoor and outdoor use.

Lucent Lighting UK

Lucent Lighting UK is an organisation designed to serve architects, consulting engineers and lighting consultants. The company has built up a portfolio of quality lighting products and has worked on many diverse projects worldwide. Featured here is Mercury House, London. Architects: Austin-Smith:Lord

Lucent Lighting UK Ltd
The Old Station House
7a Coppetts Road
London N10 1NN, UK
Tel: +44 (0)181 442 0880
Fax: +44 (0)181 444 6998





Connect

Connect Lighting's new 10/13W miniature compact fluorescent downlighter, (top) with its diamond faceted profile output reflector offers a real alternative to low voltage downlighters. Also from Connect, the new 'scoop' downlighter with spot, medium or flood beam reflectors. This fitting offers both vertical adjustment and full rotational movement.

Connect Lighting Systems (UK) Limited
Murrills Estate, East Street
Portchester, Fareham
Hampshire, PO16 9XS UK
Tel: +44 (0)1705 375140

Reflexion

Reflexion's range of fibre optic luminaires are designed to complement both interior and exterior display requirements. Recent advances in lighting technology and the use of optical quality glass fibre has resulted in improved performance, particularly applicable to accent lighting.

Reflexion Lighting Limited
24 Regal Drive, Soham, Ely, Cambridgeshire, CB7 5BE, UK
Tel: +44 (0)1353 723550. Fax: +44 (0)1353 723551

Philips

The famous clock at the Tower of Big Ben in London (below) is now being lit from within by 112 Philips QL 55W/84 induction lamps. A special unit was developed by the UK Special Projects Team which allowed all the lighting to be installed within a few weeks. The result is a 60% reduction in energy consumption and lower maintenance costs due to the QL lamps' 60,000 hour lamp life.

Philips Lighting B.V.
Building EC 2, P O Box 80020, 5600 JM Eindhoven, The Netherlands
Tel: +31 40 757 234. Fax: +31 40 757 288

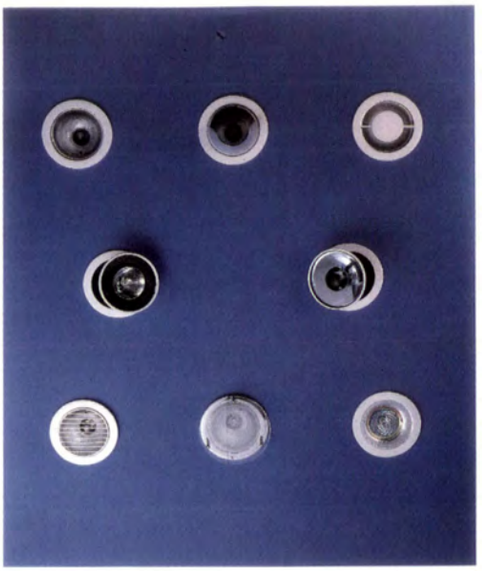
Menvier

Menvier emergency lighting has been specified throughout the 26 storey Forte Grand Hotel in Abu Dhabi. Over 300 fittings have been installed including Edge-lites and Eurolites in the main reception, corridors and function areas and Kwiklite 8 watt emergency lights in all the service and escape areas.

Menvier (Electronic Engineers) Limited
Southam Road, Banbury,
Oxon, OX16 7RX, UK
Tel: +44 (0)1295 256363
Fax: +44 (0)1395 270102

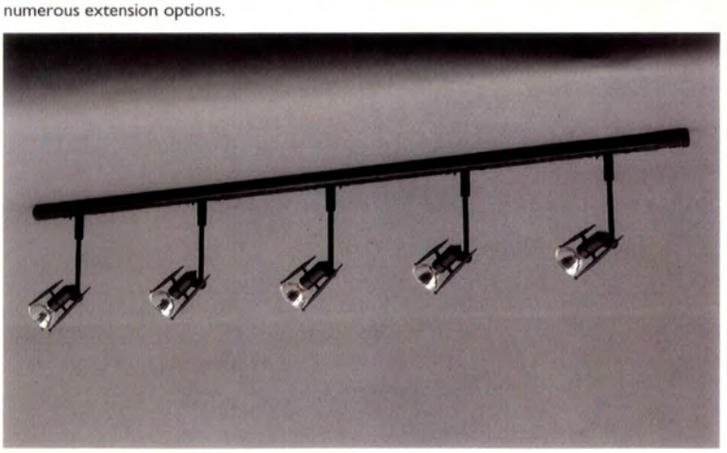
Optime Lighting

The Optime portfolio has been developed for commercial and domestic applications, providing the specifier with a broad range of lighting. The company can provide both elaborate bespoke systems through to the simpler standard designs. Recent clients include Alfa Laval, Boots, Reebok (UK), Thomas Cook and Wimpey Construction.



Optime's wire system for display use

The Modular Track System is truly versatile and can follow any contour to any length, with numerous extension options.

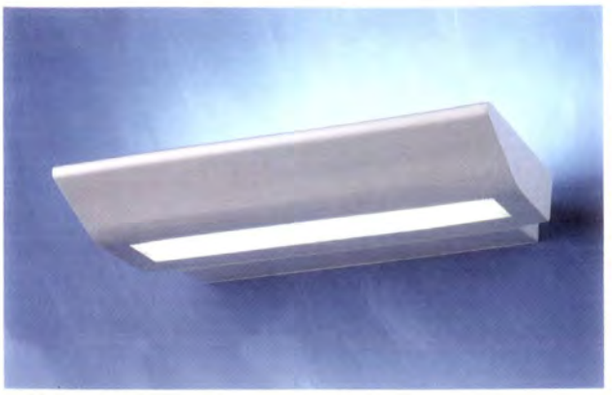


Optime Lighting Limited
156 Ladbroke Grove
North Kensington
London, W10 5NA, UK
Tel: +44 (0)181 964 9711
Fax: +44 (0)181 964 9711

Concord Lighting

The new Scala compact fluorescent uplighter from Concord Lighting is available in both freestanding or wall-mounted versions with optional direct or indirect lighting. The high efficiency reflector provides a broad beam for uniform uplighting. Electronic ballast and a three-step switch offer two or four lamp operation.

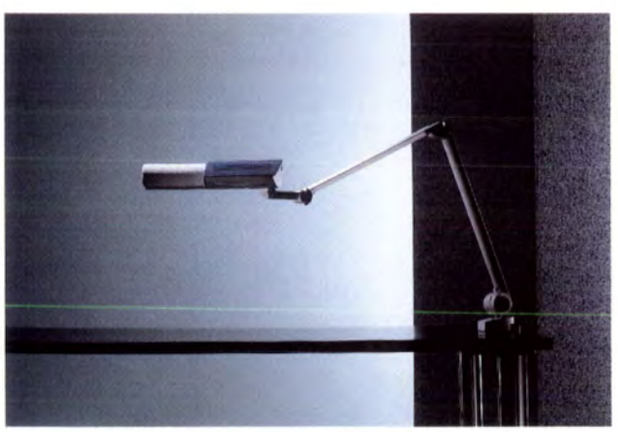
Concord Lighting Limited
174 High Holborn
London, WC1V 7AA, UK
Tel: +44 (0)171 497 1400
Fax: +49 (0)171 497 1404



La Conch Lighting

The slim Prelude compact fluorescent uplighter from La Conch Lighting is only 70mm deep. The glare-free light output makes it particularly suitable for office environments with the added benefit of the downlight feature for workstation use. Prelude is available with a louvre, perforated metal or glass diffuser and is fitted with a heat resistant polycarbonate cover.

La Conch Lighting
4 The Chase Centre, Chase Road, Park Royal, London, NW10 6QP, UK
Tel: +44 (0)181 961 0313. Fax: +49 (0)181 961 0337



Waldmann Lichttechnik

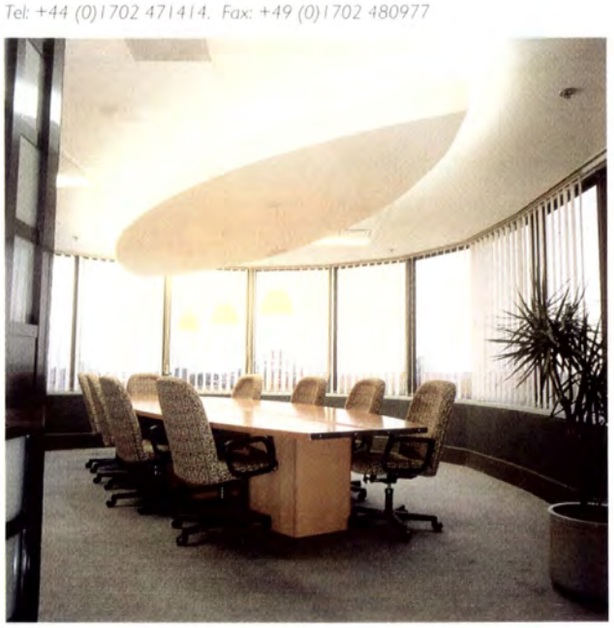
Two fittings from office lighting specialists Waldmann Lichtechnik. The Twin-C system (right) is a direct/indirect light which provides glare-free lighting. And for the task at hand, the new Cirrus, shown left, is designed to satisfy the requirements of the VDU workplace.

Waldmann Lichttechnik
Herbert Waldmann GmbH & Co, att. Mr Hüttenberger
P O Box 37 20
78026 Villingen-Schwenningen, Germany
Tel: +49 (0)7720-601-0
Fax: +49 (0)7720-601-290

Intralux

Kove, shown below, is a new modular seamless light source for illuminating coves, coffers and pelmets. The fitting has a maximum width of only 76mm and uses conventional and compact tube applications. It is manufactured in standard, H/F and dimmable configurations.

Intralux United Kingdom Limited
45 Leigh Road, Leigh on Sea, Essex, SS9 1JP, UK
Tel: +44 (0)1702 471414. Fax: +49 (0)1702 480977



Compact Lighting

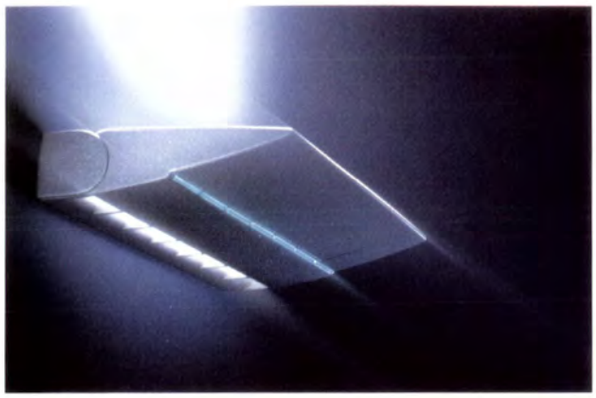
The 1995 Compact Lighting catalogue is now available featuring several new ranges including low energy alternatives for low voltage, Ro80 and PAR38 downlighters, multi-directional downlighters, CDM fittings and a super-efficient alternative to twin compact fluorescent recessed downlighters.

Compact Lighting Ltd
Blueprint 1600
Dundas Spur
Portsmouth
Hampshire, PO3 5RW, UK
Tel: +44 (0)1705 652999
Fax: +49 (0)1705 653053

ORA Lighting

The Parallex range of energy saving uplighters is designed for low glare lighting applications. Available as wall, screen, ceiling and floor standing fittings, Parallex incorporates sculpted die cast ends, a subtle downlighting feature and optional emergency lighting. The choice of lamp options and numerous standard finishes give the collection tremendous versatility.

ORA Lighting
16 Montpelier Road
London, SE15 2HF, UK
Tel: +44 (0)171 732 6161
Fax: +44 (0)171 277 6776



Targetti

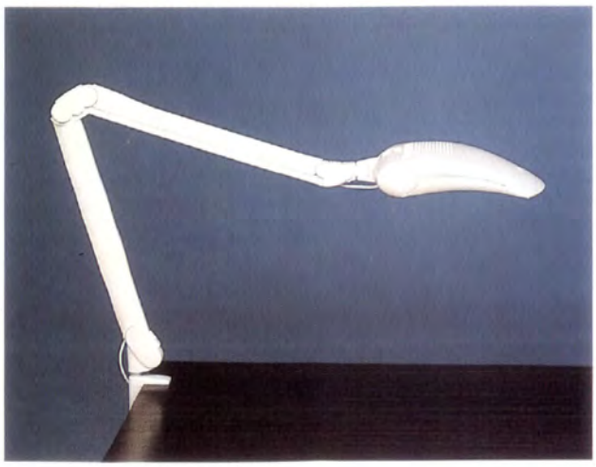
Arianne, designed by Luigi Trenti, applies aerospace technology to the problem of indirect lighting. The lightness of microcellular polyurethane has been combined with the electronics of new compact fluorescent lamps to produce a collection of wall mounted and pendant luminaires which conform to European safety and installation standards.

Targetti UK
2nd floor, 138 South Street, Romford, Essex RM1 1TE, UK
Tel: +44 (0)1708 741286. Fax: +44 (0)1708 742060

Luxo

Vision is the latest advanced technical task light from Luxo and uses a low heat energy saving compact fluorescent lamp. The continuous dimmer switch dims the 18W light source from 25% to 100% of the light output level. Vision also complies with the EMC directive relating to interference.

Luxo UK Limited
4 Barmeston Road, London, SE6 3BN, UK
Tel: +44 (0)181 698 7238. Fax: +44 (0)181 698 6134



Anglepoise

Artikula is the first of a new range of Anglepoise products, developed with a patented jointing mechanism. The joints of the original anglepoise were based on the human arm and Artikula follows the theme, this time using the human spine as inspiration. Artikula is made from nylon, polycarbonate and stainless steel and uses an 11W miniature fluorescent.

Anglepoise Limited
Enfield Industrial Area, Redditch B97 6DR, UK
Tel: +44 (0)1527 63771. Fax: +44 (0)1527 61232

MC Lichttechnik GmbH

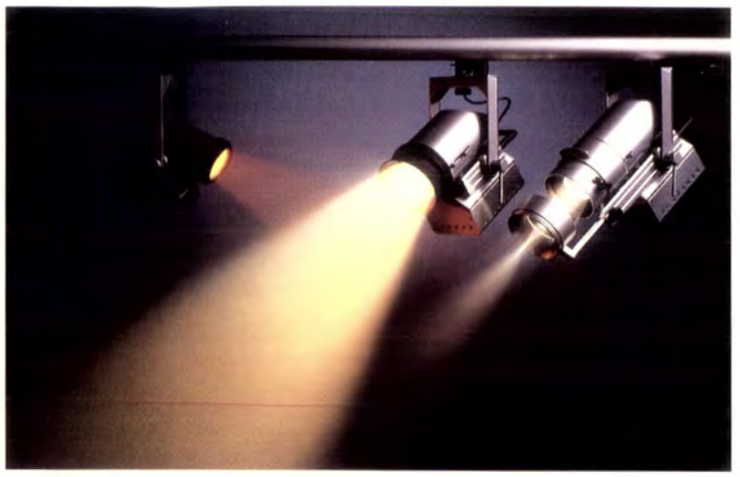
Custom made up/downlighters manufactured from shaped perforated steel wih 2x58W light source and dimmable HF gear, designed for LG3, CAT2, office environment. The sharp contours reflect the surrounding architectural structure.

MC Lichttechnik GmbH
Auf dem Hüls 1, 40822 Mettmann, Germany
Tel: +49 (0)2104 76051. Fax: +49 (0)2104 76052

Zumtobel

The OCS range, by Wolf and Da Costa, has been designed to provide full flexibility within the working environment. The free standing and wall mounted luminaires give glare-free indirect ambient lighting for VDU work, while the desk top task lights provide optimum visual conditions for closer working. A wide range of light sources is available.

Zumtobel Lighting Systems Limited
Unit 5, The Argent Centre
Pump Lane, Hayes
Middlesex, UB3 3BL, UK
Tel: +44 (0)181 573 3556
Fax: +44 (0)181 573 3560



Erco Lighting

Stella, designed by Franco Clivio, bridges the gap between conventional spotlights and high performance projectors. Stella's main technical feature is a high light output offered within a compact design – good for architectural and display lighting.

Erco Lighting Limited
38 Dover Street, London, W1X 3RB, UK
Tel: +44 (0)171 408 0320. Fax: +44 (0)171 409 1530

Shopkit Designs

The low-voltage Counterpoise luminaire is a new adaptable lighting range, designed and manufactured by Shopkit Designs. The full range will be launched in America at Chicago's store fixturing show in April, where Shopkit's full range of cabinets and lighting will also be on display.

Shopkit Designs Limited
100 Cecil Street, Watford
Hertfordshire, WD2 5AP, UK
Tel: +44 (0)1923 818282
Fax: +44 (0)1923 818280

Fairfield Displays & Lighting

The Highlight Collection from Fairfield is a low voltage lighting system suitable for restaurants, hotels, offices and retail outlets. We show Highstyle, a system of linked pendant lights – particularly useful for those awkward bends and curves.

Fairfield Displays & Lighting Limited
127 Albert Street, Fleet
Hampshire, GU13 9RP, UK
Tel: +44 (0)1252 812211
Fax: +44 (0)1252 812123

Thorn Lighting

The Adagio collection of surface and track mounted spotlights offers a choice of lamp types, covering tungsten halogen, metal halide and white SON – from 50W to 150W.

Thorn Lighting Limited
Elstree Way, Borehamwood, Hertfordshire, WD6 1HZ, UK
Tel: +44 (0)181 905 1313. Fax: +44 (0)181 967 6343

Basis Design

Option LV, designed by Barry Cook, is a new range of low voltage lighting manufactured in the UK by Basis Design. The fitting features a well engineered jack plug and socket system particularly suitable for exhibition and retail installations. Other products in the range include ceiling sockets and a track system with integral transformer.

Basis Design Limited
Unit 17-18
109 Bartholomew Road
London, NW5 2BJ, UK
Tel: +44 (0)171 284 2040
Fax: +44 (0)171 284 2038

Altima Lighting

Altima's low voltage track system has recently been specified by Ron Arad for his London showroom. A combination of Cornetto and Gio spots from the Altima range have been used with varying beam widths to highlight individual displays and provide general lighting for the showroom space.

Altima Lighting Limited
24 Scrubs Lane
London, NW10 6RD, UK
Tel: +44 (0)181 968 1212
Fax: +44 (0)181 968 1999

Michael John Lighting

Decorative long life glitter lamps are generally used in high areas where special effect is required and maintenance is a problem. Recent installations include shopping malls in America and Australasia.

Michael John Lighting Limited
Chester Lymes, Higham Road,
Irchester, Wellingborough,
Northants, NN9 7EZ, UK
Tel: +44 (0)1933 413302
Fax: +44 (0)1933 413304

Oldham Lighting

Low maintenance, dimmable low voltage cold cathode and high output Hi-Slim ambient lighting systems give up to 45,000 hours life and are custom made for each application to complement the architectural features of the space.

Oldham Lighting Limited
6 The Lanchesters, 162-166 Fulham Palace Road, London W6 9PA
Tel: +44 (0)181 563 7300. Fax: +44 (0)181 563 7301

Microlights

The Trunky range of energy efficient luminaires with both horizontal and vertical adjustment are particularly good for display use. Trunky 1 uses low voltage 50mm dichroics and Trunky 2 uses low voltage tunsten halogen capsule to 100W. A further option is Trunky 5 (not shown) which uses white SON/Metal Halide.

Microlights Limited
Elcot Lane, Marlborough, Wiltshire SN8 2BG, UK
Tel: +44 (0)1672 515611. Fax: +44 (0)1672 513816

Christopher Hyde

Christopher Hyde supplies exclusive lighting for commercial and domestic interior worldwide. The fittings are manufactured in brass, hand made and finished by skilled craftsmen. Traditional fittings for luxurious and prestige interiors.

Christopher Hyde
26 Suffield Close
South Croydon
Surrey CR2 8SZ, UK
Tel: +44 (0)181 651 4120

Chelsom

For the classic interior, Chelsom's new Aegean range features forged brass with hand wrought scrolls, finished in verdigris bronze. The heavily moulded glass shades are distressed to give a straw coloured effect. Aegean includes four designs of wall bracket, a floor standard and matching wall mounted torchere, and three and five light chandeliers.

Chelsom Limited
Heritage House,
Clifton Road, Blackpool,
Lancashire FY4 4QA, UK
Tel: +44 (0)1253 791344
Fax: +44 (0)1253 791341

SPI Lighting Inc.

The standard Opera pendant is textured white with three options of brass plated mountings. Different variations include a translucent or frosted acrylic dome (also available in faux alabaster), brass plated dome trim ring, and housing and canopies in 30 standard colours, chrome or brass plated.

SPI Lighting Inc.
10400 North Enterprise Drive, Mequon, Wisconsin 53092, USA
Tel: +1 (414) 242 1420. Fax: +1 (414) 242 6414

Elementer Lighting

The new aptly-named Lighthouse bollard, designed by architect Peter Bysted. Lighthouse is manufactured from Corten steel which will weather over the years to a deep rusty red finish. The major benefit of Corten steel is that it requires no maintenance.

Elementer Lighting Limited

Progress House, Whittle Parkway, Slough, Berkshire, SL1 8DG, UK
Tel: +44 (0)1628 667538. Fax: +44 (0)1628 673852

Holophane Europe

Holophane's Grosvenor light has been customised for the new Safeway store in Milton Keynes, to satisfy the brief to cut down on light pollution and promote energy efficiency. Mounted on six metre columns, the triple fittings include integral control gear and use 150W SON-T lamps, providing an average illuminance of 30 lux.

Holophane Europe Limited

Bond Avenue, Milton Keynes, Buckinghamshire, MK1 1JG, UK
Tel: +44 (0)1908 649292. Fax: +44 (0)1908 270006

Commercial Lighting Systems

As part of the D-Day commemorations, the Royal Naval Memorial at Portsmouth in the South of England has been floodlit with Meyer luminaires. The fittings, specially adapted by Commercial Lighting Systems, are permanently installed within purpose built housings.

Commercial Lighting Systems Limited

Unit 12 Chandlers Way
Park Gate Business Centre,
Swanwick, Hampshire,
SO3 7FQ, UK
Tel: +44 (0)1489 581002
Fax: +44 (0)1489 576262

Irideon

The innovative AR500™ programmable outdoor floodlight, shown above, features a patented, computer-controlled, dichroic colour changing assembly. It has added a new dimension to the Entel Tower in Santiago, Chile where the luminaire is programmed to give each side of the column the same or a different colour. Colour effects range from subtle cross-fades to dramatic, high speed changes.

Irideon (a Vari-Lite Company)

20-22 Fairway Drive, Greenford, Middlesex, UB6 8PW, UK
Tel: +44 (0)181 575 6666. Fax: +44 (0)181 575 0424

City of Agde
First prize in urben planning in France. Products: Rochelongue© and Luna©.
Photograph: Olivier. Cadouin, Paris

Eclatec

Many architects working on urban projects have expressed the need to integrate lighting into the overall project concept. Internationally-renowned architect Jean-Michel Wilmotte, who designed several of Eclatec's successful urban lighting materials, defines this perspective: "Our years of activity have made us conscious of the importance of atmosphere in public spaces where, just as is true indoors, the furniture, the type of flooring and especially the lighting all have an important effect." Eclatec proposes its services as an intermediary between town authorities and designers, a means of encouraging dialogue, proposal and realisation.

Eclatec
41, rue Lafayette B.P. 69, 54320 Maxéville, France
Tel: +33 83 39 38 00

Lighting project for Lyon in partnership with Jean-Michel Wilmotte.
Product: Reflex©.
Photograph: Olivier. Cadouin, Paris

Seafront of Biarritz.
Product: Oblic©.
Photograph: Olivier. Cadouin, Paris

Restructuring the town centre and the seafront of Biarritz.
Product: Luna©.
Photograph: Olivier. Cadouin, Paris

Floodlighting of the Maison caffée at Nimes developed with Norman Foster.
Product: Airport©.
Photograph: Olivier. Cadouin, Paris

Noral

Light fittings based on the philosophy of high quality products and design.

Noral Lighting Part.
12940 San Fernando Road, Sylmar, California 91341, USA
Tel: +1 (818) 367 9773
Fax: +1 (818)367 7113

Noral Industries S.A.
ZAC Les Playes Jean Monnet, P O Box 550, 83500 La Seyne Sur Mer, France
Tel: +33 94 11 10 00
Fax: +33 94 94 51 23

Rio (left) is a decorative bollard available in two heights. It is suitable for varied environments requiring robust and functional lighting.

The Porto wall and ceiling light (right), shown here in Red RAL 3002, one of 12 standard colours available.

Golf is a popular wall fitting with space for numerals on the front.

Atlantis is suitable for both indoor and outdoor application.

The versatile Roulette range offers a selection of different sizes and mounting brackets to suit each situation. Roulette II is featured here.

Lido is the latest model in Noral's Park and Street range.

Sugg Lighting

Sugg Lighting specialise in gas and electric lamps, lanterns and columns, and use this experience to offer a sympathetic and experienced refurbishment and replacement service. In addition to this range of classic lighting products, the company is also UK distributor for the contemporary Hellux amenity lighting range.

Sugg Lighting Limited
Sussex Manor Business Park, Gatwick Road, Crawley, West Sussex, RH10 2GD, UK
Tel: +44 (0)1293 540111
Fax: +44 (0)1293 540114

Robers-Leuchten

A German manufacturer producing high quality interior and exterior light fittings made of wrought iron, cast aluminium or cast iron. The product range also includes street lighting, park benches, fountains and bollards as well as special designs produced to the customer's requirements.

Robers-Leuchten GmbH & Co. KG
Weseker Weg 36,
D-46354 Südlohn, Germany
Tel: +49 (0)2862/8051
Fax: +49 (0)2862/8416

D W Windsor

The Optima series of exterior lights is a modular design based on a central cast aluminium ring. This versatile fitting is offered with a choice of hood and glazing shapes, various mounting options, and lamp and optical control.

D W Windsor Limited
Marsh Lane, Ware, Hertfordshire, SG12 9QL, UK
Tel: +44 (0)1920 466499
Fax: +44 (0)1920 460327

Michael John Lighting

A drive over four-way buried paver unit from Michael John Lighting, designed to accommodate low energy light sources and most of the compact lamps. The fitting can also expand to take up to 5ft. fluorescent tubes.

Michael John Lighting Limited
Chester Lymes, Higham Road, Irchester, Wellingborough, Northants, NN9 7EZ, UK
Tel: +44 (0)1933 413302
Fax: +44 (0)1933 413304

Handles and Fittings

The range of Best of Brass and Steel Tech electrical accessories are designed, produced and distributed in the UK. The plates feature an allen key frontal screwing system offering greater security than traditional screws and an aesthetically pleasant appearance. Finishes include satin and polished stainless steel, polished and satin brass, bronze, chrome and colour coated. Coordinated door furniture and bathroom fittings are also available.

Handles and Fittings Ltd
HAF House, Mead Lane, Hertford, Hertfordshire SG13 7AP, UK
Tel: +44 (0)1992 505655
Fax: +44 (0)1992 505705

Strand Lighting

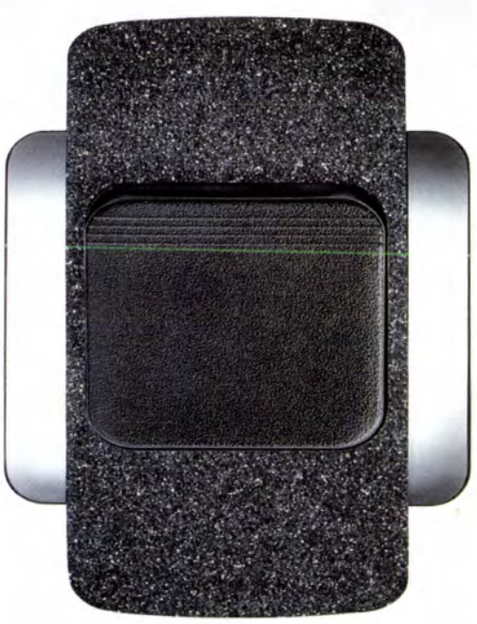
The Outlook™ range of control stations for architectural applications provides manual slider or preset pushbutton control of programmable lighting scenes. An A/V interface, infra-red control and room partitioning gives Outlook the flexibility to meet exacting project requirements.

Strand Lighting Limited
Grant Way, off Syon Lane, Isleworth, Middlesex, TW7 5QD, UK
Tel: +44 (0)181 560 3171. Fax: +44 (0)181 568 2103

Merten

Function, design, structure and material have all been considered in the new EPOCA switch. Suitable for both vertical and horizontal assembly, the switch is available in a range of designs for use in private houses or commercial buildings

Gebrüder Merten GmbH & Co. KG
Kaiserstrasse 150, D-51643 Gummersbach, Germany
Tel: +49 (0)2261 82-0
Fax: +49 (0)2261 82-284



Wandsworth Electrical

Wandsworth Electrical has launched a new range of clip on metal plate wiring accessories with no visible fixing screws. Cover plates with matching rockers are available in satin or mirrored stainless steel, anodised silver, polished brass and antique bronze.

Wandsworth Electrical Limited
Albert Drive, Sheerwater, Woking, Surrey GU21 5SE, UK
Tel: +44 (0)1483 740740
Fax: +44 (0)1483 740384

Jung

The SL 500 range of switches, sockets and accessories, shown right, have been designed for luxury interiors. All the operating elements are made of specially treated metal and the frames from acrylic glass with embedded coloured metal component.

The company also produe an infra-red system which includes dimmers, switches and push buttons operated by infra-red remote or wall outlet control. The wall outlet transmitters can also be used to control ceiling switches, push buttons and dimmers. Transmitters are available for four and eight channels.

Albrecht Jung GmbH & Co. KG
P O Box 1320 D-58569 Schalksmühle, Germany
Tel: +49 (0)2355/806-0
Fax: +49 (0)2355/806 254

WORLD ARCHITECTURE **PORTFOLIO**

The new Waldmann free-standing uplighter RO-1, designed to prevent direct and reflected glare

Lighting

ARUP

Ove Arup & Partners' lighting design group specialise in working with clients and architects to achieve lighting schemes which integrate natural and electric light in an energy-efficient manner. Advanced computer and physical modelling techniques are often used to achieve this.

Ove Arup & Partners
13 Fitzroy Street, London, W1P 6BQ, UK
Tel: +44 (0)171 636 1531. Fax: +44(0)171 465 3669

Cable & Wireless Training College, Coventry, UK
Daylight studies using computer modelling and model testing in an artificial sky were employed to determine the extent of the glazing and shading required to enable the spaces to be lit by daylight for the maximum amount of time each year.
Architects: MacCormac, Jamieson, Prichard

Kansai Airport, Osaka, Japan
For Kansai airport, daylight was essential and the integration of the electric lighting with the daylight and the building was of great importance. Computer models and model testing were used to help determine the final design of the roof and the glazing.
Architects: Renzo Piano Building Workshop / Nikken Sekkei

Bracken House, London, UK
The lifts rise through the centre of the atrium in this City of London office building, with glass enclosures and interconnecting landings. The lighting was designed in sympathy with the materials and provides a background glow seen from all points within the atrium.
Architects: Michael Hopkins and Partners

Vauxhall Cross London, UK
Floodlighting of exteriors is as much about shadow as it is about light. Highlighting and lowlighting creates interest, accentuates or changes form, and can change perceptions of the building's character.
Architects: Terry Farrell and Company

Cassasa Building, Loyola Law School, Los Angeles, USA
Lecture theatres have very particular design requirements and the space often has to be viewed in different light levels. There is usually a lack of daylight so the electric lighting must illuminate both the important surfaces as well as the task area.
Architect: Frank Gehry

Lighting Design Partnership

We look at three projects recently undertaken by Lighting Design Partnership. A theatrical lighting approach at the Prince Edward Theatre in London which received the 1994 National Lighting Award (exterior) and International Association of Lighting Designers Award (interior). An understated lighting design approach at Durham Cathedral, England which gained a 1994 National Lighting Award and Hilight Award. And Nicholas Grimshaw's Waterloo International Terminal in London, where the lighting design complies with the extensive railway codes of practice.

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63 Gee Street
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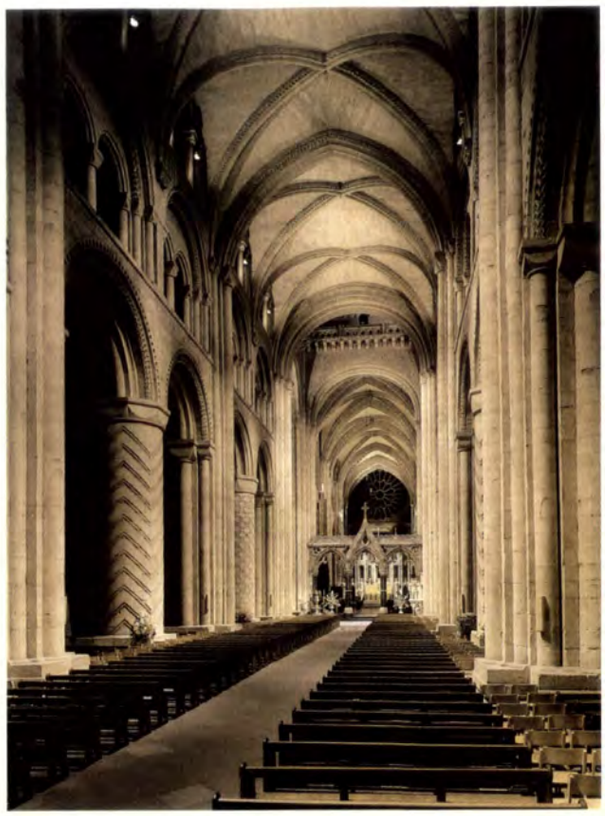

Hewertson Jenkinson Partnership

Hewertson Jenkinson Partnership has created a warm welcoming atmosphere at St Josephs Church in Cleveland, using 50W SON-plus asymmetric uplights mounted on the circular structural columns, together with strategically placed LV spotlights for high lighting. The project was highly commended in the 1994 National Lighting Awards.

Hewertson Jenkinson Partnership
20-21 Appleby House, Mitchell Avenue, Thornaby Town Centre, Stockton-on-Tees, Cleveland, TS17 9EY, UK
Tel: +44 (0)1642 760011. Fax: +44 (0)1642 750057

Max Fordham & Partners

Extensive use of indirect lighting helps to recreate the atmosphere of the original Savoy Theatre while modern lighting technology reduces the running costs and maintenance.
Photographer: Matthew Weinreb

Max Fordham & Partners, *42/43 Gloucester Crescent, London NW1 7PE, UK*
Tel: +44 (0)171 267 5161. Fax: +44 (0)171 482 0329

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iGuzzini

Those companies and individuals involved in the lighting industry are able to determine with experience what colour temperature lamps will suit a finished surface, be it internal or external. In order to pass on this information to an architect or client, lighting manufacturer iGuzzini has developed a new photographic simulation service.

This new visualisation system allows the company to more specifically show how the chosen light fitting will look in situ and also the effect that will be created by the chosen light source.

Three things are required to create the visualisation – a photograph, model or computer drawing of the project, the design brief and the desired effect of the illumination. The photograph or image is scanned and transferred to the screen allowing the operator to update it to include the new finishes, using information taken from the design brief. Finishes may range from new internal wall, ceiling and floor finishes to an external paving scheme and are applied using a comprehensive databank of images. This "updating" process is one of the most important aspects as it enables the computer to illustrate accurately the luminance achieved on the new surfaces.

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iGuzzini were presented with the photograph (1), top left, and asked by the architect to prepare a visualisuation of how the building would appear at night using iGuzzini luminaires. The effect created is shown in photograph 2.

The standard lumen calculations are also carried out in conjunction with this simulation service. For standard calculations, iGuzzini now has a CAD system where details can be obtained on disk rather than a hard copy drawing. This allows lumen calculations to be super-imposed over the top of any project so light levels achieved can be viewed in any area. Cross referencing is simpler too, allowing the levels in a corridor to be viewed as opposed to the office space, all clearly plotted by a CAD system.

With these two new systems, iGuzzini aims to provide the best lighting design service possible alongside its extensive product range.

5

A typical iGuzzini presentation will consist of three photographs, the first being the existing scheme (3). At this retail mall, the brief was to repaint the walls, remove the external surface mounted wiring, and illuminate the walkway using the Lingotto luminaire. Two further photographs are then produced. The first is a daytime visualisation (4) which allows the client to evaluate the aesthetic value of the luminaire when in location. The second is the night time effect (5). This clearly shows the illumination on the ceiling with a low uniformity ratio achieved, the uniform illuminance on the floor and the effect created by using metal halide lamps. The shops too are now "occupied" as per the brief.

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Pictures 6, 7, 8 show a second example of this new technology. iGuzzini received details of the paving and landsaping and the desired night time illumination. Again, two photographs illustrate the completed project, in daylight and at night.

9, 10, 11 give examples of street lanterns being used in conjunction with SON lamps. All the lanterns are superimposed onto the photograph.

12 clearly illustrates the different colour appearance achieved by SON and metal halide.

iGuzzini Illuminazione (UK) Limited
Unit 3, Mitcham Industrial Estate
85 Streatham Road
Mitcham, Surrey CR4 2AP
Tel: +44 (0)181 646 4141
Fax: +44 (0)181 640 6910

12

Horton-Lees

Horton-Lees Lighting Design has been responsible for lighting many of the large campuses, airport facilities and public building projects in North America, and has offices in New York, San Francisco and Los Angeles. A recent project is the Ahmanson Theatre in Los Angeles, California which has just received an IALD Award of Excellence 1995.

Horton-Lees Lighting Design Inc.
200 Park Avenue South, Suite 1401, New York, NY 10003-1552, USA
Tel: +1 212 674 5580. Fax: +1 212 254 2712

USLighting Consultants

Plaza Rio Hondo in Puerto Rico was recently renovated by USLighting Consultants and Arrowstreet, Inc. architects, using metal halide and neon sources at 11.5W/sq.m. The column capitols in the Center Court use coloured plexiglass, perforated metal and compact fluorescent to complement the marine theme.
Photos: Robert Holt

USLighting Consultants
853 Broadway, New York
NY10003, USA
Tel: +1 212 673 3210
Fax: +1 212 673 5261

Flack & Kurtz

At the Goldman Sachs Headquarters in London, Flack & Kurtz were responsible for lighting 450,000 sq.ft. of interior public spaces, including a 60 ft. high galleria space, circular reception lobby with glass relief panels, escalator and elevator lobby, courtyard and renovation of the existing Daily Telegraph Building.

Das Business Center at Check Point Charlie, Berlin. Complete interior and exterior lighting design for public spaces for the four buildings facing Friedrichstrasse. The lighting concept was developed to establish a relationship between the buildings, each designed by a different architect.

Flack & Kurtz Consulting Engineers
475 Fifth Avenue, New York NY10007, USA
Tel: +1 212 532 9600. Fax: +1 212 532 9489

Lighting Design Limited

At Manchester Airport the brief required that the canopy provide adequate road lighting to a level of 200 lux, with fixtures and a custom designed reflector to avoid light pollution. The canopy has been uplit using metal halide sources and the top structure capped to reflect the uplighting. This not only creates a visual focus for the arriving visitor, but also ensures that the main entrance is clearly visible.

Lighting Design Limited
Lighting Design House, Zero Ellaline Road, London, W6 9NZ, UK
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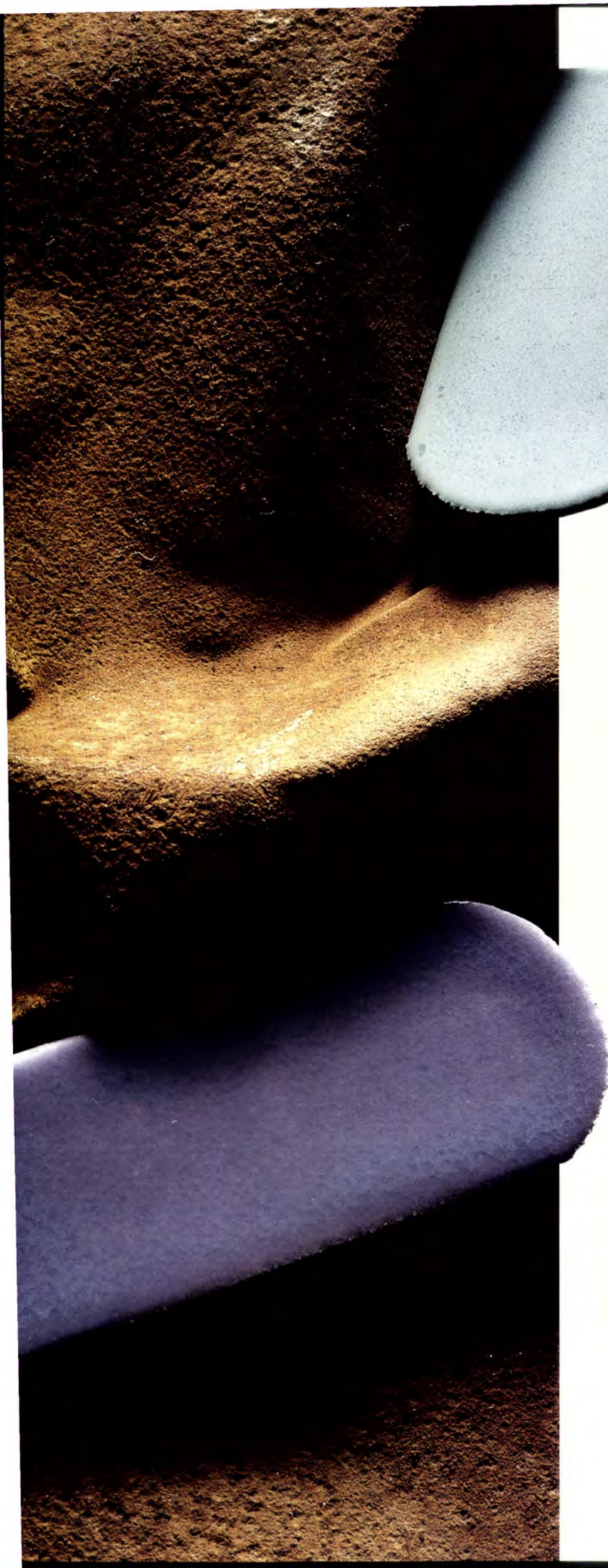

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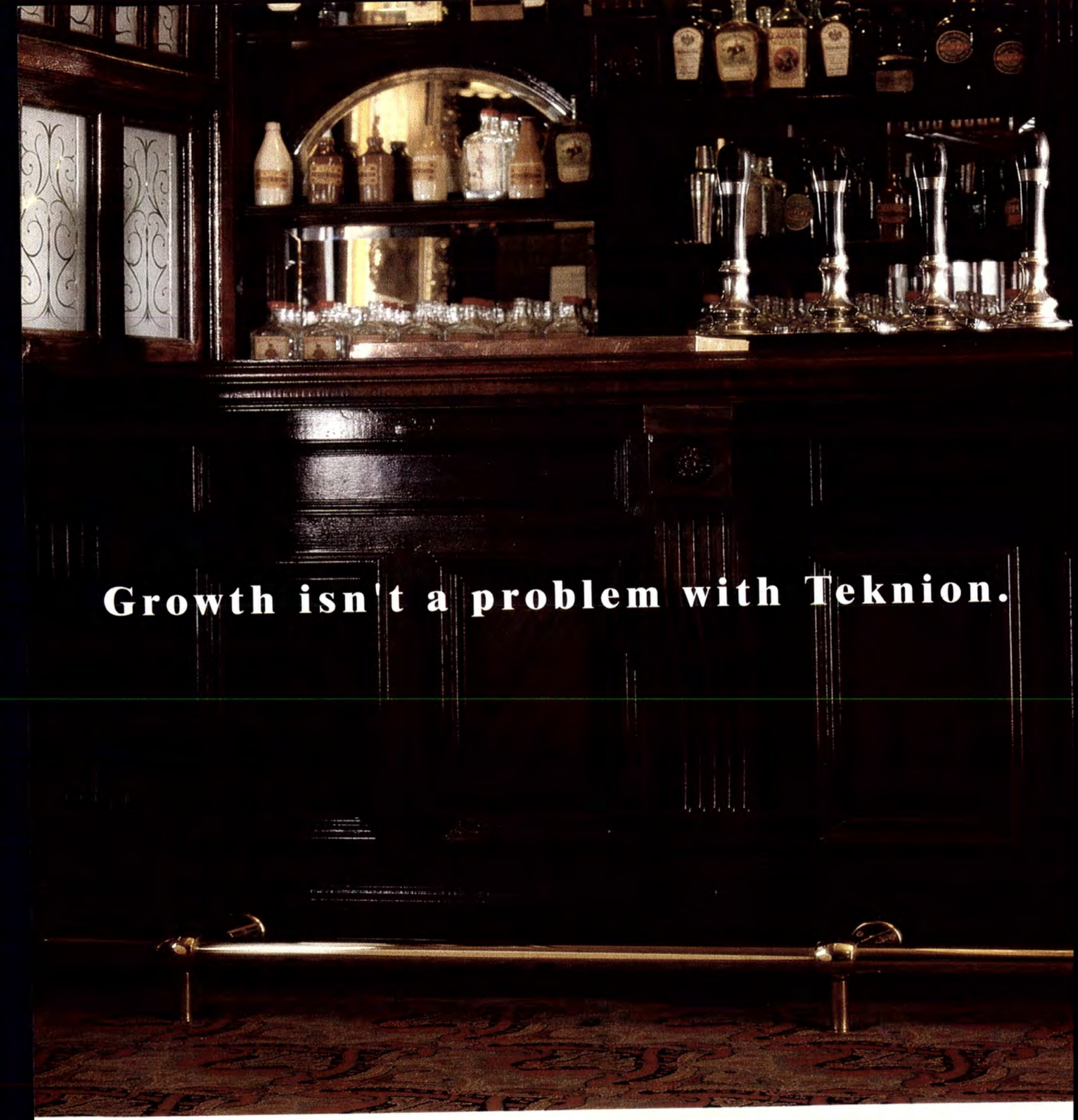

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SL 500

IN NEXT MONTH'S WORLD ARCHITECTURE

PROFILE

The work of **GUNNAR BIRKERTS** defies strict categorisation by style or architectural movement. As the architect himself says; " I was born a zebra, I have lived as a zebra, and I will die a zebra. I've not changed my stripes whenever something new came on the scene." In WA 36 Birkert's work is subjected to close scrutiny by the leading authority on the architect, Kay Kaiser, including a revealing interview and a presentation of thirteen recent projects.

ASIA PACIFIC FOCUS

The photographic work of the unrivalled Japanese photographer, Sadamu Saito in **GALLERY** introduces *World Architecture's* focus on architecture in the Far East. The disastrous results of the earthquake in **KOBE** are examined, and illustrated with dramatic photographs of wrecked buildings. The first of *World Architecture's* exclusive in-depth country reports concentrates on **CHINA AND HONG KONG** - Edward Peters reports from the island - and is followed by the **HANSCOMB REPORT** on all the architect needs to know about working in the area.

MARTHA SCHWARTZ

Graham Vickers visits the unconventional American landscape designer, Martha Schwartz, who goes out of her way to prove that "no unalterable rules exist in landscape architecture".

PERSPECTIVE

Tim Ostler continues his series of reports on different building materials and technological advances, with an emphasis on what is new in the construction industry. In WA 36 he charts environmental controls in "The Future of the Well-Tempered Office".

PROJECTS

Conway Lloyd Morgan visits the unusually young French architects of the new school of decorative arts in Limoges, and Peter Wislocki gives a lesson on the recently completed Nieuw Land Poldermuseum in Holland, by Benthem Crouwel.

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News and views in Global Review, Book Reviews, Concept and the avant garde, Small Practice, Interiors, Computers, Portfolio and more.

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