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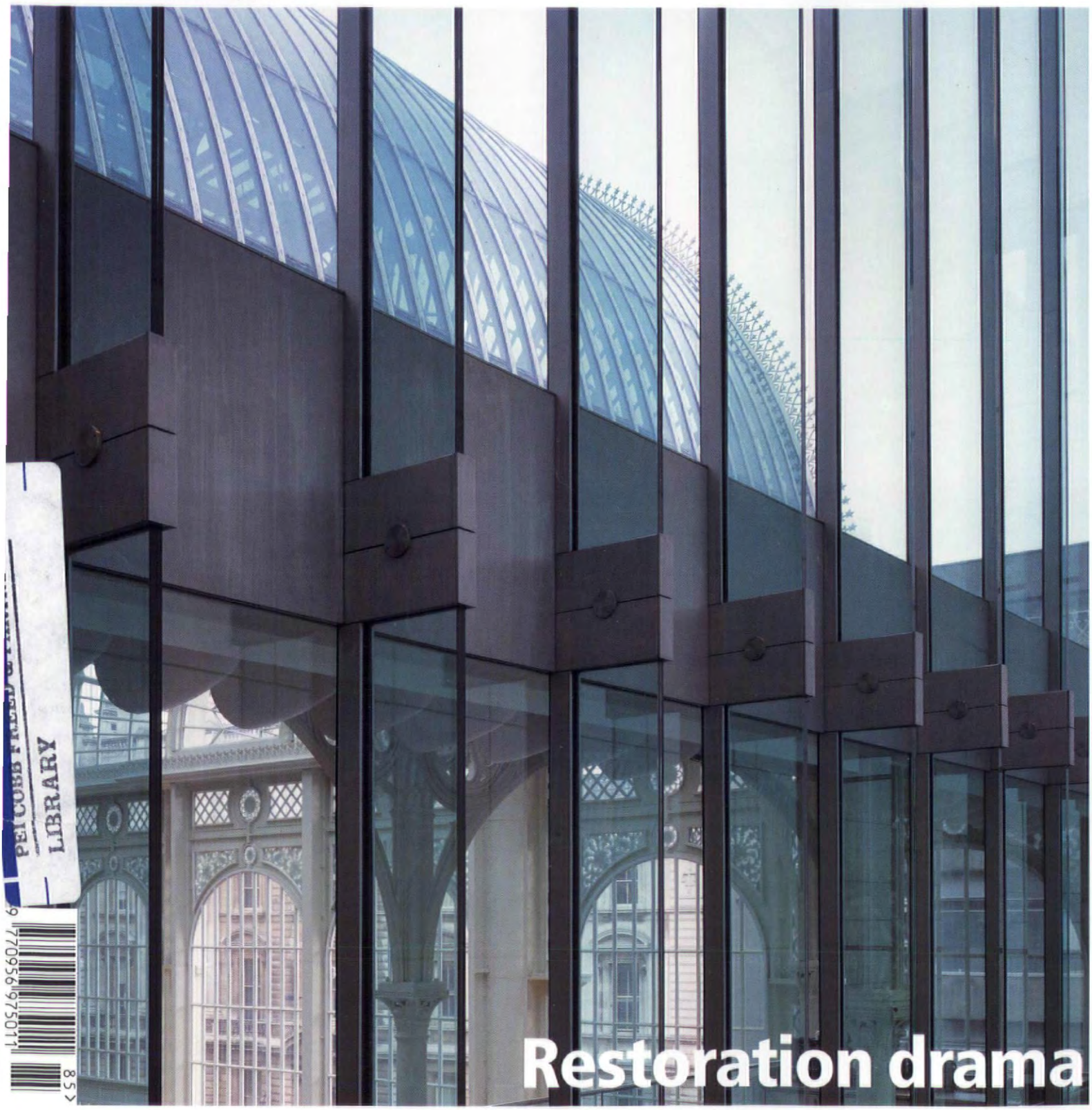
ssue number 85 | US $18.00 | UK £12.00 | April 2000



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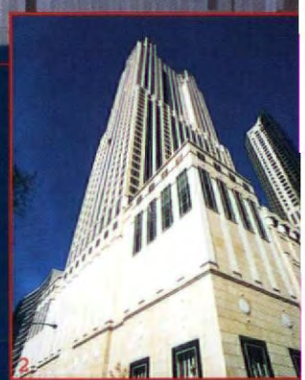

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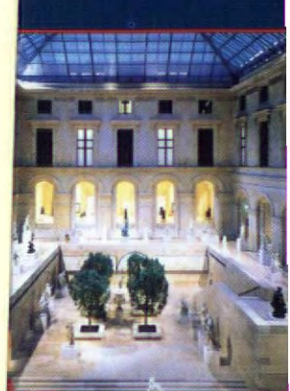

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WORLDARCHITECTURE

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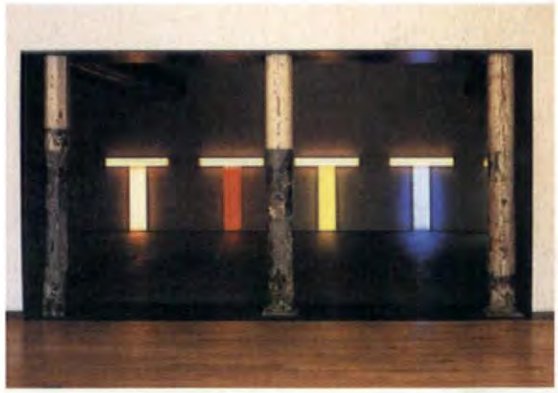

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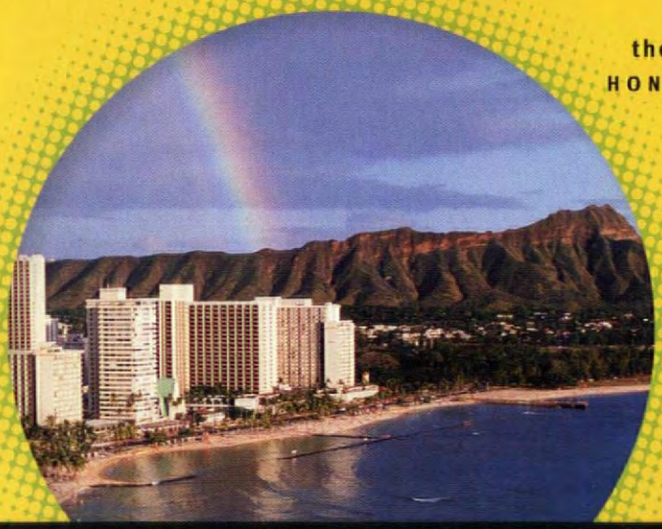

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Slicker cities

"The practice of architecture now has less to do with the 'creation of buildings' than the 'production of solutions'," wrote *WA* on the eve of the third millennium (*WA*82 page 133). No city supports this prophecy more dramatically than Frankfurt-am-Main, subject of this month's City Focus (pages 56-69). The central German city has made no secret of its desire to become Europe's financial and transport headquarters.

Architectural merits aside, events in Frankfurt are instructive as a guide to how we can expect our cities to behave this century. National capital status, the pomp and pageantry of regal associations and even architecture, as we think of it today, will be things of the past.

In the not too distant future, successful cities will carry regional (think continent-wide) clout. And while the tourist dollar is unlikely to lose significance, it is equally unlikely to satisfy the appetites of global corporations. But what about architecture? A city with no intention of attracting tourists has no need to make itself conventionally beautiful. This leads to a city of practical solutions, rather than creative tension.

Technical flexibility remains a prerequisite – no-one can predict when secondary reality will supersede the present. The creation of "products" is everything: nothing too permanent or iconographic. It says much that the two towers reviewed in this issue incorporate painstakingly preserved, low-rise, 19th-century facades. Their only function is to make reality more acceptable to an increasingly alienated local population.

It is no surprise that Frankfurt has spent money on architectural masterplans as the route to 21st-century fulfilment. The buildings that sprout from the plans are effectively fashion accessories, displaying the dominant design trends of the day – self-sufficiency and "public awareness", in the cases of the Helaba headquarters and Eurotheum. Frankfurt is container architecture at its most explicit. Bilbao it is not.

The same applies to Shenzhen (the City Focus in *WA*90). Since 1980, the former farming village on the border with Hong Kong has become home to 3.5 million people. Masterplans for areas of 10 square kilometres are commonplace. Shenzhen is a city in an awful hurry to become a regional capital. It doesn't matter what it looks like – the issue is whether it is planned coherently and functions as effectively as its equivalents in Europe and North America.

Once in a while, it's important to look beyond the claustrophobic world of signature architects' cultural centres/museums (delete as appropriate). This is the future. We've got used to it. Have you?

Adam Mornement, deputy editor

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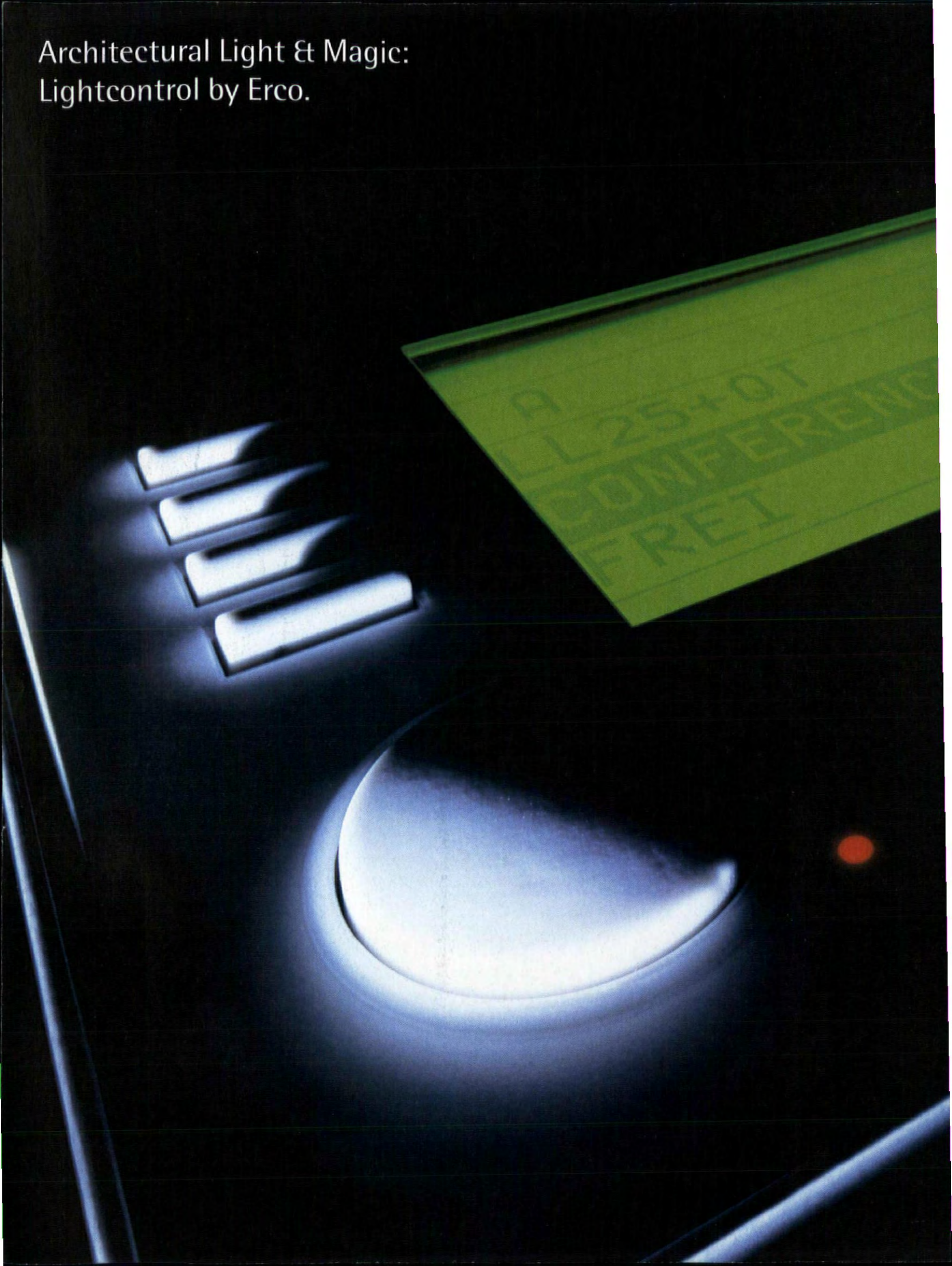

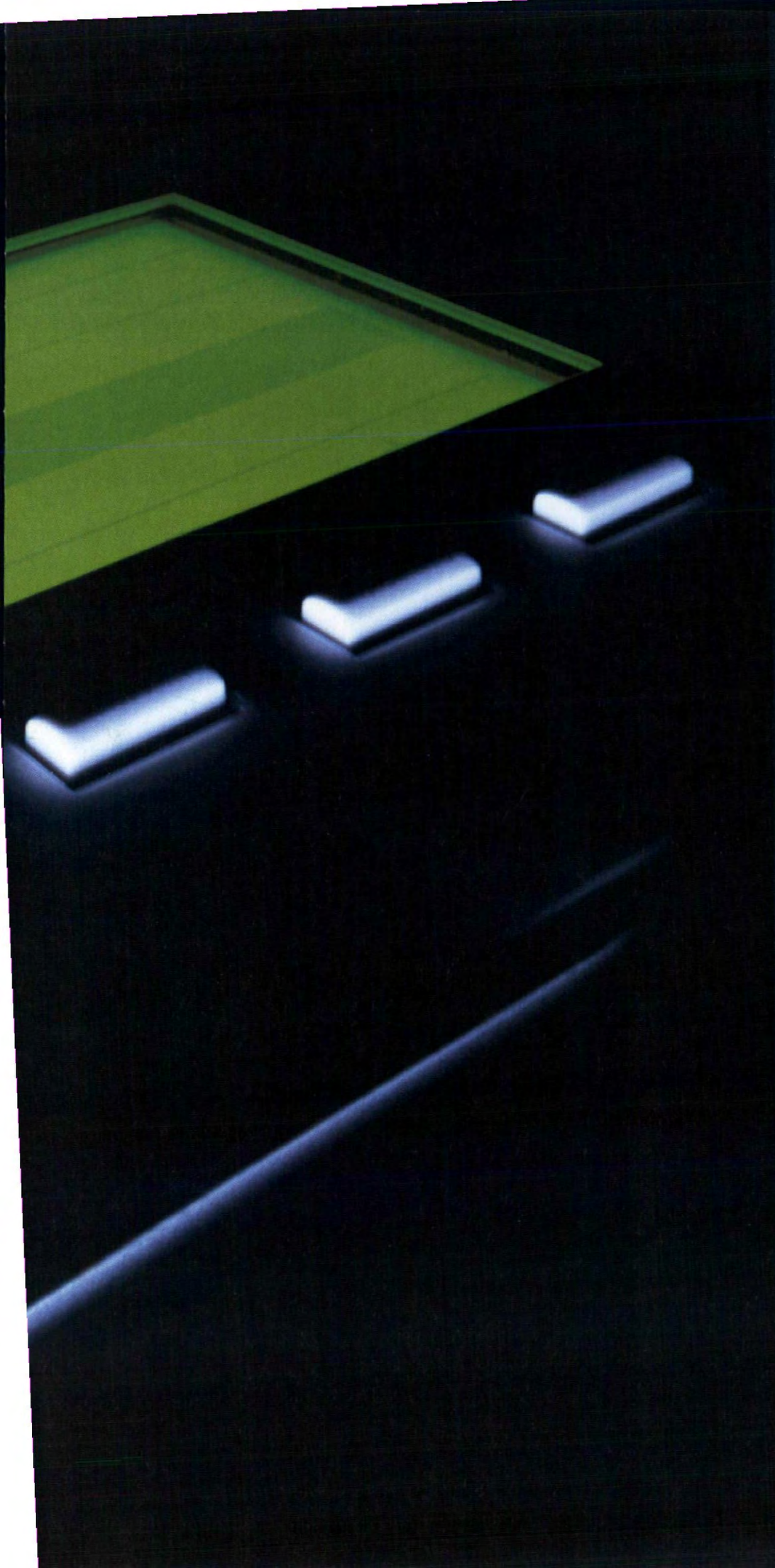

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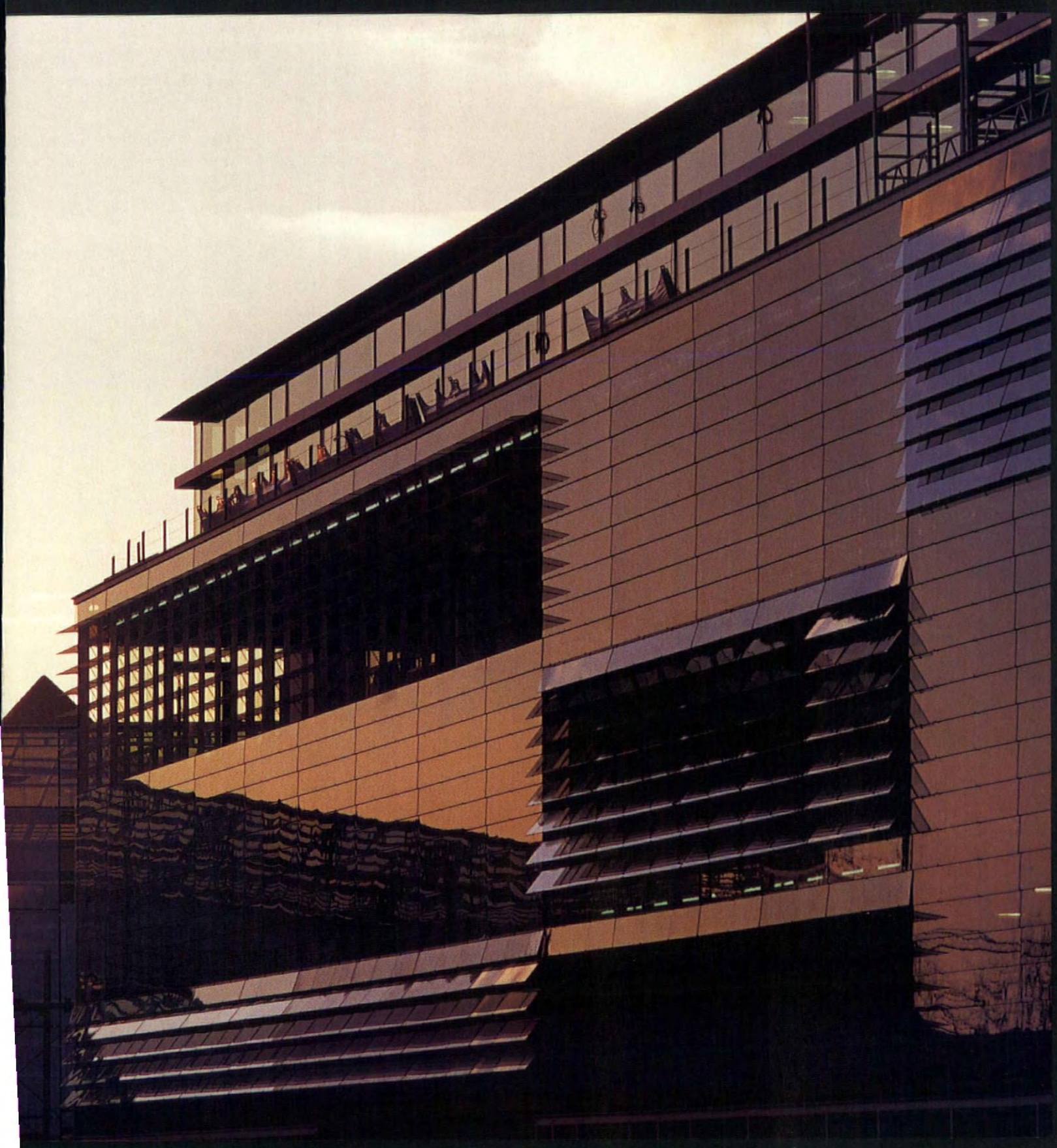

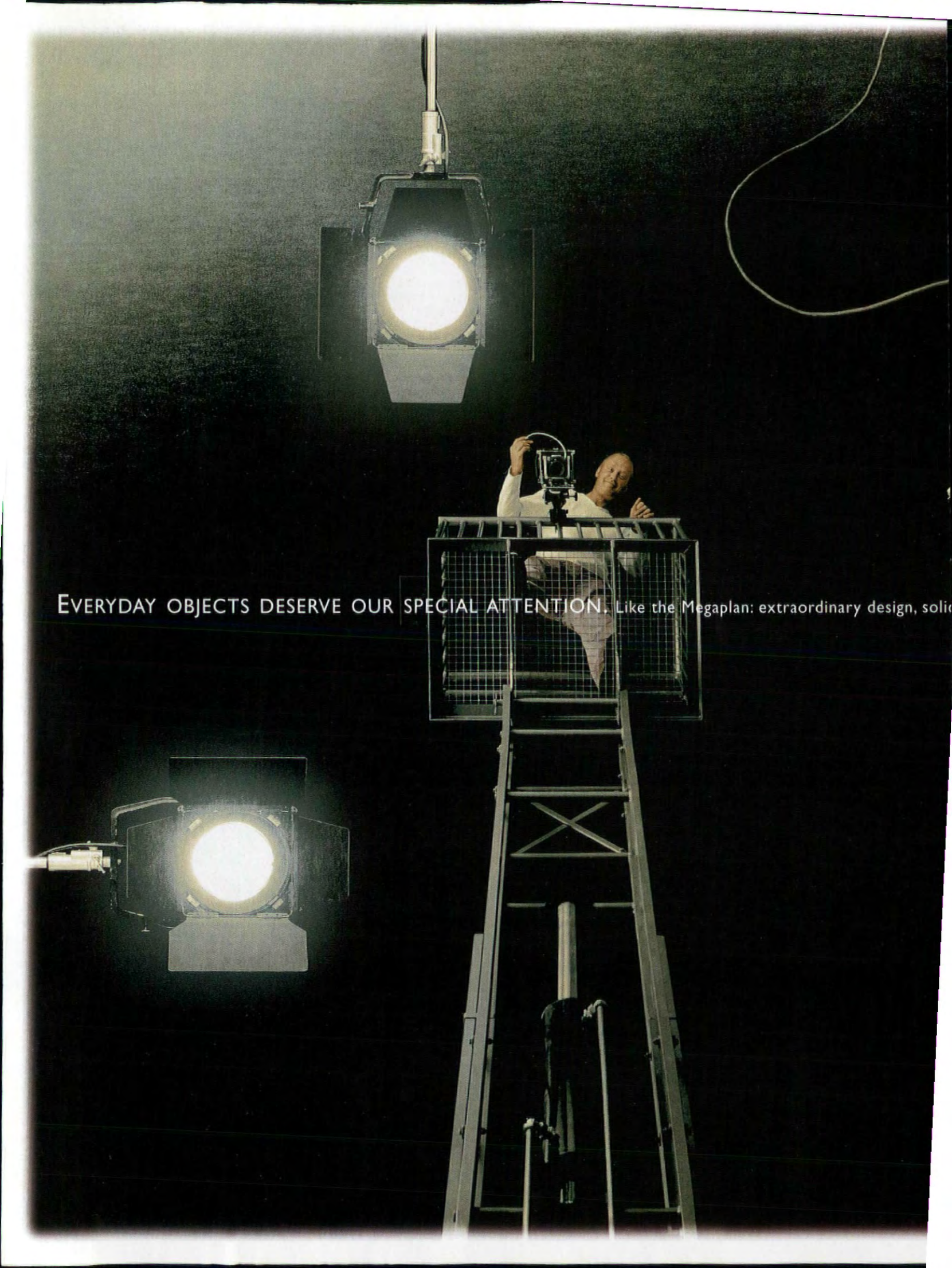
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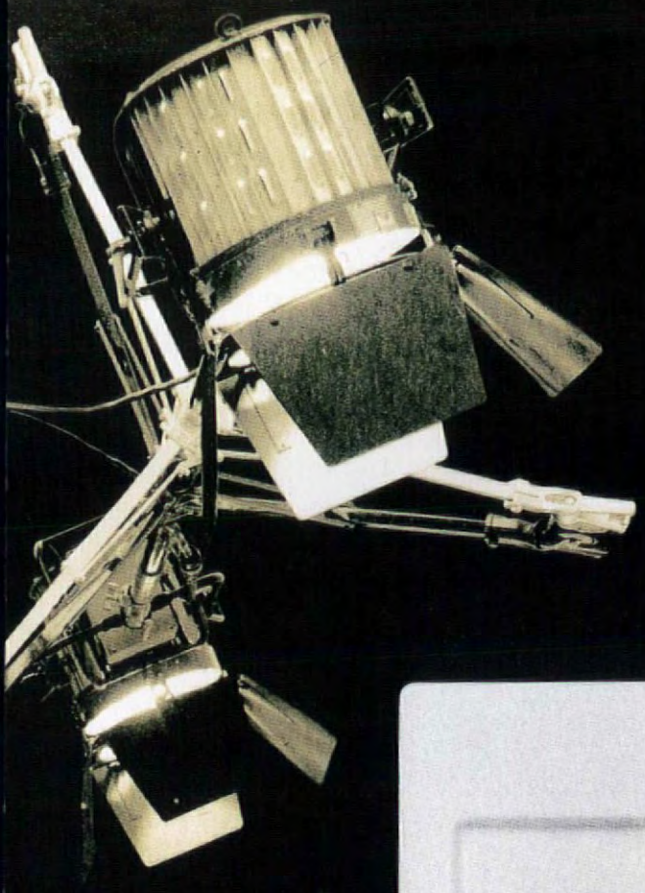

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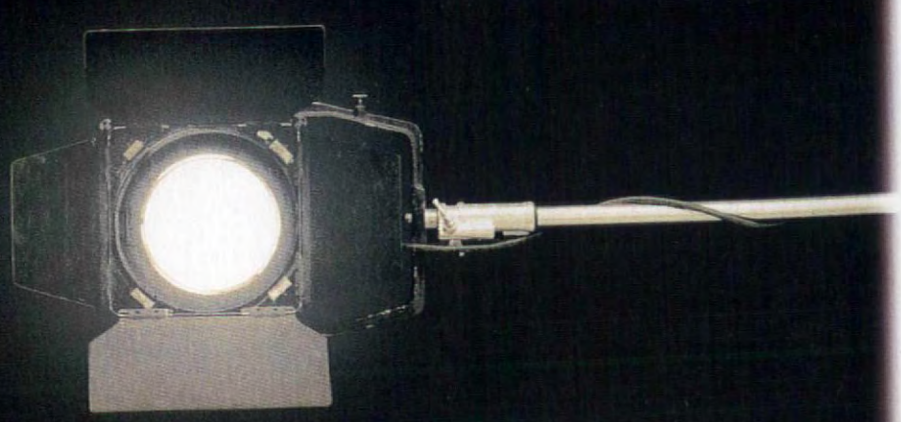


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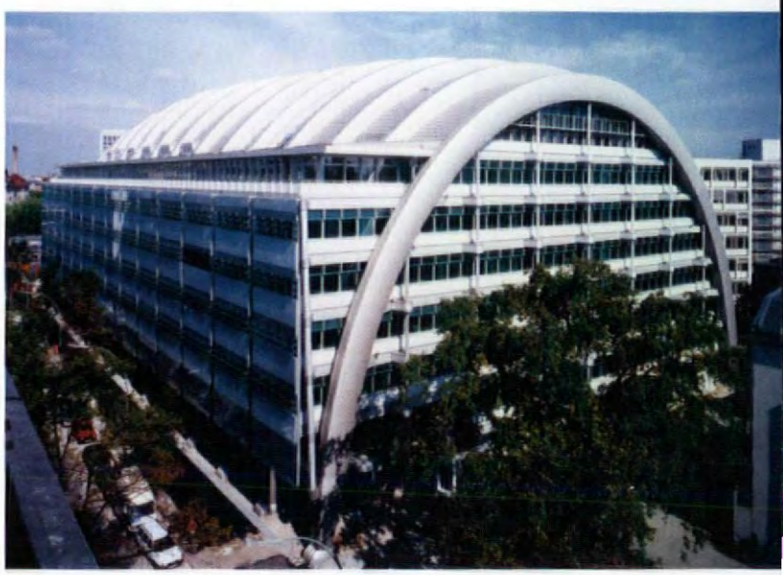
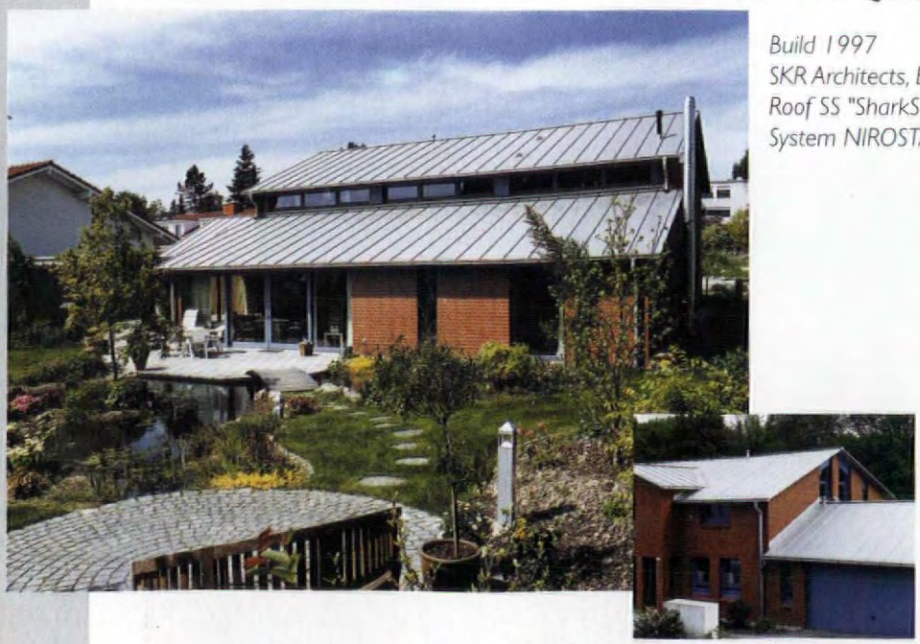
Build 1928 - 1932
Architekt Van Aaken
Roof SS 304 Nirosta ®



Private Quarter, Bochum

Build 1997
SKR Architects, Bochum
Roof SS "SharkSkin" 316 L
System NIROSTA-Metalldach®



1997

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Titanium

end?

Ship Hoist, Niederfinow

Build 1927 - 1933
Bundesamt für Wasserstraßen
1st Renovation 1956
1995/96 Roof SS 316 L Nirosta®
System NIROSTA-Metalldach®

1995-1996

Ludwig Erhard Haus, Berlin

Build 1998
Architect Nicholas Grimshaw, London
Roof SS „SharkSkin" 316 L
System NIROSTA-Metalldach®

Zollhof, Düsseldorf

Build 1998
Architect Frank O'Gehry
Roof & Fassade SS 316 L Nirosta®
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Edited by ALI RAHIM, University of Pennsylvania, Philadelphia, Pennsylvania, USA

In recent years, architects have borrowed investigative techniques from the sciences such as folding, chaos theory, self-organised systems, bottom-up methodologies and emergence. These have all contributed to the process of design, and to the conceptualisation of the process of building in cities.

This book concentrates on digital processes and these conceptual strategies as presented by experimental architects using digital media, rendering them explicit and asking how their potential might influence architects' work.

Features well-known contributors: Greg Lynn, Ben van Berkel, Jesse Reiser; and up-and-coming experimental architects such as OCEAN, Kolatan/MacDonald Studio and Ed Keller

Includes unpublished digital architectural projects using digital processes

Architectural Design

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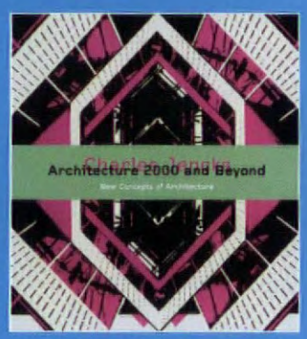

A superb mark of the end of a century and an inspiring look forward into the next...

Architecture 2000 and Beyond

CHARLES JENCKS, London, UK

This is a new edition of Architecture 2000: Predictions and Methods published in 1971, in which Jencks made a series of predictions for architecture into the decades running up to and beyond the millennium. This new edition uses hindsight to comment on the nature of each hypothesis, and examine how true - or not - they have proven to be. It also questions what we can further expect in the future.

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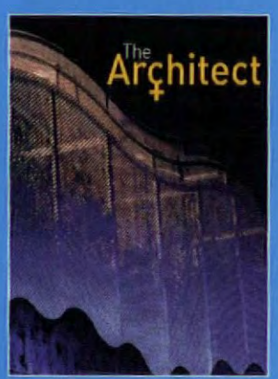

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Edited by MAGGIE TOY, Editor of Architectural Design, London, UK

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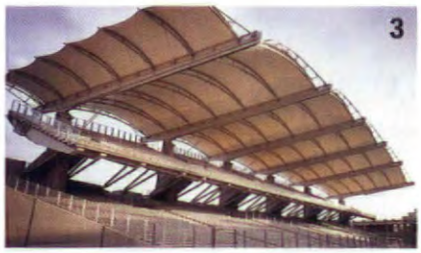

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Engineering firm : Prat S.A
Fabricator : VSO/Walter

2 ***Leeds City Office Park - Leeds - Great Britain - 1996***
Solar protection in SOLTIS
Architect : Peter Foggo Associates
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3 ***Gerland Stadium - LYON World cup - France - 1998***
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Architect : Albert Constantin et l'atelier de la Rize
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Fabricator : TMB

4 ***Entrance Canopies "Auto-Nation" - USA - 1996***
Précontraint 702 FLUOTOP T
Architect : John Strautman
Fabricator : Tensile Designs International

5 ***Ladies'Pavillion - Saudi Arabia - 1998***
Précontraint 1202 FLUOTOP T
Architect : Peter Dew
Engineering firm : Buro Happold
Fabricator : Birdair

6 ***Sukan Negara railway station - Malaysia - 1998***
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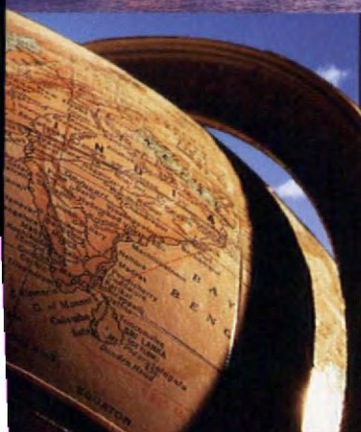

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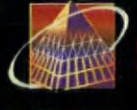

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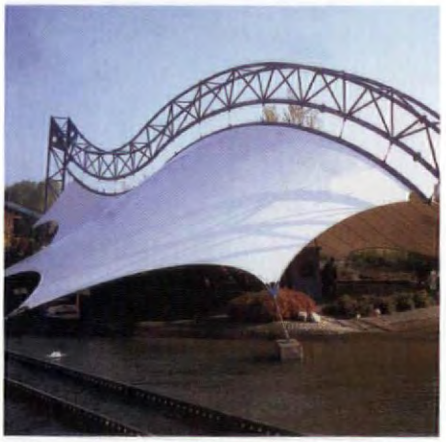

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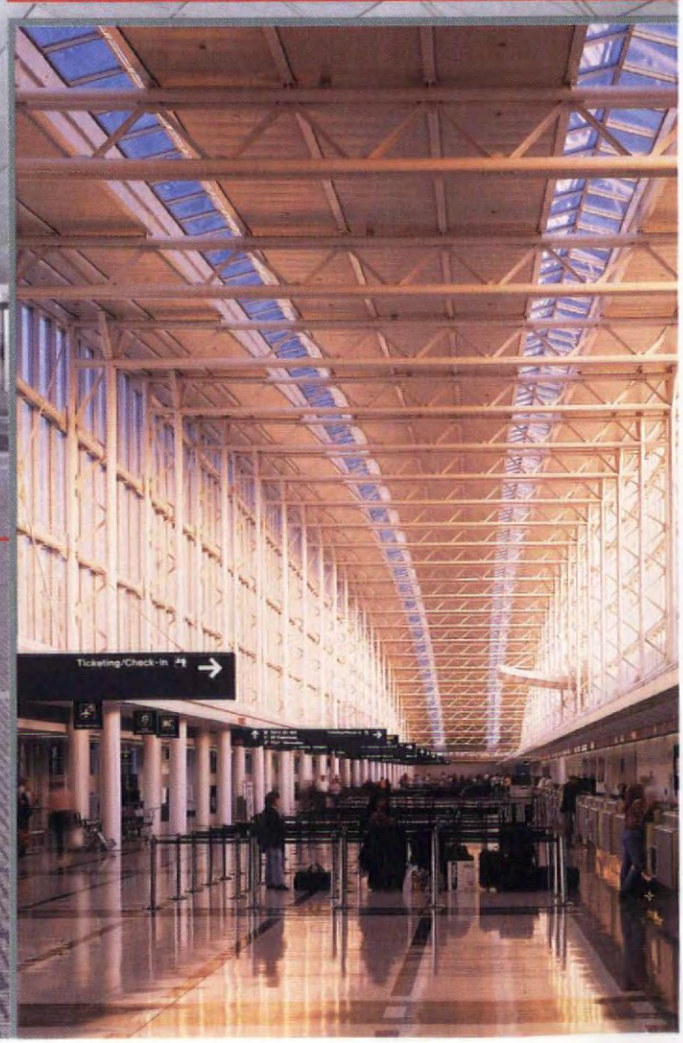

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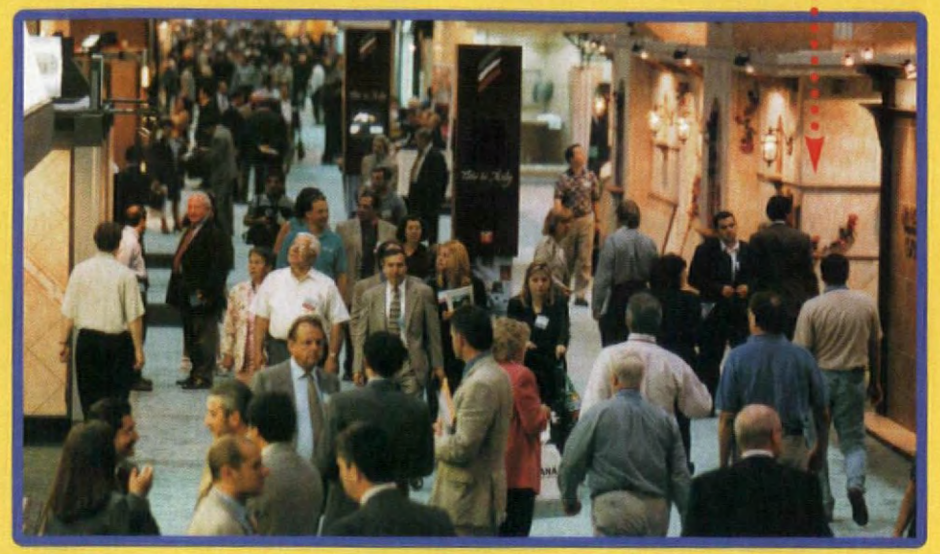

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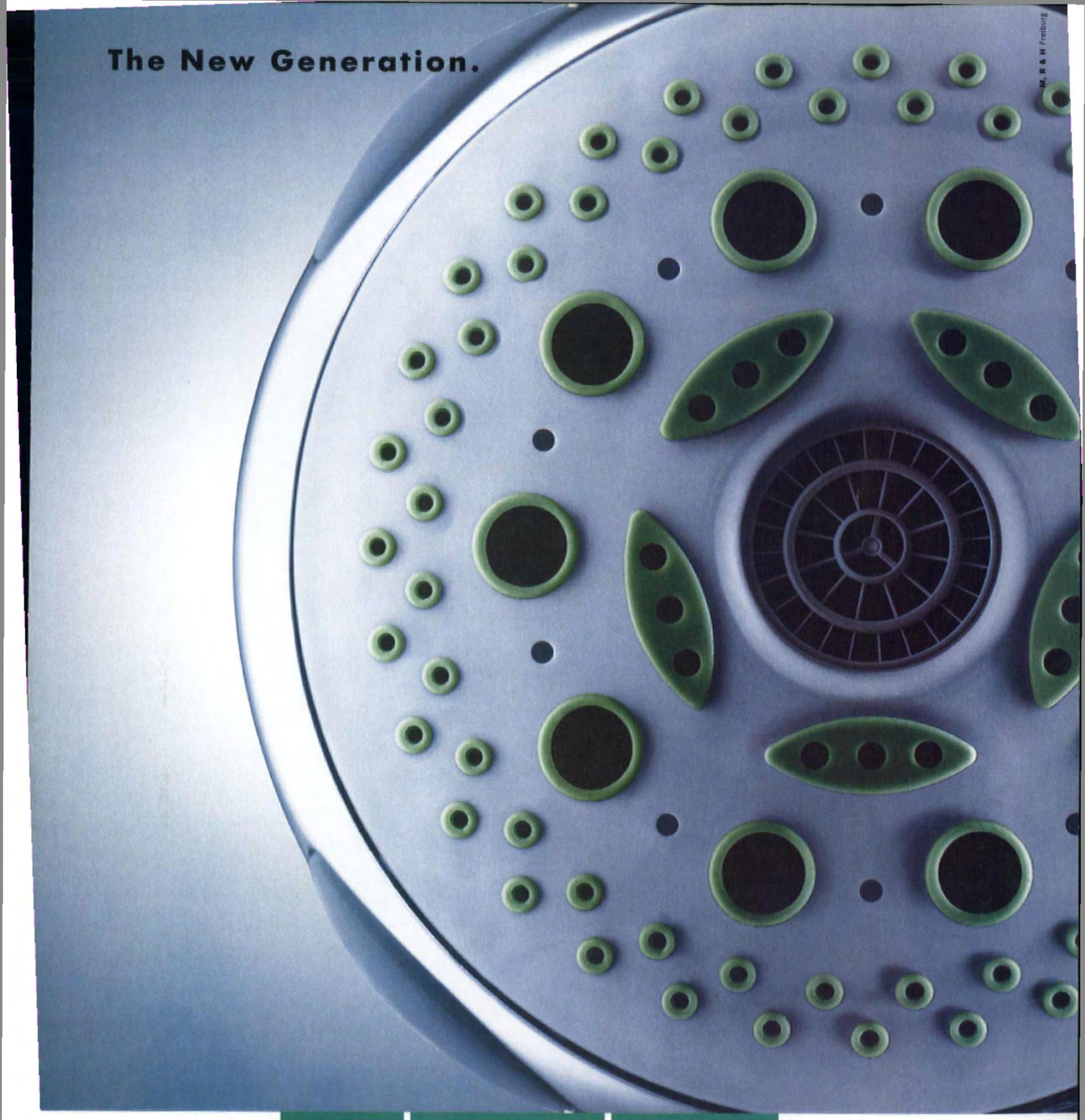

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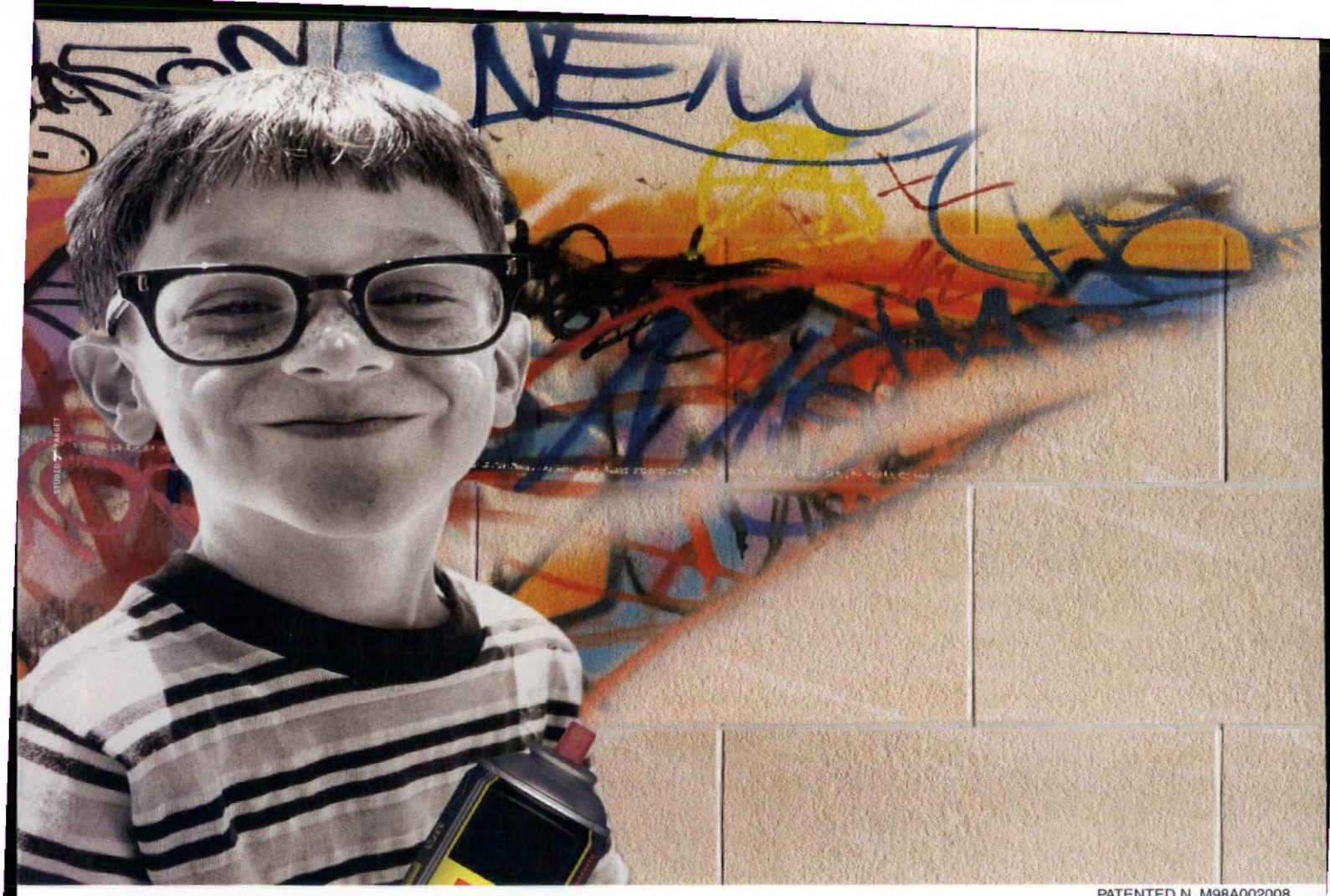

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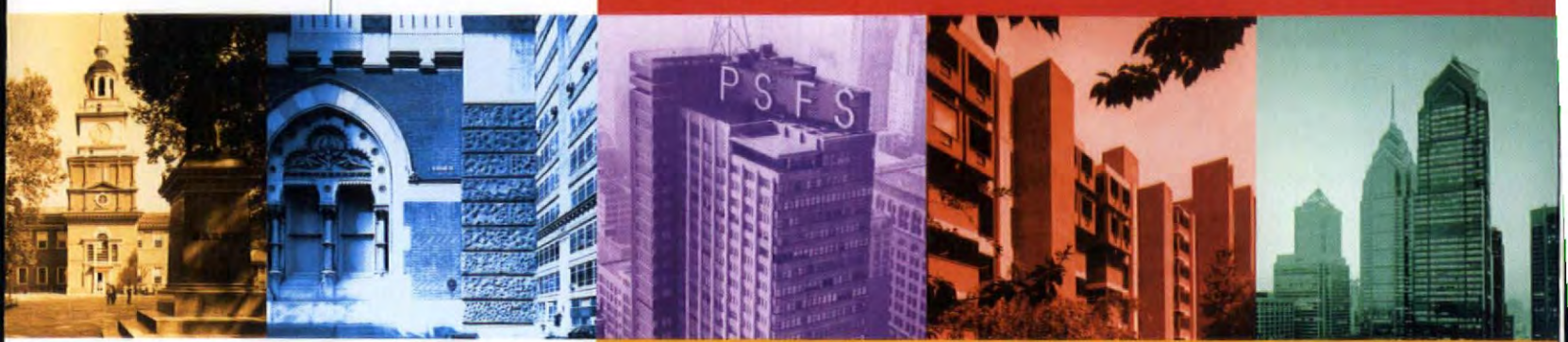

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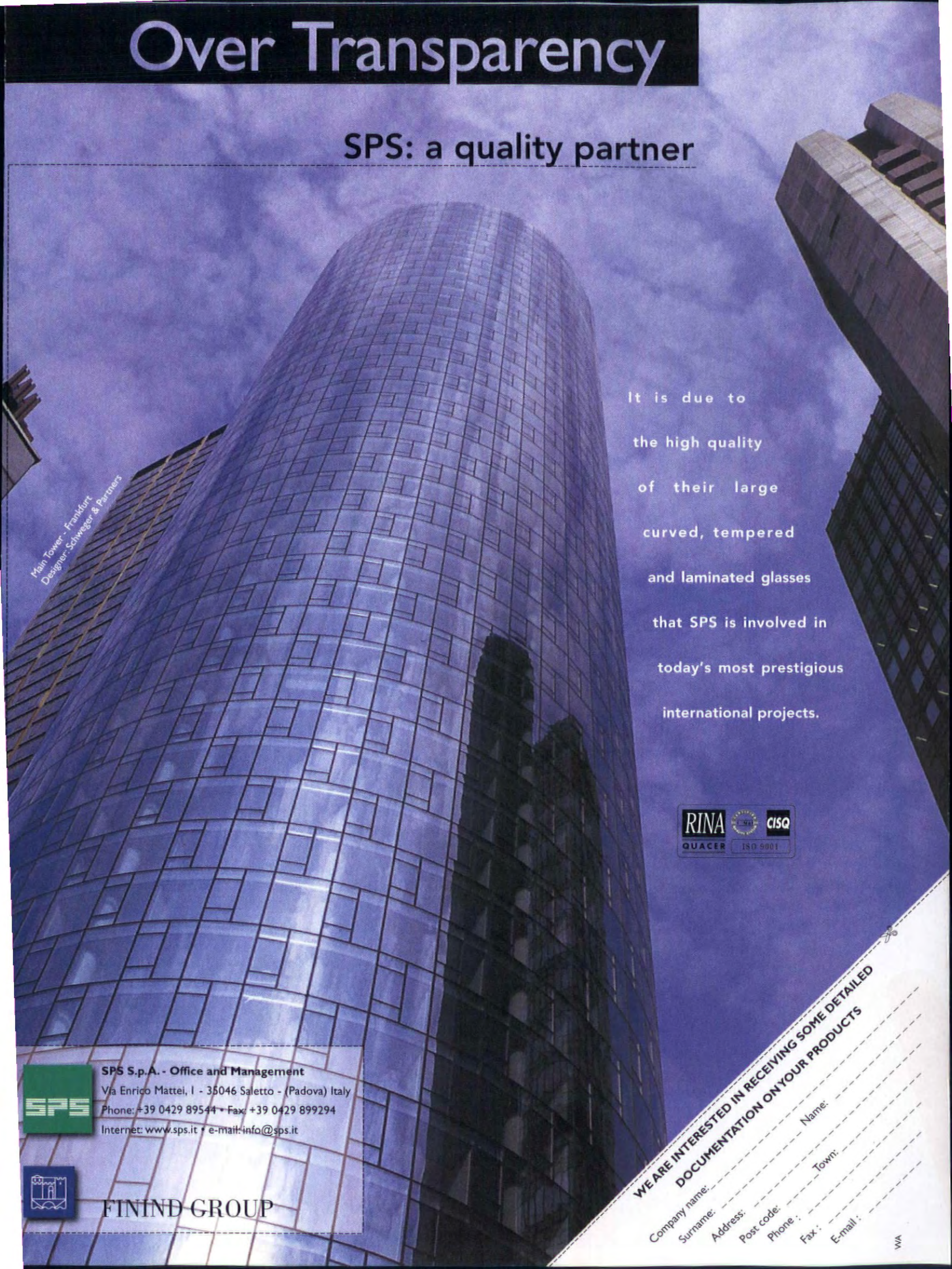

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WA

News

Chinese theatre slammed

"But it could be Beijing's Pompidou," counters Andreu

PRC

Paul Andreu's competition-winning Beijing National Theatre, which goes on site this month, has aroused strong criticism. The 56-metre-tall translucent oval capsule (pictured right) is set to occupy a site to the west of Tiananmen Square and the Forbidden City (*WA*80 page 30).

Critics have pointed to the cost of the theatre (US$360 million), its unorthodox architectural vocabulary, and the forcible eviction of local residents to make way for the project.

The Beijing-based *Journal of Architectural Studies* has questioned why the Chinese National Theatre doesn't incorporate any Chinese characteristics. A report published in the *Far Eastern Economic Review* quoted local resident Wang Yulin, who is being forced from his home: "I don't know why they had to make it so big, when there aren't so many people who could afford the tickets anyway."The debate is also hot topic on the Internet. Recent online grips include one respondent who noted that the project would not look out of place in Pyongyang – the capital of North Korea filled with trophy buildings which in no way benefit the ordinary people. Both two countries are run by communist governments.

Speaking to *WA*, Andreu says that he glad that the project has generated a reaction. "Real debate is what Chinese architecture needs," he says. "Maybe reactions have been negative, but maybe people are just surprised? At least it proves that the Chinese are interested."

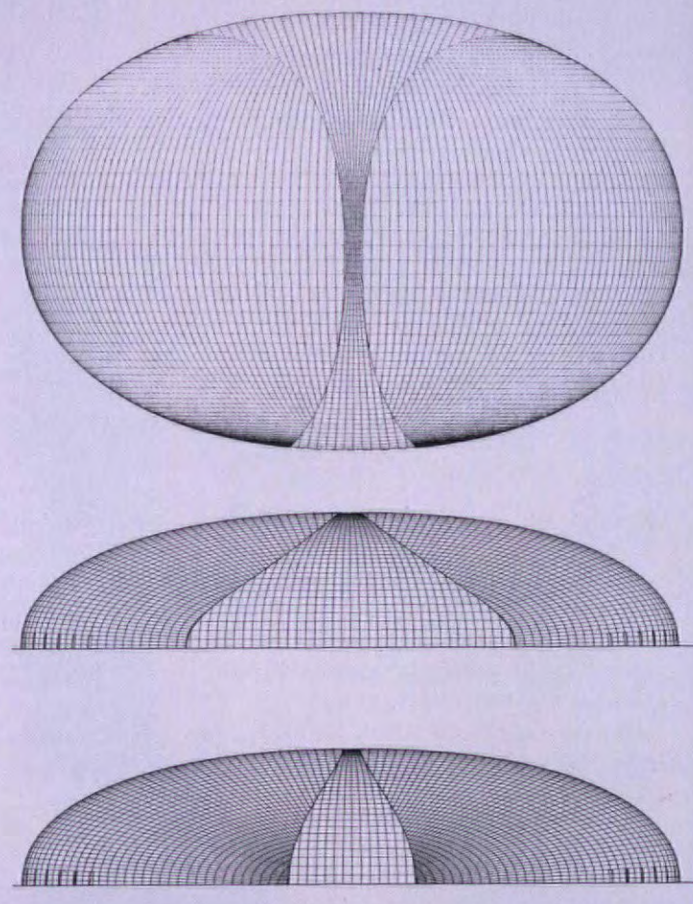
What about the Chinese character? "What are Chinese characteristics? Is it something that exists in terms of forms? I don't think so. Anyway, I haven't ignored the Chinese character. It includes a square, an oval and it's built on water. What could be more Chinese? The National Theatre is more than just a theatre, it's an arts complex. If people give it a chance it could be Beijing's Pompidou," continues Andreu.

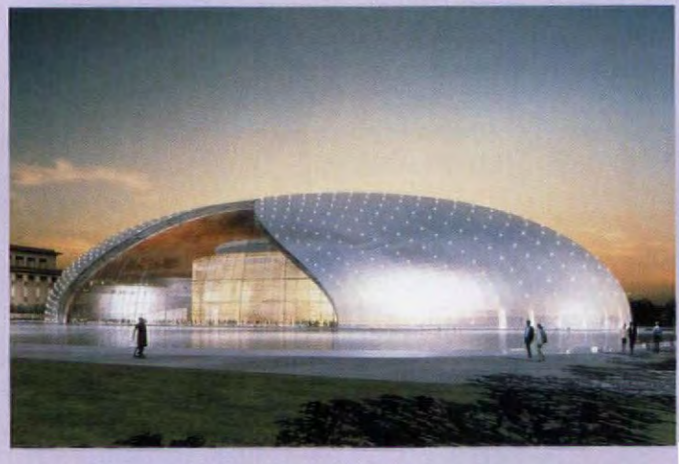
The project has been dogged by controversy from the outset. Andreu was a surprise winner, and beaten shortlisted architects alleged that the French government's decision to back Andreu's scheme rendered the competition little-more than an elaborate public relations exercise. It was China's first international architectural competition. "I was told to expect problems," says Andreu.

Despite the furore, the scheme is not without its supporters. Architect Hu Shaoxue, who worked with Andreu on the initial design, said the decision to use the design indicated that China was no longer constrained by its past. "Look at the pyramid structure designed for the Louvre [Paris] by Chinese/American architect I M Pei. There was controversy at the time, but it is well accepted now."

The theatre is due to open in 2003.

• Another Paul Andreu-designed project in China has been received in far more positive fashion: the passenger terminal at Shanghai/Pudong International Airport. AM EP





PWeb/Hamburg

IOP takes flight

GERMANY

Highly regarded Düsseldorf practice, Ingenhoven Overdiek und Partner (IOP), has won the contract to design a new administration building for German airline Lufthansa at Frankfurt International Airport. The choice of design was considered suitably ecologically and socially conscious to support Lufthansa's corporate image.

Project architect, Hinrich Schumacher, describes the ecological approach to the design: "The comb-like building structure creates green halls to act as buffers against noise and emissions". The design evolved with an emphasis on passive energy saving devices, leading to low services technology costs and the dramatic "winged" appearance.

The twin-skinned upper sections of the facade consist of storey-height insulation glazing units. Sun shading in the intermediate facade space prevents overheating.

IOP gained international acclaim in 1997, for the design of a new headquarters for energy conglomerate, RWE AG, in Essen, Germany (*WA*60 pages 100-103). The Lufhansa headquarters seems certain to confirm the practice's reputation.

(See also Frankfurt City Report in this issue, pages 56 to 69.) AM

Libeskind makes US debut

Jewish Museum of San Fransisco unveiled

US

Daniel Libeskind has unveiled plans for the Jewish Museum of San Francisco (JMSF), his first US project.

The refurbishment and extension will attempt to breathe new life into the long-abandoned Jessie Street Power Substation, in the heart of San Francisco's Yerba Buena Center arts district. The project will make the century-old complex accessible to the public for the first time and incorporate four storeys of exhibition, recreation and archive storage space. The centrepiece of the museum will be a series of 18 exhibitions addressing "key themes in Jewish thought and experience", which will "unfold" over 1,115 square metres.

"The JMSF building is modelled on the Hebrew word 'chai', which means 'life'. Its two Hebrew letters, the chat and the yud, are literally the life source and the form of the museum," explains Libeskind.

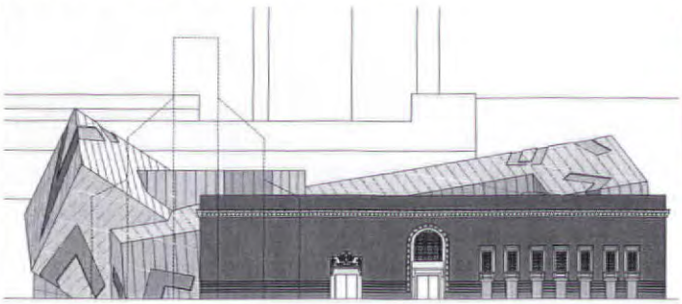
It will start on site before the end of the year, with completion anticipated in late 2002.

Libeskind won the contract in controversial circumstances. Peter Eisenman was the Jewish Museum's original architect of choice, but upon submission of his proposed re-fit was replaced by Libeskind. Speaking to *WA* last year, Libeskind said the decision, "clearly might pose a professional rift" between the two architects.

The JMSF follows Libeskind's highly acclaimed Berlin Jewish Museum, completed last year, and the Felix Nussbaum Museum in Osnsbrück, also in Germany (see *WA*82 pages 80-83). AM

Web: http://www.jewishmuseumf.org

Below: Daniel Libeskind's Jewish Museum of San Francisco is modelled on the Hebrew word chai, meaning "life".



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THIS MONTH

page 34
Norman Foster is in a pickle over his 41-storey Gherkin in the City of London– both the government and the church have voiced objections.

page 36
An unknown designer has beaten Ando and Hasegawa to design the enormous cultural centre in snow-bound Aomori.

page 38
From 683 entries has emerged the winning redesign of the iconic Times Square ticket booth in the heart of New York.

EUROPE

New contracts

ITALY

David Chipperfield Architects has won the City of Cultures competition for the design of a museum complex on the site of the old Ansaldo factory in Milan. The US$65 million (£40 million) scheme involves the creation of a museum and archive of non-European cultures. Milan city council hopes that the complex will become a new attraction, as well as ease the pressure on the bulging collections of the Castello Sforzesco and the Archaeological Museum in Corso Magenta. The building has an "organic" foyer, to give it "its identity". A double-layered translucent façade contains perimeter circulation balconies.

ITALY

Architect and urban planner **Marcial Echenique & Partners** (ME&P) has developed a masterplan for the Mostra d'Oltremare district of Naples. The 70-hectare residential area on the city's western edge was built in the 1930s as part of Mussolini's plan to extend the city. ME&P's remit is to tame the consequent fascist nature of the area. ME&P is based in Cambridge, UK.

POLAND

Frank Gehry has been commissioned to design a Museum of Jewish History in Warsaw. In Polish newspaper *Zycie*, museum director Jerzy Halbersztadt stated that the complex will be on a site in the former Warsaw Ghetto, and that construction will start by the end of 2001. Halbersztadt has a collection of over 20,000 Jewish artefacts. Before the Second World War Poland was home to over three million Jews, Europe's largest Jewish community. Today, only a few thousand live there. Gehry's parents come from the Polish city of Lodz. (Full story next month.)

Sto far Sto good

Advert for architect/client relations

GERMANY

The remarkably harmonious architect/client relationship between Michael Wilford and Partners (MW&P) and product manufacturer Sto AG was furthered last month with the unveiling of "Sto 2003", the second and largest element of a masterplanning jigsaw begun in 1992. The first phase (completed 1997) included the distinctive "Building K", Sto's administrative headquarters.

When complete, in 2004 (confusingly), two new production plants – the 58-metre high StoSilo Tower and Service Factory – and a 24-cubic-metre glazed showroom cube will be added to the company's Stühlingen-Weizen headquarters.

Sto – a producer of paint, render and stucco – has used its HQ as a global advert for its products ever since Jochem Stotmeister, Sto's CEO, first approached MW&P to develop an administrative and production headquarters (built entirely of Sto products).The US$52 million Sto 2003 is by far the largest commitment to this process to date. AM

"Sto 2003", by Michael Wilford and Partners, incorporates a 24-cubic-metre glazed showroom and 58-metre-high production silo

Bernhard Friese

The trains in Spain

SPAIN

As construction begins on the Madrid-Barcelona high-speed train line, the design for its new Zaragoza station has been awarded to Barcelona architects Carlos Ferrater and José Maria Valero. The scheme was selected chiefly for the architects claim to have established a journey time of 75 seconds from taxi rank to to train platform. The station will include hotels, a health club and a business centre.

At the same time, the reconstruction of the existing train station in Salamanca, the historic university city in central Spain, will set the example for the future commercial exploitation of 11 of Spain's busiest urban stations. The monumental US$12.5 million facility, by Madrid architect Antonio Fernández Alba, includes a 15,000-square-metre shopping centre. It will open by the end of the year.

Also in planning is a US$37.5 million enlarged macro-station for Málaga, including a hotel, commercial spaces, and new high-speed train platforms. DC

FINLAND

The first fully glazed building in Finland has opened in central Helsinki.

Designed by Antti-Matti Siikala of local practice SARC Arkkitehtitoimisto, the Sanomathouse is the headquarters of Finland's biggest-selling daily newspaper, *Helsingin Sanomat*. The structure's dramatic eight-storey atrium supports a double-layered facade.

As well as housing 1,000 staff, the Sanomathouse houses galleries, shops, restaurants and, of course, a sauna. AM

EUROPE

Madrid to demolish landmark

SPAIN

A 19th century apartment building facing the Royal Palace on Madrid's historic Plaza de Oriente has been removed from the city's list of protected historic structures so that it can be demolished and replaced by the Reina Sofia Music Conservatory.

The five-storey monumental new conservatory, by Madrid architect Miguel Oriol (responsible for the recent remodelling of the Plaza de Oriente) is clad in "pillows" of solid granite. It is sponsored by a private foundation directed by Paloma O'Shea, patron of the arts and wife of Emilio Botín, the president of Spain's largest bank. The site, owned by the city, will be ceded on a long-term lease to the school.

The Madrid College of Architects (MCA) has opposed the demolition of the existing building. While not actually criticising Oriol's design, an MCA press release praised the existing apartment building for "its solidity, its lack of obvious pathologies, and its neutrality, discretion and correction with respect to its surroundings". Local critics interpreted this as reference to all the qualities the conservatory lacks.

Vernacular buildings are increasingly taken off the protected structures list, or left to collapse, as a reaction to an over-protective preservation policy of the 1970s. DC

Mather goes south

UK

Rick Mather has unveiled his masterplan for London's much-derided South Bank Centre. The brutalist arts complex on a 12.5-hectare riverbank site will become home to an elevated public garden and a new three-storey arts and leisure centre.

The Hayward Gallery will be retained and upgraded, while a new British Film Institute centre and concert hall will be housed beneath the raised Jubilee Gardens.

Mather describes the masterplan as "one of the most exciting and welcoming arts quarters in the world".

The work will be divided into three stages, with the first starting next year. AM

Gherkin in a pickle

Foster's London tower under attack

UK

Norman Foster's design for the new London headquarters of insurance group Swiss Re has come under attack from two corners. Deputy Prime Minister John Prescott last month issued a directive to the Corporation of London, ordering it to deny consent for the 41-storey, tapering tower, nicknamed the "Gherkin" (see elevation below). Whether the outcome is an environmental impact assessment, or that the scheme gets dropped, the process will delay construction for at least 18 months.

The Gherkin, unveiled last summer (*WA*79 page 2), is to be built on the site of the Grade II-listed Baltic Exchange, irreparably damaged by a 1992 IRA bomb. When the exchange sold the City site to Trafalgar House (now Kværner), it was allegedly on the understanding that key elements of the Baltic Exchange would be retained. Baltic Exchange has never been satisfied with Foster's scheme, as it fails to comply with this understanding, and welcomes Prescott's directive.

The Dean and Chapter of St Paul's Cathedral has also objected to the proposed skyscraper, on the grounds that it looks too much like Christopher Wren's cathedral, threatening its "iconic status for London and the nation". Such a challenge "should not go uncontested". AM

In brief

AUSTRIA

Schütte-Libotzky RIP

Austrian architect, Margarethe Schütte-Libotzky – perhaps best known as the creator of the "Frankfurt Kitchen", the prototype for the modern kitchen – has died aged 102. She worked with Adolf Loos in Vienna before moving to Frankfurt in the 1920s, where her 6-square-metre kitchen for the "modern women with little time for domestic cares" was mass-produced for 10,000 homes. After the war she taught in Moscow, China, Istanbul and Havana.

GERMANY

Memorial controversy goes on

A ceremony to dedicate land for Peter Eisenman's Berlin Holocaust Memorial has been boycotted by the mayor of Berlin. Eberhard Diepgen will not support Germany's first national Holocaust memorial because he fears that it will turn Berlin into "a city of mourning". Lea Rosh, who has campaigned since 1989 for a memorial: "The decisions [to build a memorial and chose an architect] were taken democratically. Does he not want to honour these people?". The memorial, which consists of 2,700 concrete pillars arranged to look like gravestones, is still on course for a 2002 completion.

GERMANY

Religion returns to east Berlin

The first new church in Berlin since the fall of the Berlin Wall has opened in the suburb of Malchow. By Arnold Ernst of Berlin practice Mayer Ernst und Partner, the church is the result of the persistence of a local priest desperate to reassert a religious presence in the city, after many churches were destroyed at the end of the war. The church will be local to a population of 35,000, of whom only 30 are regular church goes. (Churches are the focus of *WA*90 Sector Analysis.)

ASIA-PACIFIC

New contracts

JAPAN

The first phase of **Nobue Yokomura**'s restoration of a 1.5-hectare man-made island in Dejima, Nagasaki Prefecture opens this month. The restoration commemorates "400 years of friendly relations between Japan and the Netherlands". During the Edo period (1603-1868), when international trade was outlawed by the Japanese government, the 400-year-old island was only place where the Japanese were permitted to trade with the Dutch. The restoration will take over 15 years to complete the work.

PRC

Tokyo-based **Nikken Sekkei** has won a limited competition to design a customs and immigration building and an adjoining public plaza in Shenzhen. The city, which serves as a gateway into China from Hong Kong, expects the number of people passing through customs to soon swell to 400,000 per day. The US$100 million project includes a new building and a 37.5-hectare plaza and below-ground concourse which will connect the city's main train station, bus and taxi terminals and a subway stop. The project is to be completed in 2003. Proposals were invited from a limited number of firms from Japan, the US and Europe.

PRC

Leigh & Orange, in association with **P&T Architects**, has been commissioned to design a senior citizen's residence scheme in Hong Kong. The self-financing project is backed by the Hong Kong Housing Association, Sheung Kung Hui Diocesan Welfare Council and Haven of Hope Christian Service. The project will go on site by the end of the year, with completion anticipated by 2002.

Shibuya gets a Mark up

US$750 million – the price of reclaiming the streets

JAPAN

Mark City, the largest and costliest development in Tokyo's affluent Shibuya district, opens this month. The new hotel and office complex (right) is an attempt to redefine the image of Shibuya. No longer will kids rule the roost – or that's the idea.

Designed by Nihon Sekkei and Tokyu Architects and Engineers, Mark City has been designed to attract adults back to the region. In recent years, the Shibuya district has become overrun by hordes of 15-30-year-olds, attracted by the boutiques, restaurants and bars that fill the maze of streets. This is mainly because of the convenience of the location. On the edge of downtown Tokyo, Shibuya is a gateway to the city for the affluent western suburbs. It is one of the major stops on the elevated Yamanote loop line that circles the centre of the city.

The cost (US$750 million) of the development was inflated by the complexities of building the towers above elevated train lines, and the requirement that trains ran as usual throughout the construction period.

A sizable proportion of Tokyo's corporate army passes through Shibuya every day, travelling between home and office, but very few stop there. Developers have long puzzled over how to get more of the adults off the

trains, but have been frustrated by a patchwork of small landholdings which made it extremely difficult to assemble a plot sizable enough to accommodate a modern office tower. The solution was for three of the rail companies to combine their landholdings and air rights.

Mark City houses a total floor area of 140,000-square-metres, roughly split between a 23-storey office tower and a (nearly) twin 25-storey building, housing a 408-room hotel.

Project owner, the Tokyu group, hopes the project will spur follow-on adult-attracting development. Other developers, however, still face the challenge of assembling decent-size plots. DN

A 30-metre-high glazed void greets visitors at Denton Corker Marshall's 363 George Street, Sydney

Denton Marshall's latest Corker

AUSTRALIA

363 George Street, Denton Corker Marshall's (DCM) new office tower in Sydney's inner city, may be the firm's most spectacular building yet. It was designed by Richard Johnson and Jeff Walker of DCM's Sydney office.

The wide bright lobby and a large public courtyard was achieved, despite the building being hemmed in on all sides by protected buildings, by "pushing up over heritage buildings", a strategy used in the firm's award-winning Governor Phillip Tower. A street-level 30-metre-high void contains a 12-metre-high "glass box", the lobby, through which the visitor sees the backs of the heritage buildings, with often quite rough surfaces, deliberately "not tarted up" says Johnson.

Above the box is an 18-metre-high empty volume. The 21 office floors, with their aluminium, glass and granite finishes, are supported on columns which act as stilts. Next to the lobby is a large public courtyard and the "Waterswing", a mesmerising stainless steel sculpture which swings slowly and gently above a reflecting pool. The whole effect is to create an extraordinary new public space for the city. AS

ASIA-PACIFIC

Harry Seidler on the Rocks

AUSTRALIA

Harry Seidler has designed a 43-storey residential tower for the Rocks district of Sydney, an area better know for its Victorian colonial-era architecture.

Seidler describes Cove Apartments as "the apartment building of tomorrow. It is truly a building for the new millennium. Its layout is based on extensive research of what people want and expect in city living."

Apartments will be equipped with working-from-home technology – media desk space, and data and access points. The desk can be removed and replaced with a sofa. Interior design has been carried out by Nik Karalis of Woods Bagot. Lifts will move at a rate of 4 metres per second.

If the success of The Horizon (1996), Seidler's last Sydney residential block and one of the most sought-after addresses in the city, is anything to go by, Cove's apartments will not be on the market for long. The project is due to complete in late 2001.

Harry Seidler's Viennese housing complex, Wohnpark Neue Donau (1999), was featured in *WA*81 (pages 42-49). AS

Aoki joins the super league

Little-known architect beats Ando and Hasegawa in Aomori competition

JAPAN

Young Japanese architect Jun Aoki has won the competition for a huge cultural centre in Aomori, northern Japan. The shortlist included Itsuko Hasegawa, Kisho Kurokawa, Sosuke Fujimoto and the Tadao Ando Studio at the University of Tokyo.

Aomori is the site of some of Japan's oldest pit dwellings and for much of the year is buried under metres of snow, but the brief required proposals to be "future-oriented" and "open". Aoki resolved what he saw as the contradiction between the "weight of history" and the "lightness of the future" by making a series of deep cuts into the site to create a complex, "archeological" landscape. Elevated volumes form platforms, housing the centre's key functions and creating a series of site-specific, earth-floored galleries between the ground and the superstructure.

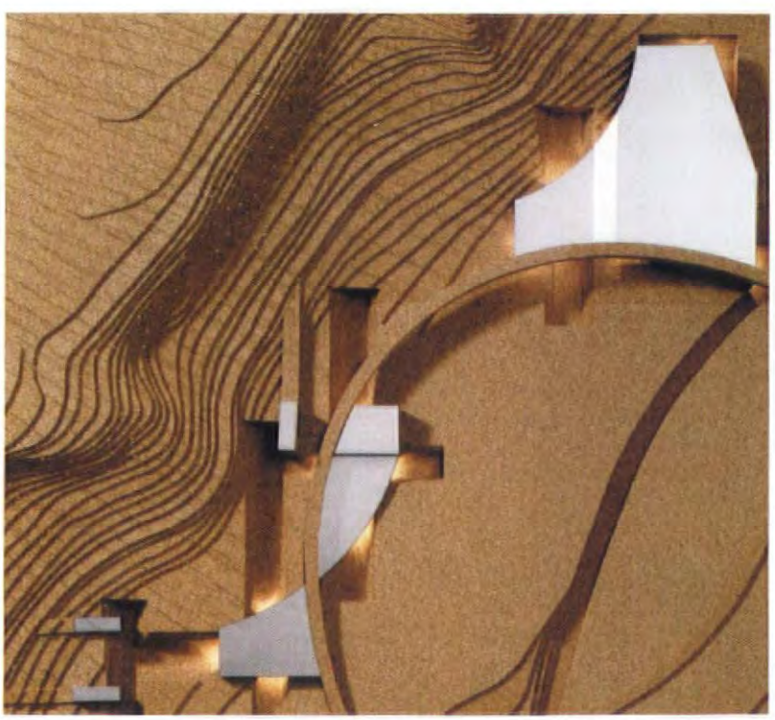
Another design problem was the building's relationship to a curving, partially elevated circulation road, the result of a previous masterplan for the site. Aoki used the interaction between the building and the road's different elevations to create a series of spatial experiences.

Toyo Ito was chair of the jury, which drew 393 entries. The complex is due to be completed in 2004.

The last year has been successful for Aoki. The Fukushima Lagoon Musuem, his largest completed work to date, was awarded the Architectural Institute of Japan's 1999 Building of the Year prize.

"Atmospherics", an exhibition of Aoki's work runs until 28 April at Tokyo's Gallery MA. AS

For details about "Atmospherics" go to: www.toto.co.jp/GALLERMA/ind1e.htm



In brief

AUSTRALIA

Sydney on the up

Three of Australia's leading architects – Melbourne's Nonda Katsalidis, of Nation Fender Katsalidis, Harry Seidler, and Andrew Andersons of Peddle Thorpe and Walker – are competing to design Sydney's largest residential apartment tower. Developer Harry Triguboff, head of Meriton apartments, will chose one of them for his US$205 million, 65-storey World Square Tower. Meriton paid US$21 million for the central site last year and has gained approval from the city council to scrap plans for a 70-storey commercial tower previously approved for the site.

JAPAN

Easing the crush hour

Anyone who has ever suffered the rush-hour on Tokyo's trains won't be surprised to learn that a study has recommended expanding its capacity – to cost an eye-popping: US$70 billion. Most of the money goes to new train lines, but the recommendations also include making stations more attractive and accommodating old travellers. The committee recommended the work be spread out between now and 2015.

PRC

Kowloon concert hall

The Architectural Services Department of Hong Kong has completed work on the US$100 million Kwai Tsing Theatre in west Kowloon, one of the few medium-sized venues in Hong Kong. The 900-seat multi-purpose theatre is especially striking for being among Kowloon's bland housing and industrial outlets. The building envelope combines bold circular shapes, curving walls and rectilinear forms, and its basement contains a system of heavy-duty springs to isolate interference from the nearby underground railway tracks.

THE AMERICAS

In brief

USA

Station to station

In New York, a joint venture of Fox & Fowle Architects, Cosenti Associates and Vollmer Associates has been selected to design the rehabilitation of the two-station subway complex consisting of Roosevelt Avenue/Jackson Heights and 74th Street/Broadway stations. Completion of the US$50 million project is scheduled for the end of 2001.

USA

Searing ahead

A 16.7-metre section of one of the two antennas atop the Skidmore, Owings & Merrill's Sears Tower, Chicago, has been removed. It is to be replaced, by the end of next month, with a new segment so that the total height will be 527 metres, higher than the present record-holder, New York's World Trade Center. The reason? Digital TV, enhancing lease arrangements with local television stations. Sears will thus lay claim to a total of three height records: highest antenna, highest roof, and highest occupied floor.

USA

A uniform form

The National Council of Architectural Registration Boards (NCARB) has set in place plans to streamline the process for architects to register in multiple states. A common form will serve 17 states and 10 Canadian provinces. For information go to *www.ncarb.org*

USA

From Harvard to Whitney

K Michaels Hays, architectural theory and history professor at Harvard University's Graduate School of Design has been appointed the first curator of architecture at New York's Whitney Museum of American Art.

New York's new tkts2k to ride

Australians win Times Square ticket booth – NYC's largest ever competition

USA

Mayor Rudolph Giuliani of New York has announced the winners of the tkts2k competition for a redesign of the iconic ticket booth in the heart of New York City's Times Square. An 11-member jury, including Enrique Norten, Marion Weiss and Kathryn Gustafson, chose an entry submitted by two young Australian architects, John Choi and Tai Ropiha – both of Sydney.

The winning design creates a wedge-shaped structure, accommodating two usable spaces within one footprint. The ticket booth functions are housed within the wedge, while its sloping roof, covered with stairs of red resin planks, forms a resting point for patrons and visitors to the square.

The competition received 683 entries from novice designers to well-established firms from around the world, making the competition the largest in the city's history.

Second place went to Ove Arup & Partners/Thomas Phifer and Partners, New York, and two third prizes were awarded to Lissoni Associates, Milan, Italy, and to Leo Mieles, Toronto, Canada.

Selected entries are on show at the Van Alen Institute, 30 West 22nd St, until 1 May.

- Also in New York, the Museum of Modern Art has chosen Michael Maltzen Architects to design its temporary facility in Queens to be used while Yoshio Taniguchi's US$650 million addition to the main museum is completed. Before starting his own firm Maltzen was with Frank O Gehry and Associates. The temporary space will be constructed in the landmark Swingline Stapler building. BB

For tkts2k exhibition opening hours and further information go to http://www.vanalen.org/

KPF to double size of Mohegan Native Indian casino

USA

A Native American-owned casino in rural Connecticut is set to double in size, to about 800,000 square metres. The New York office of Kohn Pedersen Fox (KPF) will design the extension to the Mohegan Sun Casino complex, which will include an US$800 million, 40-storey hotel, a 10,000-seat sports arena and a second casino building, featuring a 45-metre-diameter planetarium.

Due for completion in 2002, the casino expansion project, designed in association with interiors specialist the Rockwell Group, will add a total of 370,000 square metres of gambling, retail and entertainment space.

The monolithic hotel tower will be a landmark visible from Long Island, across Long Island Sound. Inside, natural light will filter into the new casino and refract off crystals and 2,400 square metres of panels of translucent woven multi-coloured beads, said David Rockwell, of the Rockwell Group. "Where the existing casino has an Earth-based theme, the new casino is meant to convey the notion of sky," says Rockwell.

Brennan Beer Gorman was the architect of the Mohegan Sun's US$325 million first phase (see *WA*76 pp84-85), at the Uncasville site, 200 kilometres from New York City.

The Mohegan is one of only two tribes in Connecticut recognised as tribes by the federal government, a necessary prerequisite to opening a casino in that state. BB

Timothy Hursley

USA

The Vermont/Santa Monica MetroRail Station is the latest addition to Los Angeles' Red Line. The design intention was to create an "icon of progress" for the riot-strewn corner of eastern LA. The dramatic entrance is marked by a "visual beacon", by Mehrdad Yazdani of Ellerbe Becket, with the sculptural ensemble enhanced by five red lighting poles, between 14 and 20 metres tall. Each of the poles is lightly different, with a tilt of between 2 and 5 degrees. Since completing the scheme Yazdani has joined Dworsky Associates. AM

Letters

Brits vs Germans revisited

From Helmut Glädde, Birmingham, UK

While I was convinced by the intentions of Adam Mornement's article "No Chance" (*WA*84 pp30-33) I felt that he was holding back from spelling out an underlying truth. The unspoken British attitude towards Germany, pervasive in architecture and in almost all aspects of everyday life, is that no-one should be seen to be dealing with the Germans.

As a German national, living in the UK for nearly ten years, I have seen British xenophobia from the front line. My company, Strukturwerke Teknik GmbH, supplies a range of materials to the construction industry, both in Britain and throughout the EU, and I am consistently surprised by British willingness to accept German innovation, yet reluctance to credit it.

While Germany continues to push for a Europe where cross-border integration is second nature, and there is no doubt that the majority of the EU nations stand shoulder-to-shoulder, the British cling to archaic prejudices from over half a century ago.

Nobody is brave enough to have the dreaded "German" tag attached to their project. For all Michael Wilford's apparent understanding of the situation he could not help himself with his crass comment on British "looseness and flair" versus German "rigid technical training". He knows as well as anyone that there are German architects more than capable of this "looseness and flair". Perhaps he is anxious that his own comfortable position in the German construction industry may come under threat should he stop perpetuating the stereotypes?

When Mornement ponders whether the answer lies deeper in the two nation's psyche, I would suggest that it is the British psyche alone that requires investigation.

Unexploded bombs

From Chad Nowicki, architect and city planner, Tennessee, US

As the "top secret" negotiations about the location and design of the new East Africa embassies continues ("Blast Orders", *WA*83 pages 86-89), one wonders whether the real danger to human life has been addressed at all. Most of the dead were local office workers, most of the damage was to local office building stock. So when we doubt the virtue of moving our embassies out of town, or setting them back from the street front, we need to worry about more how our nation is perceived.

In the current global climate, US embassies are unexploded bombs. However safe you can make the building, until you diffuse the tension that detonates incidents like Dar-Es and Nairobi, it's mere window dressing. The surrounding urban collage remains vulnerable. As architects, instead of crying "what have they done?" we should be asking "what have we done?" and removing the icons of our abrasive relations with the rest of the world to somewhere they can't do any more harm.

Ground breaker

From Igor Shevradski, Tblisi, Georgia

I read with fascination "Breaking New Ground", the review of Fox and Fowle's 4 Times Square in your February issue (*WA*83 pages 56-63). We mustn't underestimate the significance of this magnificent building. You see, the green skyscraper debate was never really about whether or not it could be done. We knew it could all along really – hence the applause for Foster's Commerzbank being no more than a polite ripple.

The green skyscraper debate was about the reconciliation of ecology and capitalism, just like the green power debate and the green transport debate. Can we continue to raise our standard of living at breakneck speed without propelling ourselves harder and faster towards self-destruction? Well, if a skyscraper (of all building types) for Condé Nast (of all clients) can go up on Times Square (of all places), then we most certainly can.

And we should be proud that it was a firm of architects that placed this monumental endorsement of the green agenda slap bang in the beating heart of Manhattan, showhome to the world of the capitalist utopia.

Next issue

CITY FOCUS – PRAGUE

Many regard Prague as the cultural capital of Eastern and Central Europe – a kind of sanitised version of the unknown mysteries that lurk further east. Since the "Velvet Revolution" of 1989, this reputation has been supported by architecture. It is no coincidence that Prague is the only formerly Soviet-controlled European capital to house a Frank Gehry original – the "Fred and Ginger" building on the banks of the Vltava. As Jean Nouvel's mixed-use Zlaty Andel centre nears completion, Adam Mornement went to meet the man, and visit the building, which might yet steal the show from "Fred and Ginger". Also, *WA* introduces E-Area, a James Bond-style complex of "black holes" and "hollophonic theatres" designed by a collective of young Czech architects and designers.

SECTOR ANALYSIS – HOUSING

Housing addresses the full range of architectural ideologies. From one-off demonstrations of aesthetic and technical skill, inspired by vanity on the part of both designer and client, to the painstakingly conceived blueprint cure for social inequality, and a host more of the human condition's ills – the sector is all things to all architects. *WA* finds out what's at the leading edge of housing design in 2000, taking in, among others, a speculative, Mies-inspired, row house development by Eduardo Souto de Moura in Portugal, and a sophisticated kit-of-parts scheme by Toyo Ito confronting the notion that Japanese materials and methods combine to create a "tabloid architecture".

TECHNICAL – LIGHTING

Structural glass, titanium cladding and translucent fabrics: all contemporary fashions that force the architect to confront lighting design with unprecedented vigour. And that's just the exterior. *WA* looks at the impact new architectural materials have had on the patterns of lighting specifying. WA also reviews the fashionable Frankfurt trade fair Light and Building and CEVISAMA, Spain's premier ceramics showcase, which descended on Valencia, Spain in March. We report on the latest revelations for architects, and asks why you need look no further than the Latin nations for top-of-the-range ceramics.

Paul Raftery

Anton & Duchemin

Left, top: Building Study: Christian de Portzamparc has completed the Palais de Justice in the small perfume-producing town of Grasse, south France. Comprehensive technical analysis next month. **Bottom:** Model of the Zlaty Andel project, Prague, by Architectures Jean Nouvel. The mixed-use scheme completes in November.

Analysis

Exposed

Hanover Expo 2000 promises to be one of the architectural events of the year. WA met three architects on the cusp of global acclaim, all hoping that Expo, opening in three months, will provide the final push. First, Adam Mornement wonders whether it will be an "archtiect's" Expo.

On the face of it, World Expositions are fairly straightforward affairs. These glorified corporate trade shows represent an opportunity for nations to "meet and greet", show off to each other and establish trade links. In return, the host city gets its name plastered over the international press for three or four months, and invests in new buildings and infrastructure. But things were not always so simple.

Ever since London's Great Exhibition (1851) – designed to remind the world the Britain was dominant – the host nation has had its own agenda. The Paris Expo of 1937 took on a more sinister tone, with German, Soviet and US pavilions vying for impact in the build up to the Second World War.

It wasn't until 1958, in Brussels, that the association between Expos and architectural innovation was confirmed. Here, Belgian engineer André Waterkeyn embodied Belgium's scientific progress in a 165 billion magnification of an atomic lattice of iron crystals. The resulting legendary exercise in spatial organisation – the "Atomium" – still stands today.

The Expos of the 1990s, Seville 1992 (*WA*31 pages 56-75) and Lisbon 1998 (*WA*69 pages 44-49) were contrasting affairs. Seville was a genuine celebration of architecture, with Imre Makovecz and Nicholas Grimshaw just two of the architects to enhance their reputations via their respective nations' temporary pavilions. Nobody has found a successful role for the Expo site. The event made a massive loss.

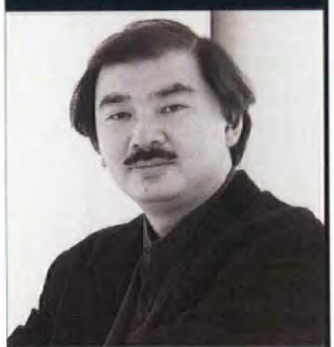
Lisbon 1998 was more hard-nosed. The 2,013-hectare Expo Urbe site housed a series of permanent trade fair halls and public arenas, with the aim of creating a whole new city district. Yet, with the exception of Santiago Calatrava's station and SOM's Utopia Pavilion, it was a design desert.

Hanover Expo 2000, the 22nd World Exposition and the first to be held in Germany, combines long-term urban planning with experimental temporary pavilions. The productive use of the 160-hectare site will ensure that Hanover doesn't lose money, and the work of a host of superstar architects will ensure that it is not forgotten. If Expo 2000 does launch a new generation of global architects, it will include Shigeru Ban, Cruz and Ortiz and MVRDV. You read it here first.

Hanover Expo 2000, from 1 June to 31 October 2000. Go to: http://www.expo2000.de

Japan

Shigeru Ban



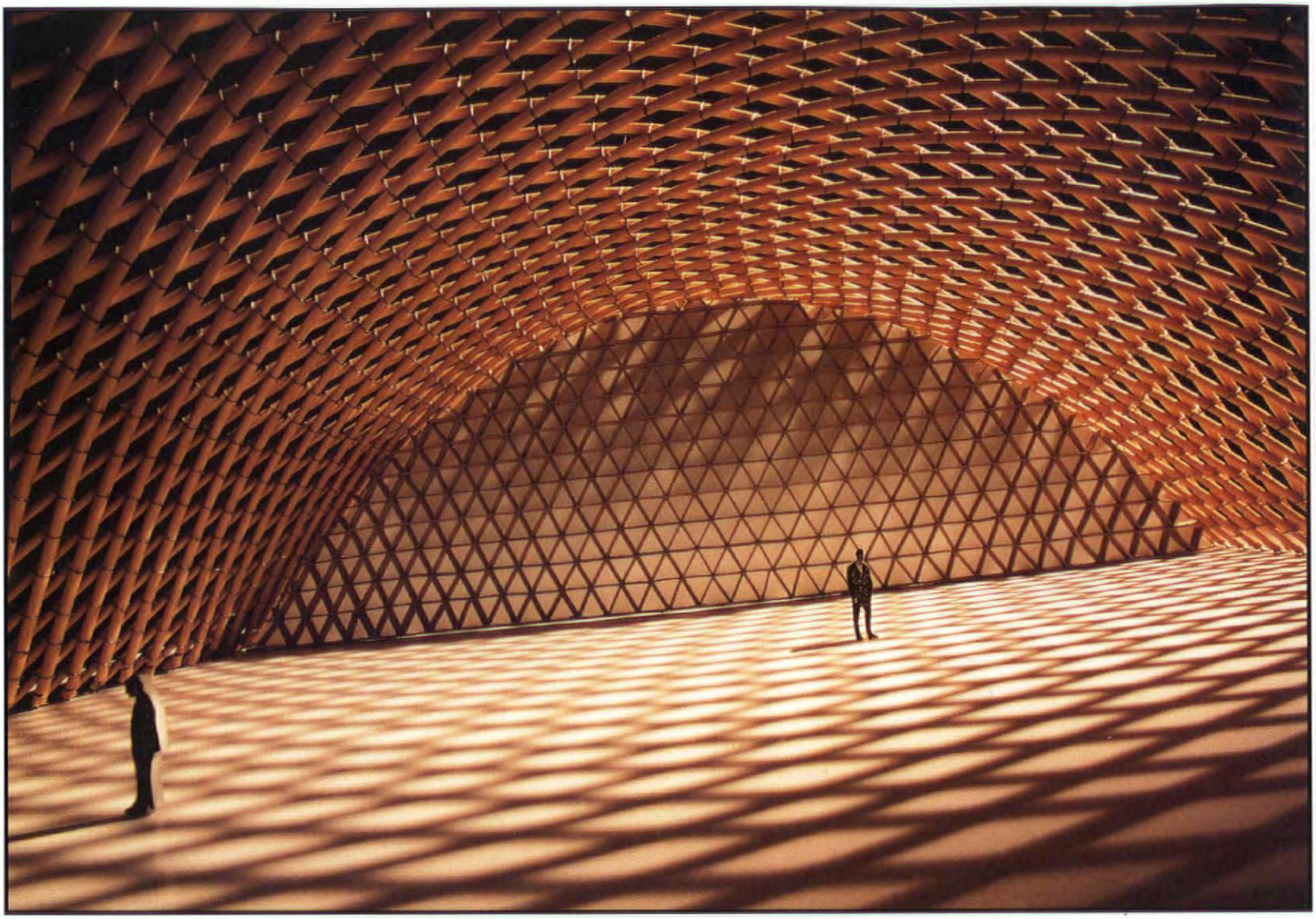
You probably know Shigeru Ban as the architect who makes buildings out of cardboard, but he is much more than the creator of architectural gimmicks. Don Choi spoke to Ban in Tokyo, on the eve of his European debut.

Shigeru Ban's paper tubes have found their most audacious expression yet in the 70-metre long grid shell of the Hanover 2000 Expo Japanese pavilion. Beginning with the design for the Alvar Aalto exhibition (1986) and evolving through the Paper Church and Paper Loghouses for victims of the 1995 Kobe earthquake, Ban has exploited paper tubes on scales ranging from chair backs to the 50-metre lengths of the Hanover vault.

Ban is quick to point out, though, other uses of seemingly mundane materials for structure – such as factory-produced furniture for structural walls and pre-cast concrete piles for columns. Such invention has helped him garner the 1998 Architectural Institute of Japan Tohoku prize, the 1997 Japanese Institute of Architects Best Young Architect award, and the 1996 JIA Kansai Grand Prize.

The Hanover Japan pavilion highlights two aspects of Ban's emerging internationalism: collaboration and social responsibility. First, his European debut gave Ban the opportunity to collaborate with Frei Otto, which he calls his "dream". In Otto, Ban found an ally for his interest in "weak" materials and low-tech solutions. For instance, instead of using metal fittings and bolts to brace the intersections of the tubes, they discovered a remarkably light, efficient, and low-tech solution: nylon straps, similar to those found on backpacks.

In fact, free interchange between



Model of Shigeru Ban's 70-metre-long vault for the Expo, designed in collaboration with Frei Otto. The junctions of the tubes are braced with nylon straps

engineers, consultants, and product manufacturers across the EU offered Ban previously unavailable options. "They can take advantage of whatever is best," says Ban of architects in Europe. "That kind of attitude doesn't exist either in Japan or the US." Paper tube technology developed through these collaborations is also being applied at the Canal Interpretation Center in Dijon, France, and at an installation at the Museum of Modern Art (MoMA) in New York, set to open on 26 April. The scale and time-frame at Hanover meant that Ban was unable to fully realise his structural ideals, but at MoMA he will cover the sculpture court with a paper-tube shell that he describes excitedly as, "pure method in structure".

The Hanover pavilion also offers the grandest example yet of Ban's production of socially responsible architecture. The 50-metre paper tubes and the roof membrane will be recycled, and Ban is using rental scaffolding and sand for the foundations instead of unrecyclable concrete.

Humanitarian impulse

Ban began using paper because of his fascination with weak materials and because, as he puts it, "I just hated to waste material after I demolished something like an exhibition". Yet Ban shuns labels such as "ecological" or "environmentally-friendly". "When I designed the Aalto exhibition with paper tubes, at that time nobody, especially in Japan, said the word 'environment', or 'recycling', or 'ecology'," he continues.

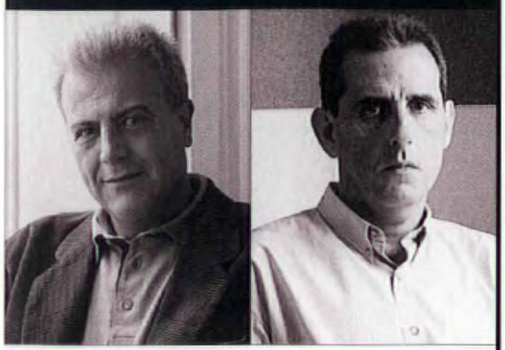
Paper architecture is also a staple of Ban's international humanitarian work. Nonplussed by the increased exposure Hanover is bringing him, Ban claims, "I am very happy if I am called a global architect because I am doing humanitarian activities worldwide". His work includes a project for the Children's Aids Hospital in Uganda, and a six-month UN-sponsored monitoring study of paper-tube structure emergency shelters for refugees in Rwanda. He has also established the NGO Voluntary Architects Network to dispatch architecture experts to other NGOs and international organisations.

Such activities distance Ban from his Japanese peers. In fact he has never quite fitted into the insular Japanese architecture community. He began his architectural studies at the Southern California Institute of Architecture in 1977, transferred to Cooper Union in 1980, and then took a year to work for Arata Isozaki before graduating in 1984. Thus from the start Ban felt at ease abroad: "Since I started in the US, to me working in France or Hanover is the same".

Ban's stint in Isozaki's office, then and now a Mecca for young architects, affected not Ban's style but his outlook. "Isozaki was working worldwide," he notes, "so that was also my attitude, that was my starting point." If Ban is at heart an international architect, though, is he also a Japanese architect? From the 1876 Philadelphia World's Fair to the 1992 Tadao Ando pavilion in Seville, international observers have typically read Japanese pavilions as interpretations of traditional Japanese architecture, but Ban dismisses such claims about his own design. "It's not true," he says of claims that his use of paper stems from traditional Japanese architecture. "We have never used paper in traditional Japanese architecture in structure, just as screens, so the way I used paper was quite different." Indeed, rather than using paper architecture to establish links with the Japanese past, Ban has chosen to use it to address contemporary, international issues. And to those who hype the recent globalisation of architecture, Ban simply responds, "architects have always been international".

Spain

Cruz and Ortiz



Are Cruz (left) and Ortiz ready to inherit the mantle of "Spain's finest" from Ricardo Bofill and Rafael Moneo? David Cohn went to Seville to find out.

Spanish architects Antonio Cruz and Antonio Ortiz received their first widespread recognition at another international fair, the Seville Expo of 1992, for which they designed the acclaimed Santa Justa train station. Now in their early 50s, the pair have since completed an impressive portfolio of work, most recently an Olympic Stadium and the Regional Library of Andalucia, both in Seville.

At Hanover 2000, their design for the Spanish Pavilion was selected by the state enterprise organising the exhibit over projects by Enric Miralles and José Antonio Corrales (one of the architects of the Spanish Pavilion at the 1958 Brussels Fair, a pioneering work of Spanish modernism). They are also currently building a train station in Basel and a housing project in Maastricht.

Speaking at his office in Seville, Antonio Ortiz explains that the design for Hanover, like much of their work, was developed as a "play of contrasts", both in response to the site and within the building itself. "The surroundings of an exposition are usually not very appealing," he maintains. "Expos are generally a collection of buildings, each very autonomous and self-referential in their architecture. For this reason we designed our project thinking more about the interior space, the invention of a new public place, a place apart within the Expo."

"Expo buildings tend to be very obvious, offering a simple, single reading. We have proposed instead a building with a more complex reading. On the outside, with its cork facades, the pavilion is obscure, with a very fragile geometry, very flexible, very hermetic, like a great block of cork. But when one passes under the portico between the pillars, you discover an interior space that is completely different. It is absolutely white and luminous, very precise, very canonical. It's difficult to imagine that a building that is so fluid on the outside can have such a precise space in its interior. It's a complete inversion," Ortiz continues.

Cracks in the facade

The design is basically developed in section. From the outside, it appears as a pavilion raised on thick pillars, leaving the ground plane open on three sides. The most remarkable feature of the facades are deep angled crevices cut into the cork like canyons or profound cracks, which serve to bring natural light deep into the exhibition area on the upper floor. But once through the low threshold, the apparent depth of the upper pavilion is undercut by the interior plaza, whose ceiling planes angle up in a pyramidal form from the portico to rooftop skylights.

A sculptural ramp in the plaza rises to the exhibition floor, which circles the pyramidal roof of the plaza, opening to a series of exhibition alcoves defined by the deep crevices of the facades. The fourth facade at the back of the pavilion has a more conventional configuration for offices and meeting rooms, with a ground floor bar and restaurant opening to the interior plaza. This zone gives structural stability to the pyramidal roof, which has been engineered as a deep beam spanning over 50 metres.

The use of cork for the facades arose from a reflection on the difference between temporary and permanent structures. Ortiz comments: "As architects, we tend to press for the durability of our buildings. It takes a little effort to change one's mentality. But when one does, possibilities emerge that a conventional building doesn't offer. I'd never consider making a permanent building of cork, but in a building for six months, yes."

Ortiz describes the 90-millimetre-thick cork panels as a kind of novel exterior insulation. "It's a material with many Mediterranean connotations, and a very important export product." The architects studied its reaction to water, heat, humidity, ultra-violet rays and structural stresses, as well as its sound and thermal resistance, and adapted a system of fixation based on a cavity wall backed by corrugated sheet metal. The cork can be recycled after the fair, if the pavilion is not re-erected elsewhere – the structure and other elements are all of dry construction and demountable.

While the design bears little direct resemblance to other projects by Cruz and Ortiz, Ortiz assured me that it is "very representative of the kind of issues we're interested in – the play of contrasts, the strong distinction between interior and exterior, the sense of discovery, of a long transition from the entry. To discover the building little by little, an archi-

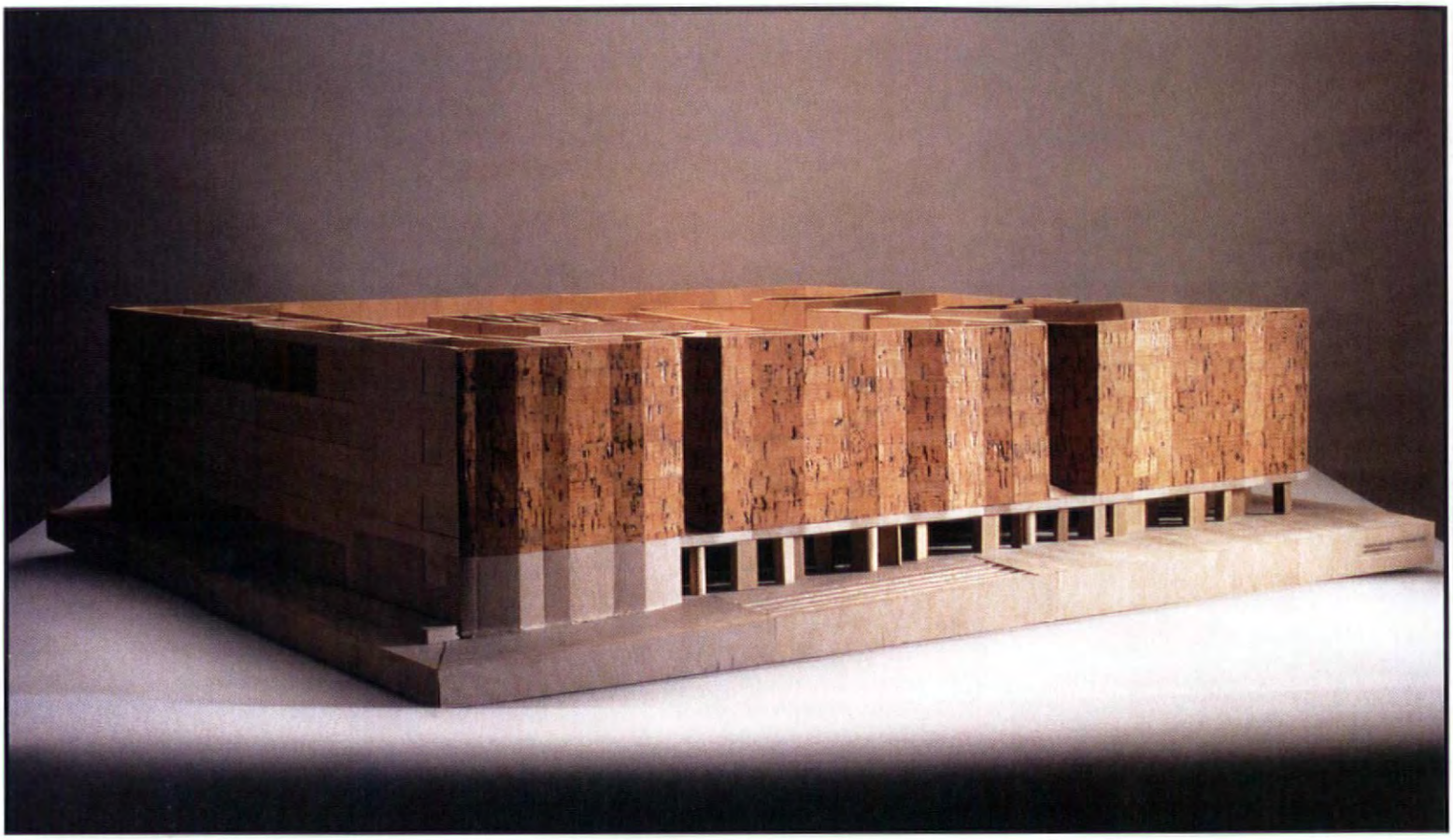
Also at Expo 2000...

Jockehn Lübke/expo 2000

VENEZUELA
Fruto Vivas' pavilion has been designed to resemble the native foliage of its nation – nature reserves and national parks make up 15 per cent of Venezuela's surface area. An 18-metre-high flower towers above the building. Its ten-metre- long petals open and close according to the weather. The design is reminiscent of

Jockehn Lübke/expo 2000

SOUTH KOREA
Chui Kong and Kyong-Soo Park's 19-metre-high pavilion is all about light. The external skin is a patchwork of coloured tiles, positioned to reflect a series of patterns during the day, and light up like a lantern at night. It is based on "Pojagi" – the art of sewing together scraps of fabric to form a pattern with symbolic value.



The 90-millimetre-thick cork facade of Cruz and Ortiz's Spanish pavilion , "a kind of exterior insulation", is sliced through to allow light inside

tecture that is not immediately recognisable, that takes its time".

As an example, he cites the sequential arrangement of highly-defined spaces at the Santa Justa station, from the entry marquee to the train platforms, or the strong contrast in the Seville Olympic Stadium between its hard polygonal exterior and oval interior. He also cites the pair's recent competition design for the enlargement of the Reina Sofía Museum in Madrid, a free, serpentine form that was awarded a special mention. Ortiz explains that the original building, an 18th century hospital, "was so powerful and Cartesian that we felt obliged to work with a completely different set of rules. The area was exhausted with rigour".

The different character of the resulting designs is not simply a response to context and programme. Ortiz points out that their Athletic Stadium in Madrid (1994), "could not be more different from the Seville stadium. Madrid is very direct, structurally exposed, while Seville is very layered. We simply didn't want to repeat ourselves."

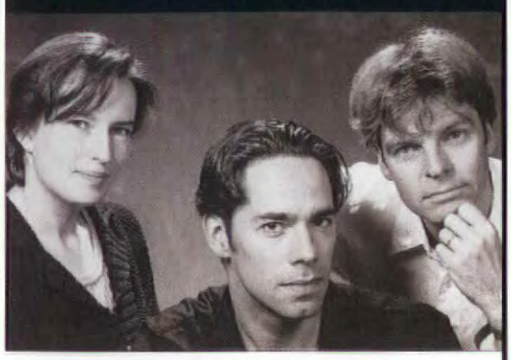
Summing up, Ortiz sees their work connected by, "a certain style or way of doing things, something like an underground current, which can result in very diverse forms. The buildings are related by the way you enter them, the sequences, the timing. But they don't resemble one another structurally or formally." This rich combination of method and adventure has resulted in one of the most original buildings at the Hanover Fair.

FINLAND
SARC Arkkiteht-itoimisto of Helsinki has designed "Wind Nest", as Finland's contribution to the East Pavilion site. Inside is a birch forest, through which visitors will be led on a tour of exhibits. SARC has recently earned acclaim for its Sanomathouse HQ in Helsinki, Finland's first fully glazed building (see News pages 34-35).

HUNGARY
The Hungarian Pavilion was designed by Budapest-based architect György Vadász. It is intended to represent a country "opening up" a decade after the collapse of communism. Vadász will be hoping that Expo 2000 will do for him what Seville 1992 did for Imre Makovecz.

The Netherlands

MVRDV



You can be sure a building is destined for fame when it earns a nickname before completion. Layla Dawson went to Rotterdam to meet MVRDV, designer of the "club sandwich".

Winy Maas (right), Jacob van Rijs (centre) and Nathalie de Vries, who together make up MVRDV, are the architects of what has become known as the "club sandwich". Eight stacked "fields", covering an area of 8,000 square metres, represent a condensed, vertical landscape. It looks amazing, but is it architecture? Or does the pavilion have more to do with the firm's pet project, FARMAX (maximum floor/area ratio)?

"You could see it that way," says Jacob. "By stacking landscapes, empty fields are created around the building, similar to FARMAX, in which we plead for denser cities and more open countryside. Building can produce emptiness elsewhere."

For MVRDV, the density of the Netherlands' urban districts is a source of inspiration. "It's one of the points on our agenda. The Netherlands contains more people per hectare than Japan. We have a monotonous high average density. For us it seems attractive to increase the differences. Up until now there hasn't been a de-urbanisation of densely built areas, except perhaps in places like the German Ruhr region, where heavy industry died out and some beautiful parks emerged.

"Redistribution of landscape only happens under economic pressure. In the Netherlands it has been possible to cover farmland with water because new lakeside properties have a higher market value. Paying off 'greening' with building is an interesting contradiction. You can 'build' nature, which is our interpretation of the Hanover EXPO 2000 theme [Man, Technology, Nature]."

An architectural historian might conclude that MVRDV is developing sophisticated versions of Le Corbusier's "Ville Contemporaine" (1922), but MVRDV is a very young team, only just the wrong side of 40. The office was set up in 1991 and emphasises, along with the zeitgeist, non-hierarchical organisation. "We are not conscious of models but, looking back, we have been partly formed by the 'Forum' group from the 1960s [Aldo van Eyck, Bakema, Herman Hertzberger] whose ideas were influential at the Delft school where we studied, and we cannot deny the influence of Rem Koolhaas, who paved the way for our generation. We benefit from the acceptance of his work."

Bright futures

Contemporary Dutch architecture has a high profile at the moment. Young architects in the Netherlands are envied by other Europeans for their opportunities. "The good economic situation, start-up grants, and a growing public interest in architecture are all factors. It might seem like paradise but you have to fight for quality here as you do anywhere else."

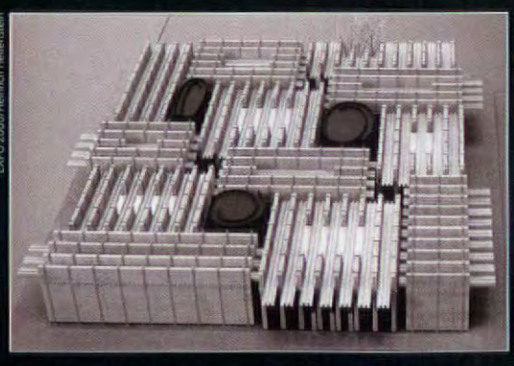
Foreign architects have every reason to be envious. "We have psychological freedom to experiment in a highly practical environment. We don't have a lot of open competitions but limited competitions, by invitation only, or straight commissions. The main constraint is the budget: we build very cheaply in the Netherlands, but there's space for unusual ideas. We do more topological research than flashy details. You have to be smart to solve problems. It's not about form finding. We are challenged and are given a lot of space in which to explain. The field is big but mental freedom is the most important factor."

MVRDV has worked on a lot of housing. Is this because the practice feels that architects have a social responsibility, or because the sector offers opportunities? "It's a combination. There are many housing associations in the Netherlands and there's a tremendous shift taking place in the market. This needs organisation, redevelopment of 1950s estates and new suburbs. In the last decade more houses than offices were built. For us it's interesting to develop the public, collective, aspects of housing, the gardens for example, or the urban pattern. Architects should not be paternalistic about how people live."

The practice's WOZOCO housing for Over-55s, in Amsterdam-Osdorp, is part of FARMAX thinking but also an example of constraints (sometimes) becoming the mother of invention. "Zoning laws made it impossible to fit all 100 units into a slab block. Cantilevering 13 houses off the north facade resulted in a remarkable form which left space for a plaza around the building." The balconies, in various sizes, materials and positions, also excited the European architectural press by introducing diversity, which was

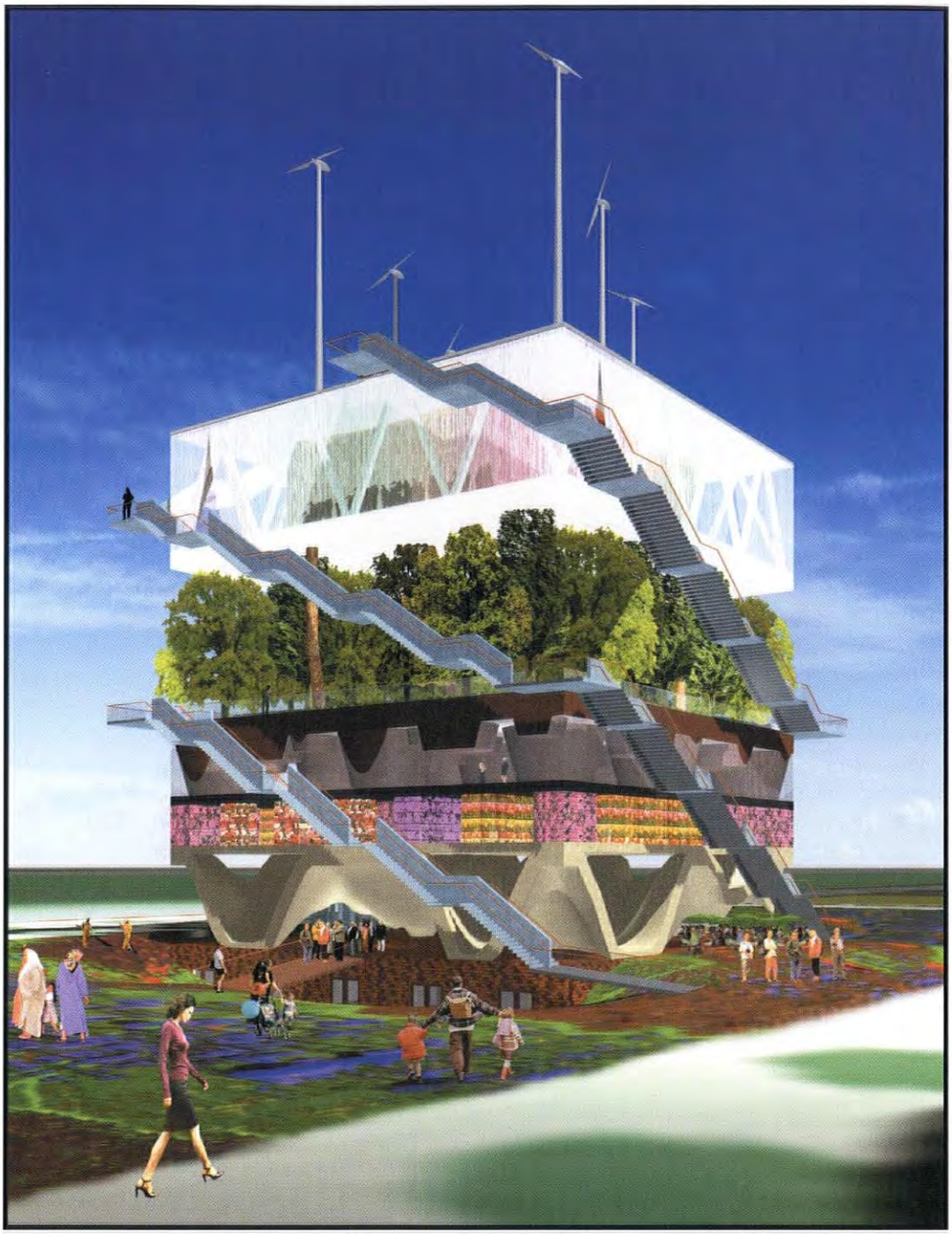
Also at Expo 2000...

ITALY
"Which of Leonardo da Vinci's visions of the future have become today's reality?" is the theme of Luigi Sturchio's hemispherical form, inspired by da Vinci's cupolas. The "Penna", a 50-metre pole, is the eye-catching feature of the polished-metal pavilion. A Leonardo model of an aircraft hovers beneath the cupola.



EXPO 2000/Heinrich Helfenstein

SWITZERLAND
Peter Zumthor's pavilion is built entirely of timber. After Expo, the 3,000 cubic metres of native Swiss wood will be recycled for use on a new building on the Expo site. Zumthor's scheme is based on the theme "Swiss Sound Box".



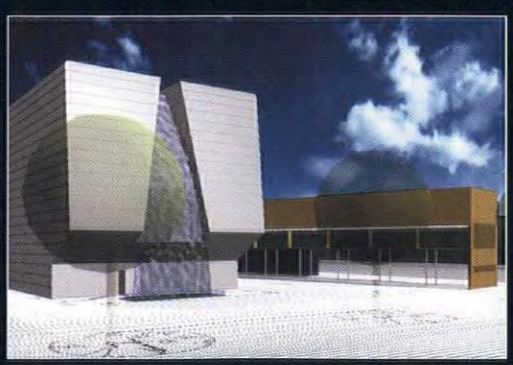
MDRDV's Netherlands pavilion encloses eight vertical "fields". From the top down: a wind park, a cinema enclosed by a rain curtain, a forest, a port layer representing the soil strata for the trees above, grass and flowers, mountains, and a grotto level over offices half sunk into the ground

otherwise limited by budget, and making each unit noticeably different. These external spaces were compared to drawers, haphazardly pulled out of the timber-boarded walls. Not everyone was looking for a hanging flat but 13 households were happy to live in a cantilevered state. The rest required more concrete support. "That's quite a high percentage of brave people," says Jacob.

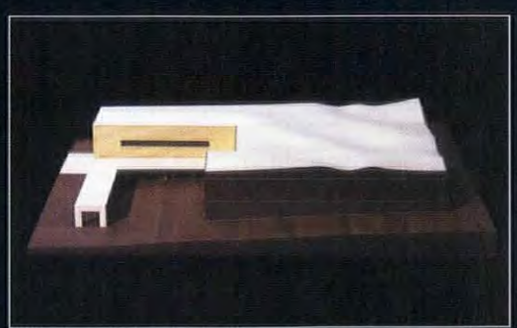
MVRDV is an innovative development of Dutch Modernism. The anonymity of the initialled name also shows an interest in promoting architecture, as opposed to themselves. "MVRDV is a brand name and our office is a test ground. Ideas first have to survive the criticism within the office. This makes them less personal and in most cases stronger. It's a collective product."

Wilkhahn, together with AIT *magazine, is offering DM400 sponsorship to any architects wishing to vist Hanover Expo 2000. The tour includes a visit to the Wilkhahn pavilion, designed by Professor Frei Otto.*
Contact: Cordula Bormann, Wilkhahn
Tel: +49 5042 999 118
Fax: +49 5042 999 245

EXPO 2000

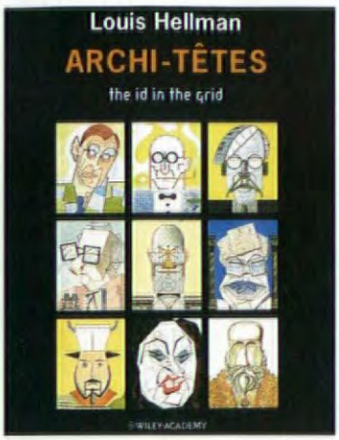


NORWAY
A 15-metre-high waterfall – the focal point of Wilhelm Munthe-Kaas' Norwegian Pavilion – is a reproduction of Steindalsfossen Waterfall in the Hardager Fjord. Adjacent to the main aluminium pavilion is a long, wooden services building, containing a congress centre and restaurant.



PORTUGAL
Alvaro Siza (who else?), in association with Eduardo Souto Moura, has designed the Portuguese Pavilion. The structure will be repatriated to Portugal after the Expo. Alvaro Siza was also the architect of the Portuguese pavilion at Lisbon Expo 1998.

Books



Head boy

Archi-têtes: The Id in the Grid. By Louis Hellman. Wiley-Academy, Chichester, UK. 128 pp.60 colour cartoons plus other b/w and colour illustrations. £15.99 US$21.99 (paperback)

By James Krohe

Usually when an architect ventures a joke it is at the expense of a colleague or a client. Louis Hellman is an exception. Like all architects, he draws; unlike most, his drawings are intentionally funny. *Archi-Tetes: The Id in the Grid* is a collection of 59 of Hellman's caricatures of the architects of the age.

The first (Le Corbusier) was entered in a 1984 cartoon competition by the *Architectural Review*. Its successors have since have been converted into popular lines of postcards, posters, and calendars.

Anyone who's seen a Hellman postcard knows how the gag works. Hellman composes a portrait using elements from the architect's own buildings. Hans Hollein for example is shown with his Monchengladbach Museum for a head, a mouth in the form of the Schullin jewellry shop, the Schullin II front door as a necktie, and the Haas Shopping Center for the body. Architects of less substance are represented not by buildings but by doors (Guimard, Mackintosh), furniture (Eames), or drawings (Hadid): Ettore Sottsass, is turned into "one of Memphis' unusable lamps".

Imagine Frankenstein's monster after the good doctor had done a course in surveying and you get the idea. Only a few portraits come close to realising Hellman's premise – Gehry, Gaudi, Fuller, Koolhaas, Erich Mendelsohn, and Wright, once memorably described by Alistair Cooke as Merlin posing as Whistler's mother. The problem may be that buildings are better reflections of architects' personalities than their face, and thus a fitter target for caricature.

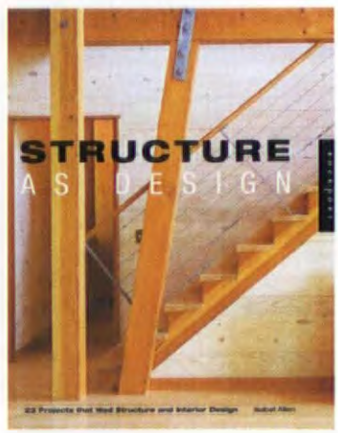
Each of the full-page portraits in *Archi-tetes* is accompanied by preliminary sketches and thumbnail photos of representative buildings. Verse introductions by the artist take the form of limericks and other near-doggerel of the sort that one finds on the walls of the better architecture schools. This one, on Renzo Piano, is by no means the worst:

The Pompidou Centre for me,
Is somewhere I do love to be.
Because it's High-Tech?
High-tech it is heck,
It's the one place in Paris that's free!

Better are Hellman's 200-word-or-so commentaries, which have a concision and bite that the drawings lack. Typical is his description of Daniel Libeskind's addition to the V&A Museum in London as the "museum as 'stunning' advert and tourist magnet, over-designed, out of context and employing a kind of deconstructed facadism draped around a fairly ordinary plan. Naturally, Libeskind is now an international star..."

Caricatures usually are meant to ridicule, but while Hellman has an eye for the pomposities and often childish conceits of the breed, his portraits are clever rather than cruel. The sketches of the architects he despises – Graves, Venturi, Stirling, and Moore, among others – have no more bite than those of ones he evidently admires, such as Mies or Jean Nouvel. But this is not in a class with Daumier or Hogarth, or the American Nast. Too bad. In a well-ordered society some of his subjects would be not just drawn but quartered.

James Krohe is a US-based architecture writer and author, and contributing editor to US business journal Across the Board



Beam me up

Structure as Design. By Isabel Allen. Rockport Publishers, Massachusetts, US. 160pp. 255 colour illustrations. US$40 (hardcover)

By Bay Brown

Structure As Design is a beautiful book with a tenuous theme. It depicts the interiors of a range of contemporary building types, both newly constructed and renovated – yet the notion of structure as a defining characteristic just isn't compelling.

Take Robert Harvey Oshatz' Miyasaka Residence in Obihiro, Japan, which combines thin horizontal slabs of stone and yellow cedar beams and panelling, creating a most elegant Wrightian organicism. But the stone in fact clads load-bearing concrete and itself is merely decorative – is this not anathema to the purist?

On the second floor a tunnel-like hallway with horseshoe-shaped beams creates a futuristic enfilade, while making the home earthquake-resistant. But the beams are doing double duty – there is space-making going on here as well as engineering. Clearly, the line of inquiry degenerates into tiresome architectural legalese.

This recalls an age-old debate. Mies van der Rohe was chastised for his prominent bronze I-beams at the Seagram Building, dubiously promoted as "structure as design." If vandals plucked the whisky-coloured engaged columns would the building collapse into Park Avenue? And why are they clad in bronze, not a briny steel? Even Michelangelo's pilasters were affected structure. The Centre Pompidou did it inside-out.

What the book does well is give a graphically compelling overview of 23 projects, each by a different photographer, by emerging and established designers: Daniel Libeskind, Antoine Predock, Shigeru Ban, Will Bruder, Hanrahan + Meyers and Deborah Berke among others. If one must struggle for a theme, the buildings depicted are part of the New Modernism, which much like the Old Modernism attempts to betray its structural underpinnings for – as we are taught in school – a fortuitous aesthetic benefit.

This we all know is bunk. The proposition prompts questions about the chicken and the egg, exposed in the last century after many tiresome dialogues debating "form follows function". Design and structure are by definition integral. While a seminal notion on the cusp of Modernism, today the point is moot. Basically, the book depicts some cool new buildings.

Shigeru Ban's Miyake Design Studio Gallery in Tokyo, Japan, explores the structural possibilities of paper. Paper is a traditional Japanese building material, but Ban pushes the envelope. A peristyle of paper columns – made of recycled cardboard – sit just within the glazed elevation. Yet, while the paper takes the vertical load, steel columns integral to the glazed wall are needed for the horizontal load.

Daniel Libeskind's Felix Nussbaum Museum in Osnabruck, Germany – dedicated to an Auschwitz survivor – conversely, champions a Deconstructivist view of structure as design, complicating any sort of inherent thesis. Structure is not revealed in a didactic effort to explain how the building is made, but instead to disorientate – as the Holocaust is not comprehensible to rational thinkers and as Nussbaum felt displacement and exile, likewise the building is not knowable.

The book does, in a graphically eloquent manner, illustrate how a

building's structural underpinnings are more part of the design than, say, during Postmodernism or Deconstructivism, but perhaps they are simply harking to an earlier Modernism. What is different here is perhaps the technical prowess and the current penchant for unadorned steel.

One is reminded that design is not merely synonymous with aesthetic, but is the essential underpinning of architecture. It is what distinguishes architecture from building. In a sense the book title simply defines architecture itself.

Bay Brown is World Architecture's *New York news correspondent*

For the pros

The European Office – Office Design and National Context. By Juriaan Van Meel. 010 Publishers, Rotterdam, The Netherlands. 182 pp. Illustrated b&w throughout. NLG 49.50 £16.50 (paperback)

By Linda MoreySmith

This is a book not about style and image but is the conclusion of a four-year explorative study of office design.

Meels' research focuses on five European countries: Germany, The Netherlands, Sweden, the UK and Italy. Throughout the book statistical data is compiled and carefully analysed – periodically cast-iron comparisons are drawn between different countries. These are inexorably linked back to the US, and the trends it set throughout the 20th century. That country has been an undeniable force and influence on the office environment today, and the refreshing part is the author's factual, rather than anecdotal, documentation of the evolution of design from the US to Europe.

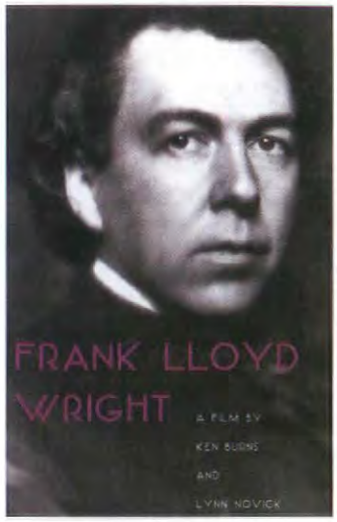
The book confirms with hard evidence what professionals in the sector have been suggesting for years - that European office design is now leading the way: "...it was in the 1960s that Europe replaced America as the forerunner in office design." The author's research concludes that constraints in Europe (space, competition, differing legislation) are such that the challenge is greater, and the results more innovative. Alongside this he describes the natural context for each of the countries including culture, historic constraints and socio-economic influences.

Practicing in the field, I found the book perhaps not inspirational, but certainly a great source of information and factual data. As it moved through the decades the trends became more familiar and less revelationary. The history was of the most interest, for instance, the story of German consulting group the Quickborner Team who created the Bürolandschaft (literally "the Office Landscape" – nominally the concept of open-plan) in the 1960s.

The black-and-white photography adds weight to this reference book and sets examples from the 1960s on an equal level to those very current illustrations of Niels Torp's BA Headquarters and ABN Amro's Henry Cobb-designed HQ.

It is a book I would recommend to global organisations and their professional advisors planning to roll out designs from an individual country across an international network. Their employees should take note of the information on national context, which gives a brief synopsis of each country's social, cultural and legislative criteria for the office environment.

Linda MoreySmith is principal of London-based office design firm MoreySmith Architecture and Design



Wright on TV (video review)

Frank Lloyd Wright – A Film by Ken Burns. Academy Video, London UK. Video – running time 155 minutes, colour and b&w, certificate: Exempt.

By Frank Clarence

The architecture documentary that made it big in the US last year is now available on video to the rest of the world – published in the UK by the British Film Institute. Ken Burns, acclaimed documentary maker and veteran of works on subjects from the Civil War to baseball, tells the story of one of the most intriguing figures of the US, a man whose extraordinary life and revolutionary designs offer insight into both the history of architecture and the broader sweep of modern US history.

The film-makers have wisely kept the technical talk to a minimum, but they are also not afraid to step back and let the experts ruminate on the nature of his genius, even when they are at a loss for words. Burns has made stars of some of his commentators in previous films, and in this one the late critic Brendan Gill shines. Wright himself comes across as a man with no self-doubt, a lousy father, and self-consciously Byronic.

His distinctly American genius for self-promotion, courting celebrity and masterfully manipulating the media is also in evidence – one of his better known soundbites comes to mind: "Early in life I had to choose between honest arrogance and hypocritical humility. I chose honest arrogance."

Burns himself responds by asking: "Is this overwhelming ego and soap opera of a life necessary in order to create great art? It is a question we also have about Picasso's meanness and misogyny. It's a question that always pops up when we study the lives of great individuals in history."

Perhaps Burns' most skillful achievement is that his cinematic authorship recreates for the viewer the remarkable experience of entering a Wright building, an experience which tells more of the genius who designed the space than any conventional medium could.

Anyone drawn to Wright and his designs, anyone intrigued by great men, and anyone interested in American perceptions will find this film a treasure.

Frank Clarence is a film critic and regular contributor to US television magazine Three

Books received

Young Spanish Architects

By David Cohn. Birkhauser, Basel, Switzerland. 144pp. 25 colour and 305 b&w illustrations. US$40 sFr68 (paperback)

Playing Fields – Alternative Spaces for Sports, Culture and Recreation

By Rene Kural. Royal Danish Academy of Fine Arts School of Architecture Publishers, Copenhagen, Denmark. 176 ppp. Illustrated colour and b&w throughout. US$30 DKK230 (paperback)

Selling Architectural Ideas

By Tom Porter. E & FN Spon, London, UK. 160pp. Illustrated colour & b&w throughout. £25 US$39.99 (paperback)

Events

Lectures, congresses and conferences

Bulgaria

The Ninth International Academy of Architecture World Triennial

Attendees expected between 22 and 26 May in Sofia include Frank Gehry, Ken Yeang and Renzo Piano. Contact the secretariat at 35 Oborichte Str, 1504 Sofia.
Tel: +359 2 943 4950
Fax: +359 2 943 4959

Malaysia

Asia Pacific Structural Engineering & Construction Conference

Themed "The Construction Industry – The Challenges Ahead", and held in conjunction with building trade show Malbex. 13-15 September, the Palace of the Golden Horses, Kuala Lumpur. Contact ASPEC 2000 Secretariat, Faculty of Civil Engineering, Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor Bahru, Johor.
Tel: +60 7 55 76 160
Fax: +60 7 55 66 157
e-mail: aspec2000@fka.utm.my
Web: www.fka.utm.my/events/ASPEC2000

The Netherlands

Sustainable Building 2000

A weekend of presentations, lectures and workshops based on research carried out after 1998's Green Building Challenge conference in Vancouver. 22 to 25 October 2000 in Maastricht. Contact Organising Committee SB2000, Ronald Rovers, Novem, PO Box 17, 6130 AA Sittard, The Netherlands.
Fax: +31 46 452 82 60
e-mail: SB2000@novem.nl
Web: www.novem.nl/sb2000

Spain

Super Cities

World Development Federation conference looking at city development strategies. 2 to 5 May, the Palacio Municipal de Congresos, Madrid. Contact the World Development Federation, 35 Technology Parkway, Norcross, GA 30092, US.
Tel: +1 770 446 6996
Fax: +1 770 263 8825
e-mail: tamela.coval@conway.com
Web: www.sitenet.com

Kenji Kobayashi

Canopy of the Tokyo International Forum by Rafael Viñöly and Dewhurst MacFarlane

JAPAN: COMPETITION

Small Public Space with Glass

International ideas competition for a new type of urban space, part of a network of enclaves where city dwellers can rest, meet, make calls and wait for transport. Toyo Ito and Itsuko Hasegawa are on the jury. Entry deadline July 21, top prize US$18,000. Information from Department of Central Glass International Architectural Design Competition 2000, Shinkenchiku-sha Co, 2-31-2 Yushima, Bunkyo-ku, Tokyo 113-8501.
Tel: +81 3 1171 207
Fax: +81 3 1171 294

US

World Development Federation Global Super Projects Conference

Based on the World Development Federation's World Zoning Board survey, which prioritises major global infrastructure programmes, with the theme of "Exploring Opportunities in New Global Systems". 21 to 24 May, Atlanta. Contact the World Development Federation, 35 Technology Parkway, Norcross, GA 30092.
Tel: +1 770 446 6996
Fax: +1 770 263 8825
e-mail: tamela.coval@conway.com
Web: www.sitenet.com

Architecture and design competitions

Canada

International Ideas Competition

The Royal Architectural Institute of Canada is sponsoring an open competition calling for a three-block area in central Ottowa, facing the Canadian parliament buildings. First prize is US$25,000, submissions by 17 April. Contact the RAIC, 55 Murray Street, Suite 330, Ottawa, Ontario K1N 5M3.
Tel: +1 613 241 3600
Fax: +1 613 241 5750
e-mail: competition@raic.org
Web: www.raic.org/competition

Italy

Second International Prize for Sacred Architecture

Nominations are now being accepted for the second award of the Frate Sole Foundation, of US$165,000, for projects which broke ground after 4 October 1990. Closing date for applications 31 May 2000. Contact Fondazione Frate Sole, 27100 Pavia, Via Alboino 7.
Tel: +39 0382 21900
Fax: +39 0382 21900

Spain

Compostela 2000

Calls for building programmes to improve social, urban, cultural and economic quality of one of nine international sites. Part of Santiago de Compostela's year as one of nine European Cities of Culture. Registration by 28 April, entries due 5 June, top prize US$24,000. Contact the organisers at PO Box No 9, 111/28080 Madrid.
Fax: +34 91 78 10 737
Web: www.concursosantiago2000.com

Switzerland

The Aga Kahn Award for Architecture

Triennial competition for projects, completed between 1988 and 2000, in a Muslim society or designed for Muslims in other societies, and inspired by Islamic architectural heritage. Contact the Aga Kahn Award for Architecture 1999-2001, PO Box 2049, 1211 Geneva 2.
Tel: +41 22 9009 7200
Fax: +41 22 909 7292
e-mail: akaa@atge.automail.org
Web: www.akaa98.org

US

SEX

Nothing to do with sex, although billed as a "fantasy competition about pleasure and power". Based on ideas of architectural secession in the US, calling for designs for public buildings in LA. Registration by July 4, submissions by October 1, top prize US$25,000. Contact Court of Architecture, Box 281, Riverside, California 92502.
Tel: +44 1 323 295 8393
Fax: +44 1 323 295 8393
Web: www.frank.org

Exhibitions

France

Mutations

Major exhibition seeking to recreate the experience of living in the city via "a hyper-dynamic installation of rapid fire display that generates the vertigo of the contemporary city – its terrors and pleasures, its speed, its scale and exhilarating volatility". Opens in autumn at the arc en rêve Centre d'Architecture, Entrepot, 7 rue Ferrer, F-33000 Bordeaux.
Tel: +33 5 56 52 78 36
Fax: +33 5 56 48 45 20
e-mail: info@arcenreve.com
Web: www.arcenreve.com

UK: CONFERENCE

City 2K+

Themed "Cities for the new millennium", this is the revival of the annual RIBA conference – the first for 19 years. It will address topical UK issues of urban regeneration. The new political order of the late 1990s has reorientated thinking about the role of cities and their development: Lord Rogers' Urban Task Force and Tony Blair's Labour government are intent on achieving an "urban renaissance" – with architects playing a key role. Topics will include high versus low density, sustainability, the state of metropolitan areas in the UK and government studies on urban development. Tours of surrounding areas of Manchester and Salford, a frenzy of government-supported urban redevelopment, will also be on the schedule. WA is one of the sponsors.

At Michael Wilford and Partners' acclaimed Lowry Centre, 7 to 9 July. Contact SAS Event Management, the Old George Brewery, Rollestone Street, Salisbury, SP1 1DX.
Tel: +44 1722 339811
Fax: +44 1722 331313

Top: Lowry Centre, Manchester, by Michael Wilford and Partners **Below:** Salford Quays development

The Netherlands

The Virtual House of de Stijl
A look at links between the 1920s spatial experimentation of Theo van Doesburgh and Cor van Eesteren, and the IT-inspired design of today's avant-gardists. Until 16 April at the Netherlands Architecture Institute, Museumpark 25, 3015CB Rotterdam.
Tel: +31 10 440 1200
Fax: +31 10 436 6975
e-mail: info@nai.nl

The Function of the Form – Van den Broek and Bakema Architecture and Design
Work from the evergreen Rotterdam firm from as far afield as Japan and Saudi Arabia, as well as The Netherlands. Until 24 April at the Netherlands Architecture Institute, Museumpark 25, 3015CB Rotterdam.
Tel: +31 10 440 1200
Fax: +31 10 436 6975
e-mail: info@nai.nl

US

Frank Lloyd Wright: Windows of the Darwin D Martin House
Exhibition of more than 40 FLW art glass windows doors and skylights temporarily removed from the Darwin D Martin House Complex, Buffalo, for restoration. Until August 20 at the National Building Museum, 401 F Street NW, Washington DC 20001.
Tel: +1 202 272 2448
Fax: +1 202 272 2564

Italy

Architecture Sector of the Venice Biennale – Citta: Less Aesthetics, More Ethics
Massimilliano Fuksas' exhibition for the whole of June will comprise commended entries from the "The City: The Third Millennium" competition. Contact La Biennale di Venezia, Dipartimento Attivia Espositive, Settore Architettura Concurso "Citta: terzo millennio", Ca' Giustinian, San Marco 1394/a, 30124 Venice.
Tel: +39 04 1522 6514
Fax: +39 04 15210038
e-mail: concorso@labiennale.com
Web: www.labiennale.org

US

Bilbao: Transformation of a City
Exhibition telling the story of Bilbao's reinvention, from declining industrial port to cosmopolitan showcase for European culture, without the impetus of an Expo, Olympics or City of Culture title. 7 April to 16 July, the Art Institute of Chicago, 111 South Michigan Avenue, Chicago, Illinois 60603-6110.
Tel: +1 312 443 3600
Fax: +1 312 443 0849

Trade shows

Brazil

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

PRC

ISH China
This international fair for sanitation, heating and air-conditioning at the China International Exhibition Centre in Beijing. 12 to 15 September. Contact Messe Frankfurt (HK), 1808 China Resources Building, 26 Harbour Road, Wanchai, Hong Kong.
Tel: 00 852 2802 7728
Fax: 00 852 2598 8771
e-mail: technical@hongkong.messe-frankfurt

Saudi Arabia

Saudi Build 2000
International building and construction materials trade show. Contact Riyadh Exhibitions Company, PO Box 56010, Riyadh 11554.
Tel: +966 1 545 1448
Fax: +966 1 454 4846
e-mail: info@recexpo.com

UK

Interbuild 2000
Construction industry "supershow" – the UK's biggest. 21 to 25 May, NEC, Birmingham. Contact Interbuild 2000, 151 Rosebery Avenue, London EC1R 4GB.
Tel: +44 20 7505 6895
Fax: 44 20 7505 6667
e-mail: deniss@construct.emap.co.uk

Construct IT
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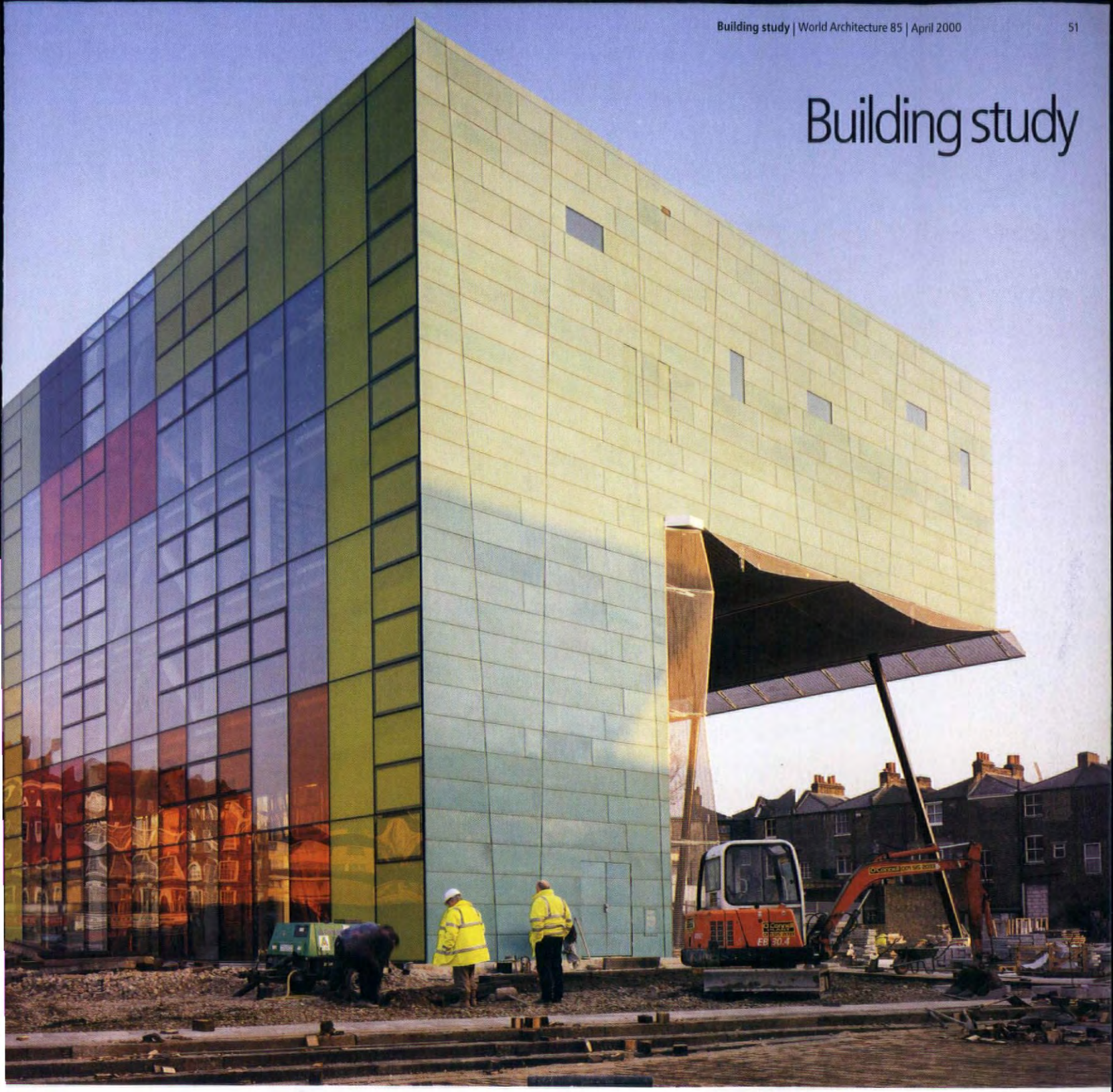
Look at me!

In a down-at-heel enclave of inner London, where the population doesn't have much to look up to, an exuberant new public building by iconoclastic practice Alsop & Störmer screams: "Over here! Come in, and see my books!" Elaine Knutt reports. Photographs by Roderick Coyne

Building study



Peckham is one of the more unlovable corners of inner city London. An unhappy mix of 1960s housing and mean Victorian streets, burdened with its fair share of social ills, it's the sort of place where queues of defeated-looking people wait for the Citizens Advice Bureau to open. But it's also blessed with a local authority which believes in physical regeneration as a social pick-me-up, and which has just reversed the national pattern of public service cuts by investing in a new, landmark library.

The work of idiosyncratic practice Alsop & Störmer, the library deliberately sets out to attract attention. The architect has designed a visual invitation to explore the hanging library of Peckham, with its kaleidoscope of coloured glass and cheeky orange tongue poking out from the roof, where visitors might – and indeed will – discover other surprises inside. In the same spirit of drawing attention to the building and its possibilities, the Soviet-style roof-top logo proudly declares "library" to the world.

Its "look at me" architecture is for a social purpose rather than self-congratulation – encouraging Peckhamites to look up was fixed firmly in the original brief from the London Borough of Southwark. As project director Christophe Egret recalls: "The client's problem was that he has to attract people before they get to the age of ten, otherwise they'll probably never step into a library in their lives. So he asked us to make it attractive to children."

Peckham has achieved a fun, practical, building on a tight US$8.25 million budget provided from council funds and the ▸

The five-storey box has had a three-storey segement sliced away from beneath. The upper two storeys balance precariously on seven angled columns. Work is still being completed on the landscaped area around the library – this is the responsibility of local government architects

Above: Multi-coloured glazing on the north facade maximises daylight but avoids solar gain, and sends "happy" signals from within
Above right: Three giant pods dominate the library space. Overlapping plywood with copper staples cleverly imitate stich work

EU Single Regeneration Budget. The building also embodies some envelope-pushing engineering, and ingenious services solutions. What might have been sacrificed is the details and finishes, some of which look decidedly improvised. But as Hanif Kara, director of structural engineer Adams Kara Taylor comments, "the detailing is not perfect, but the spaces are great".

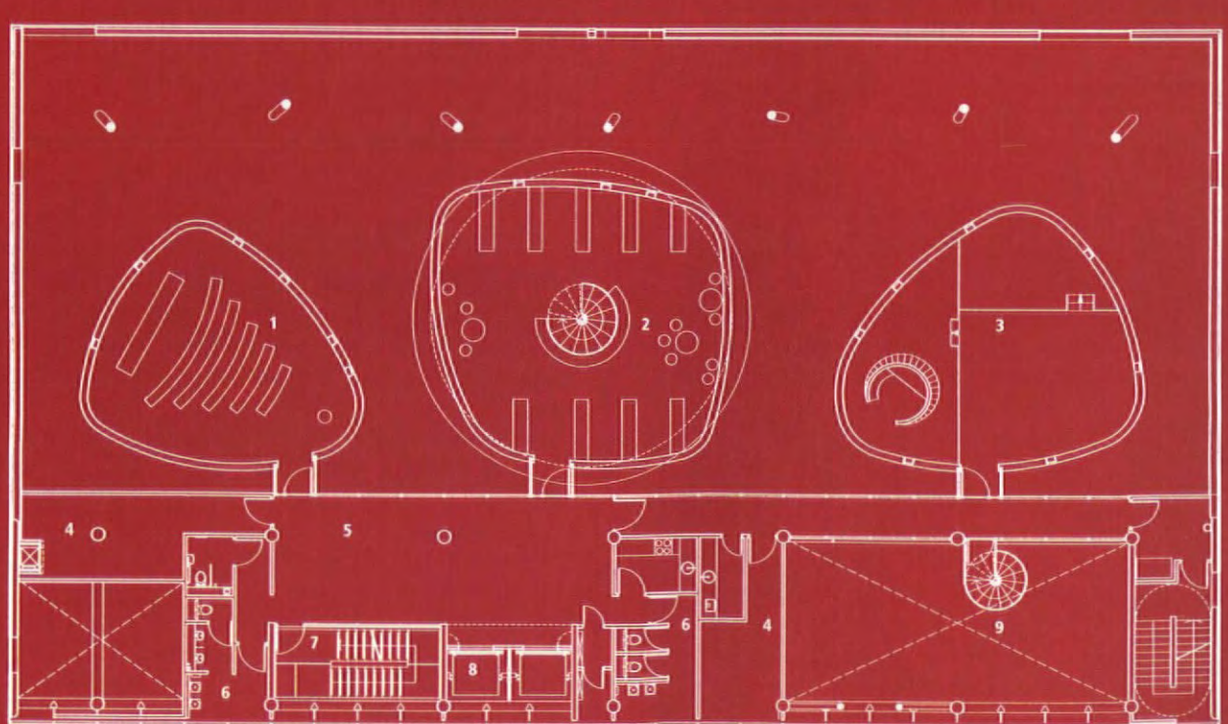
In geometric terms, the building is a five-storey box which has had a three-storey segment sliced away from underneath. The upper two storeys, housing the library, balance precariously on seven crazily angled but structurally efficient columns. According to Egret, elevating the library by 12m had two main functions: to provide a shelter for civic events, and to offer library users inspiration from the views over London and the experience of "going up to an attic to write your novel".

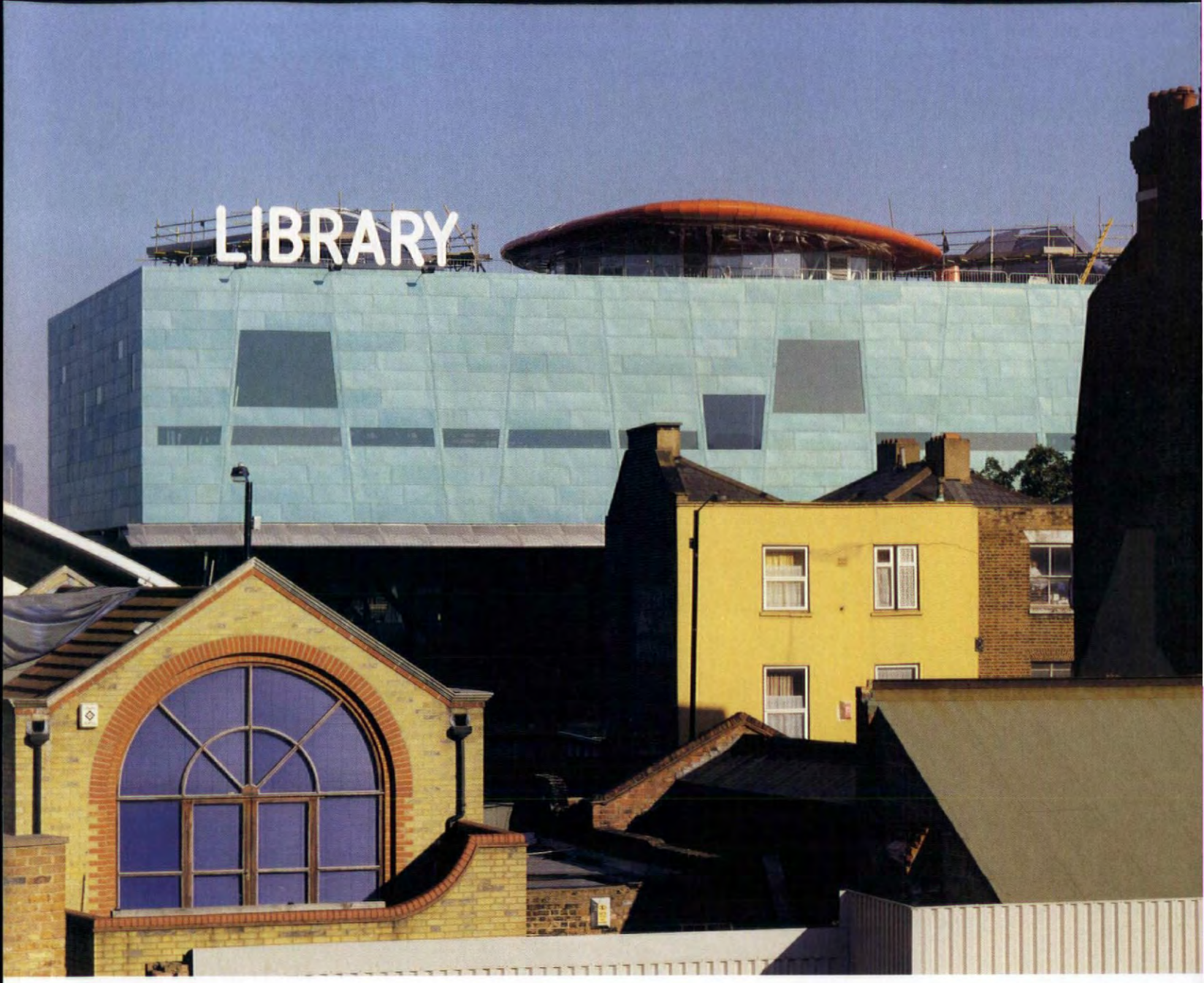
In line with Southwark's brief, the elevations are childishly exuberant. To the south, east and west is pre-patinated copper in pastel green, with a diagonal pattern echoing the "giraffe's leg" raked columns below. Multi-coloured glazing on the north facade – to maximise daylight but avoid solar gain – is intended to "show that it's happy in the building" and allow views of the people working inside.

The five-storey spine houses a One Stop Shop for accessing information on council services, an IT training facility for Peckham residents on the first floor and office and administration space for library staff upstairs. The spaces are functional, and Egret describes how the tight budget became the mother of ▸

Key to level 5 plan

1 Meeting room pod
2 Africa Caribbean focus centre pod
3 Children's activity pod
4 Store
5 Lobby
6 WC
7 Stair
8 Lift
9 Void over children's library





Above: A cheeky orange tongue, or "beret", pops out from behind the pre-patinated copper south facade

invention: skirting boards were ruled unnecessary and lighting is provided by standard long-life bulbs boosted by reflectors.

After the long and narrow spine block, arriving in the double-height library itself is a delight. The space is flooded with light, thanks to the rooflights edging the ceiling and strips of windows at eye-level for readers at the perimeter desks. But Egret's favourites are the picture windows set above head height. "You can see nothing but sky – it's better than TV."

Guy Battle, of services consultant Battle McCarthy, recalls how the design team improvised the optimum balance between letting daylight in and keeping solar gain out. "We sculpted a model and set it in an artificial sky – a dome that simulates daylight – then Christophe came down with a scalpel." As each window was carved from away, a video camera inside measured the effect.

But the library space is dominated by another of Alsop and Störmer's strong visual statements: three giant pods sitting like brooding hens. For visitors, the intriguing shapes add to the intrigue about the contents, which are a children's activities area, an Afro-Caribbean Focus Centre and a lecture room. "The traditional method of adding space would be a mezzanine. But you'd end up with straight lines, glass walls. We wanted to say 'look!', and create some secrecy and mystery", explains Egret.

The two enclosed "hens" at either end are making a break for freedom by lifting their heads through the roof, creating rooflights that can be shaded for the occupants with elaborate mechanical butterflies. The open-topped middle pod has its

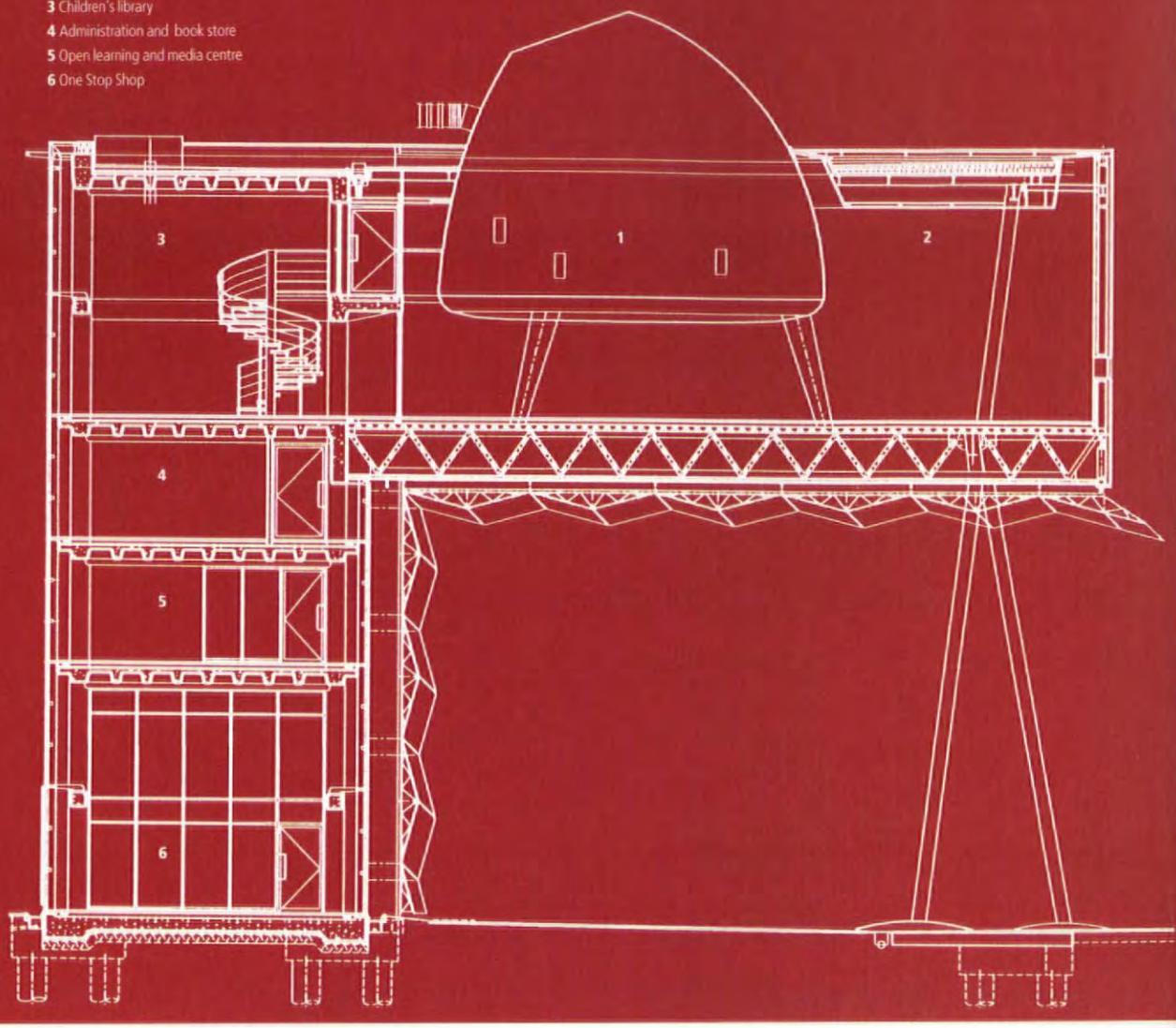
Structure and service

The structural and services designs treat the vertical spine and the horizontal layer in different ways. The five-storey spine is supported by exposed in-situ concrete columns – colour-washed in white to give the appearance of expensive white aggregate – with diagonal bracing in an unusual K-shape. The clear-span library slab is cantilevered on trusses every 3 metres and supported by a steel beam down the centre of the building.

The services strategy is low-energy, low-cost and low-hassle. The 7-metre-wide floor plate in the library's spine is the optimum width for natural cross-ventilation from opening windows. Chunky exposed concrete soffits, with a waffle structure to maximise the surface area, act as thermo-regulators, cooling the building overnight in hot weather or helping to insulate it in colder temperatures.

Inside the library itself, cool air is drawn from the building's shaded void, is circulated by natural stack effect, and ventilated through the clerestory. Fans in the floor of the pods draw air in from the outside to prevent visitors basting inside.

Key to section
1 Children's activity pod
2 Main library
3 Children's library
4 Administration and book store
5 Open learning and media centre
6 One Stop Shop



Client
London Borough of Southwark, education & leisure dept
Architect
Alsop and Störmer
Project manager
Southwark Building Design Services
Quantity surveyor
Franklin & Andrews

Structural engineer
Adams Kara Taylor
Services engineer
Battle McCarthy
Landscape consultants
Jenny Coe and Southwark Building Design Services
Contractor
Sunley Turriff Construction

Lighting consultant
Concord Lighting
Acoustic consultant
Applied Acoustic Design
Pods
Cowley Structural Timberwork
Curtainwalling and rainscreen cladding
Sashdawn

Mesh screening
Littlehampton Welding
Copper cladding
Cleveco
Roofing
MW Contracts (Roofing)
Architectural metalwork
Steel Options

own clerestory-glazing drum, which adds to the daylighting but is shielded from direct sunlight by the orange tongue poking out over Peckham. Or in more adult terms, the stressed-skin aluminium and steel monocoque.

The pods themselves are timber structures on steel decks, raised on concrete legs. After being computer modelled, each pod's unique, free-form shape was built up from a carcass of vertical and horizontal ribs sandwiched between two layers of laminated veneer timber. Finally, the sides and base were covered in overlapping plywood "patches", with copper staples cleverly imitating stitch work. Interior surfaces were sprayed with a white, sound-absorbent finish.

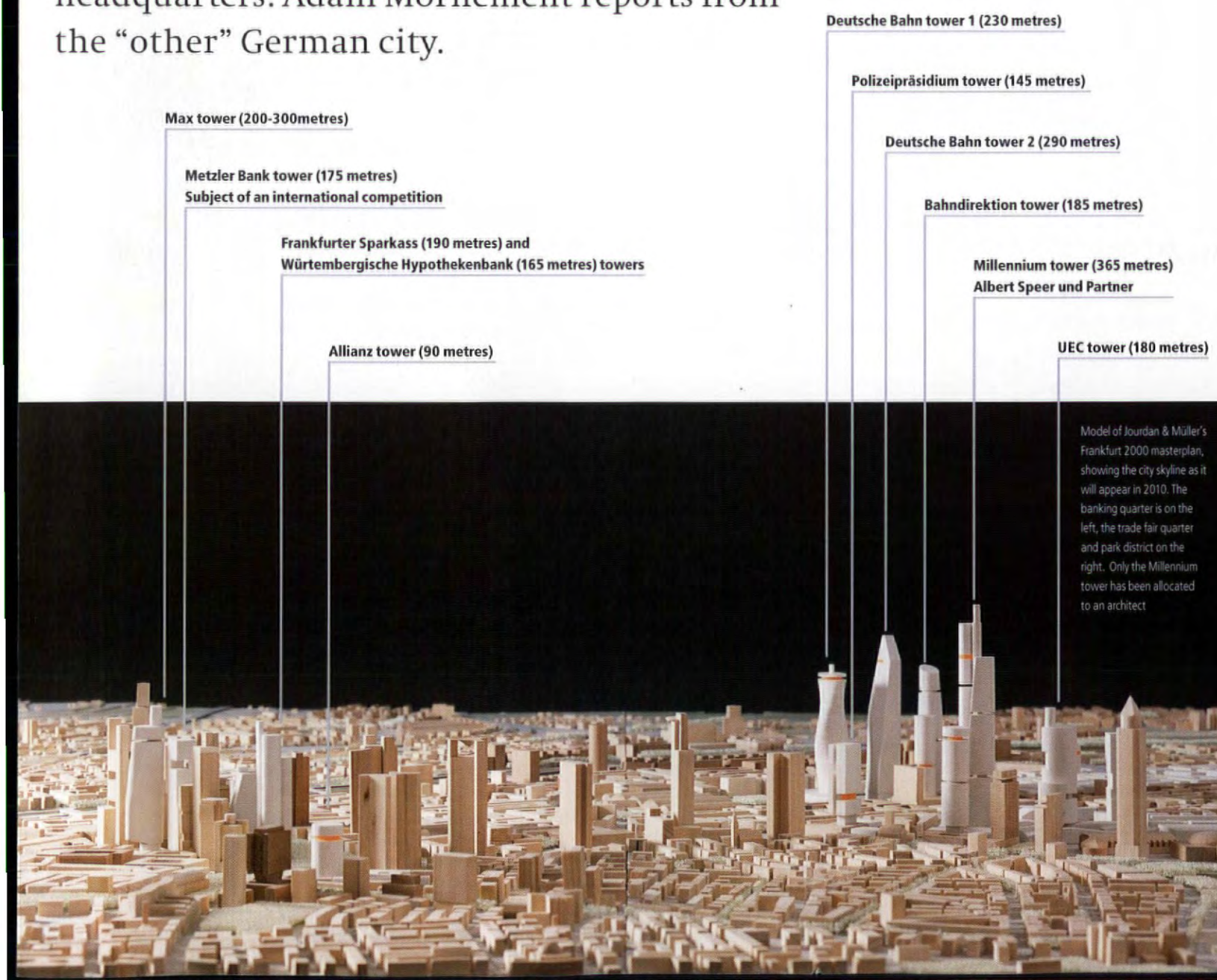
The building is fun to be in, and fun to review, but one or two small notes jar. For instance, the front elevation and soffit are covered in a wavy mesh screen, which will be lit up at night in a gauzy glow that also improves security. But from the outside, the wire mesh looks uncomfortably like anti-pigeon netting, and from the inside, there is the unavoidable impression of a security grille. And perhaps the coloured glass casting the ladies' toilets in bilious yellow was rather ill-chosen.

But even these minor criticisms can be viewed as adding to the fun of the building. After all, a sense of playfulness and adventure were primarily what client and architect set out to achieve, and what they have delivered in abundance. The roof-top logo simply says "library", but there's a sense that Southwark and the design team were restraining themselves. What they really wanted to say was "Come inside! Love books! Love our library! Love Peckham!" WA

City focus – Frankfurt

ÜBER CITY

Frankfurt may not be able to match the glamour of Berlin, nor the Expo-fuelled extravagance of Hanover, but the central German city has been undergoing a rebirth of its own. Within ten years Frankfurt intends to be Europe's financial headquarters. Adam Mornement reports from the "other" German city.



Model of Jourdan & Müller's Frankfurt 2000 masterplan, showing the city skyline as it will appear in 2010. The banking quarter is on the left, the trade fair quarter and park district on the right. Only the Millennium tower has been allocated to an architect

Von Gerkan, Marg und Partners' Frankfurt 21 scheme. The superimposed strips show the area to be developed once the railway lines are rerouted underground

Over the past ten years, while Berlin has been the focus of international attention, reinventing itself as the capital of a reunited Germany, the seeds of an equally radical transformation have been sown in Frankfurt. It doesn't have the sentimental symbolism of Berlin – the creation of tourist attractions has not been a priority – but Frankfurt's goal may have longer-lasting implications for Germany. Since the late-1980s plans have been in place to turn the city into a money magnet. By 2010 Frankfurt intends to be Europe's financial powerhouse.

Frankfurt's future as a 21st-century city has been planned for nearly 20 years, as born out by the names of the two major planning schemes of recent years. First came "Frankfurt 21" (1996) – von Gerkan, Marg und Partner's proposal to develop redundant railway land in the city centre; and "Frankfurt 2000" (1999), the plan developed by local practice Jourdan & Müller to allow groupings of tall buildings in certain central districts.

In many ways Frankfurt is already a city ahead of its time: the DAX Stock Exchange, as well as over 400 financial institutions and banks, including the Bundesbank, and 170 insurance companies, have their headquarters there; it hosts 50,000 meetings, conventions and congresses each year; the purpose-built trade fair is one of Europe's largest, with 2.6 million visitors squeezing through it annually; and Frankfurt International Airport is the busiest on mainland Europe. It's hard to imagine a more hard-edged, goal-focused metropolis. So what else does Frankfurt have in store?

Growing up

In 1945 Frankfurt lost out to Bonn as West Germany's capital city. For a city in the geographic heart of Western Europe, it has occupied a strangely isolated position ever since. About 400 kilometres from Berlin, on the eastern edge of the Rhur – Germany's former industrial heartland – it is spiritually closer to Bavarian Mittel-European traditions than Germany's northern trading cities. But, 55 years after it was rejected, the tables have turned. Bonn is now the isolated provincial town, and Frankfurt is beginning to punch its weight.

Frankfurt is the only European city with a high-rise heritage

Local practice Albert Speer und Partners' Europa Viertel masterplan for the development of Frankfurt's trade fair district

Uwer Dettmar

worth talking about. As far back as the era of the Weimar Republic, high-rise development has been discussed in Frankfurt. Hans Poelzig's I G Farbenhaus (1931), currently occupied by the Goethe University, was Frankfurt's first tall building. The city's skyline has been used as a regional marketing tool since the 1950s. Indeed, Frankfurt is already home to the two tallest buildings in Europe, Norman Foster's Commerzbank (299 metres) and the Messeturm by Helmut Jahn (256 metres). Within ten years, that number could be close to double figures.

Jourdan & Müller's Frankfurt 2000 masterplan has created space for the construction of tall buildings in three strategic areas. At least 18 towers will go up by 2010 in Bankenviertel, Frankfurt's banking quarter, Messeviertel, the trade fair quarter, and Partviertel am Hauptbahnhof, the future home of Frankfurt's high-speed train station, which falls within the Frankfurt 21 scheme.

Frankfurt 2000 was announced in April 1999, to coincide with the opening of the European Central Bank in Frankfurt. Speaking at the time, Dr Martin Wentz, the city's chief planning officer, said: "Frankfurt's office towers hold a symbolic significance. Frankfurt, as the political centre of the new Euro currency, must prepare itself for its new geo-political role."

With the launch, Frankfurt effectively launched its bid to wrest the role of Europe's financial headquarters from London. Back then it looked like it wouldn't take long. For the first time, a poll by international real estate consultant Healey & Baker revealed that more multi-nationals believed Frankfurt to be Europe's future financial capital than London. A year later, with the Euro performing well below expectations and London's Docklands sustaining its second wind, the pendulum has swung back in London's favour. But the battle isn't over: these things take time. Frankfurt 2000 is only the beginning.

Going underground

Deutsche Bahn's (German Railways) plan to revamp Germany's national rail network by optimising the revenue-generating potential of its 19th century inner-city land will have a dramatic affect on Frankfurt. The decision to re-route the city's mainline railway lines under ground will mean that the north-south axis of the city's downtown will be united for the first time in nearly 150 years. No longer will a railway divide the city. Instead, Meinhard von Gerkan's scheme will attempt to humanise a city in grave danger of alienating its residents.

"Frankfurt is dominated by large bank office buildings, even the banks of the River Main are full up. With Frankfurt 21, the city will gain a public park," says von Gerkan. Putting the railway underground will free up an area 2.5 kilometres long and 300 metres wide. The park, which will occupy the central area, will be surrounded by densely packed new residential and, of course, service sector schemes. The scale of development is

"Putting the railway under ground will free up an area 2.5-kilometres long and 300 metres wide. The scale of development is staggering. It'll make Potsdamer Platz look like a loft conversion."

staggering. It'll make Potsdamer Platz look like a loft conversion. The sale of parcels of land surrounding the park will fund the whole development.

Of the existing railway buildings, only Frankfurt's main station will survive overground in anything like its present form, with von Gerkan, Marg und Partner the architect of a substantial overhaul. There are also plans create a seamless link between the international airport and the city centre via a high-speed rail connection (see *WA*84 pages 80-81).

Put simply, Frankfurt 21 has been designed to ensure Frankfurt's long-term competitiveness as both a transport hub and metropolis. When will work start? "Oh, who knows? We have to wait until developments at 'Stuttgart 21' are under way," says von Gerkan, which will depend on the sale of land to generate revenue, and investor confidence. "It may take 20 years." He is clearly itching to get started. With no central government funding, there are no quick solutions. Economic self-sufficiency will dictate that development evolves organically – at least, as organically as feasible in a city of corporate cathedrals.

Made in Germany

Another striking difference with Berlin is that the physical reinvention of Frankfurt has been carried out by German architects. In the era of globalisation, Berlin may have become the model national capital, designed, planned and built by foreign architects, but Frankfurt is the work of native talent. "Actually it's the work of Frankfurt architects," says Hamburg-based von Gerkan, who won the Frankfurt 21 contract thanks to a long-standing relationship with Deutsche Bahn.

"Banks and corporate clients tend to stick with what they know, and with so many German banks with headquarters in Frankfurt, few outside architects get a chance," he continues. The "American '90s", when KPF and Murphy/Jahn, among others, completed major projects, is over. Frankfurt may become the first post-war German city to offer a true representation of German national values through architecture and city planning. After 50 years of being seen to award work democratically, maybe Germany feels that its period of post-war penance has been served? After all, a bid for economic dominance is not be taken lightly, and maybe not the sort of thing to trust to foreigners.

Both the clarity of planning and depth of funding behind Frankfurt 2000 and Frankfurt 21 are awe-inspiring. Add to these a third city planning scheme – for the commercial development of the Trade Fair District, won by a local architect late last year – and it would seem that the rise of the central German über city is unstoppable. (Albert Speer und Partner, the practice run by the son of the "Good Nazi", beat Murphy/Jahn in a head-to-head competition in November.)

Over the next ten pages we introduce the latest two additions to Frankfurt's skyline, both completed this year: ASP Architekten Schweger + Partners' Main-Tower (199.5 metres) and the Eurotheum (110 metres) designed by Novotny Mahner & Assoziierte of nearby Offenbach-am-Main. Both are Frankfurt firsts: Main-Tower is the first tall building in the city to incorporate a restaurant and public viewing platform at the summit, and the Eurotheum is the first to combine residential and commercial uses – a double-act once thought to be unworkable in tall buildings. A third tower, this time of luxury apartments, by Hans Kollhoff of Berlin, completes in August, with a dark-red facade reminiscent of both 1930s New York skyscrapers and Gotham City.

Whether you like it or not, there's plenty more where they came from. Read on and decide for yourself whether Frankfurt has got what it takes to realise its ambition. WA

CITY FACTFILE provided by Hanscomb

General: Frankfurt is a port on the Main River. It has Europe's largest airport and its busiest train station, and one of Germany's most important ports. Communications, historically important to the city, remain part of its economy in the form of advertising and public relations firms. The large medieval city centre was destroyed during the Second World War. While some historic areas were rebuilt, it is the new city centre to the north that is the focus of commercial activity and tall buildings – the tallest being the Commerzbank at 56 storeys, or 299 metres.
Climate: Mild spring and autumn, warm summer and cool winter. Average annual precipitation is 600 millimetres.
Population: 650,000 (approximately).
Time difference: Frankfurt is one hour ahead of Greenwich Mean Time and six hours ahead of Eastern Standard Time.
Currency: Deutsche Mark (DM).
Business hours: 09.00 – 18.00, Monday to Friday.
Airports: Frankfurt International Airport is 9 kilometres from the city.
Dialling codes: The country code for Germany is +49. Frankfurt's city code is 69.
(For general German construction information see WA84 pages 53.)

Architect
ASP Architekten Schweger + Partner
Reviewed by
Dr Ursula Kleefisch-Jobst

Helaba headquarters
Tower to the people

Client
Helicon
Project manager
Orojektbüro
Project director
Helno Lattemann

Structural engineer
Förster, Sennwald, Linse
Services engineer
IC Ing Consult
Contractor
ARGE

Left: Main-hattan skyline: view of Frankfurt from Sachsenhausen showing Foster and Partners' Commerzbank (1997), the city's tallest building, in the centre. Main Tower, to its right, is the second tallest **Right:** Schweger und Partner's tower is the first Frankfurt skyscraper to try and "include the people". The upper storeys, which include a restaurant viewing platform, are open to the public

Anyone who is anyone in Frankfurt's banking centre marks his territory with a striking high-rise," wrote the *Handelsblatt* – Germany's answer to the *Wall Street Journal* – recently. If correct, the Landesbank Hessen-Thüringen savings bank, (better known as Helaba) can have few complaints about Schweger und Partner's Main Tower, its new HQ. Undoubtedly a powerful visual statement, Main Tower's most ambitious characteristic is its attempt to be "intelligent". Whether it deserves to be regarded in the same light as Foster and Partners' Commerzbank, only time will tell, but more of that later. First we must place Main Tower in its physical and historical context.

Main Tower is the first of Frankfurt's skyscrapers that seeks to be inclusive. As a savings bank, rather than a private corporation, Helaba is a company that appeals to the little people – the company has 40 million customers, over half the population of Germany. So it is appropriate that it should be the first tower to open its upper storeys – which incorporate a restaurant, radio and television studio and viewing terrace – to the public. In a city of corporate cathedrals, it represents a rare integration of commerce and humanity.

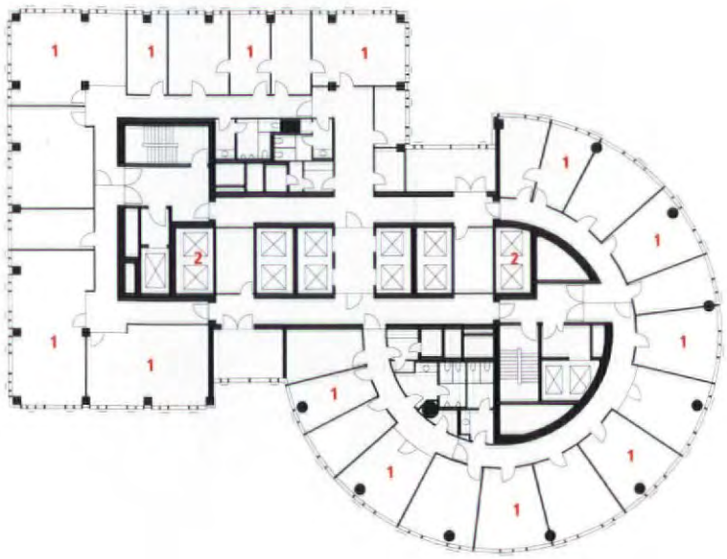
Schweger und Partner first got involved with the scheme in 1991, when it won a restricted international tender for a new bank building, launched by the newly merged Landesbank Hessen-Thüringen, for the site next to the headquarters of the old Hessische Landesbank. But the recession of the early 1990s dampened demand for office space and the scheme was put on hold. It was picked up again in 1995, on the premise that only part of the tower block would be reserved for the bank, with more than 50 per cent of the space leased out. This required a complete redesign of the interior of the tower. The impressive exterior structure of a square and circle design, already in its first draft, was retained in the new plan.

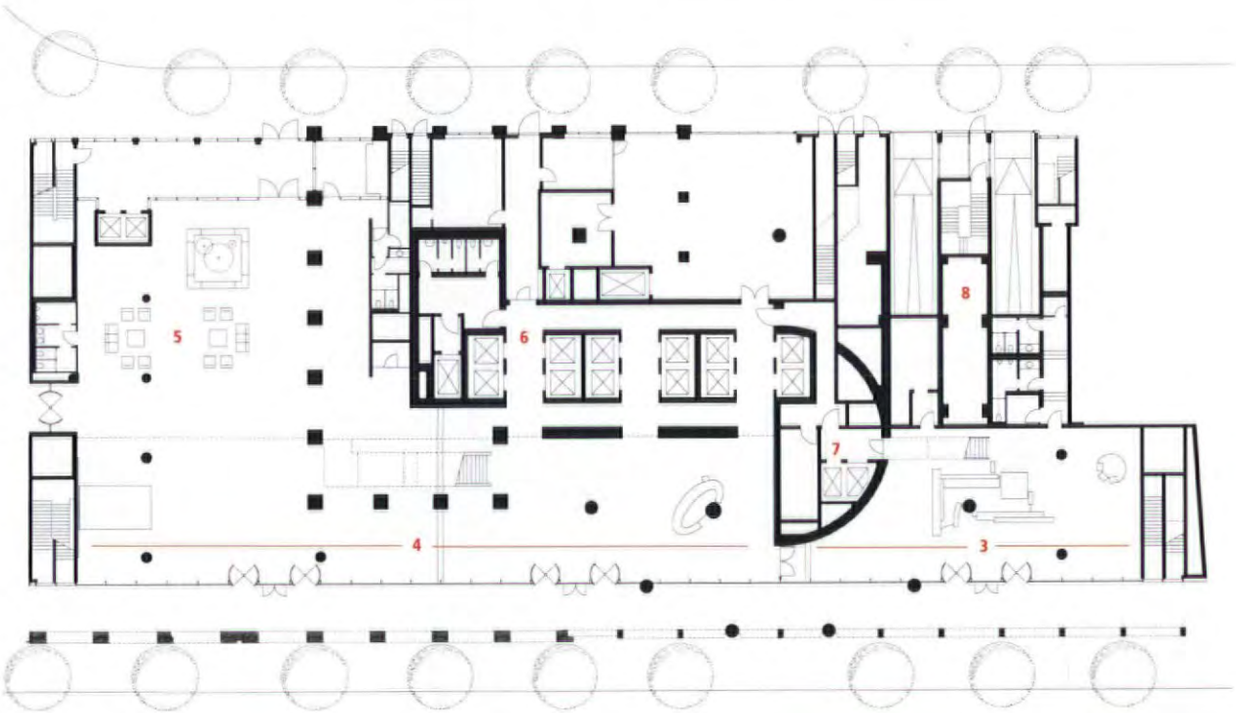
Heart of gold

The main entrance opens onto Neue Mainzer Straße, which runs parallel with the Taunus enclosure, the small park in the banking quarter. The inhabitants of Frankfurt call Neue Mainzer Straße "bank canyon". The name is not new: since the 19th century the street has been Frankfurt's commercial heartbeat. During this period, existing aristocratic villas on the street were forced to give ground to large business and bank premises. One such building, with a facade linked by colossal ionic columns, dates back to 1913. Part of this building complex stretched as far as the site on which the Main Tower, and the neighbouring Eurotheum (pages 66-69), stands today.

Under pressure from investors, the city's heritage conservation body authorised the destruction of the historical building, stipulating that only the facade need be left intact. This meant that the base structure of Main Tower had to be built within the

Key to both floor plans
Right: Typical office floor layout
Below: Ground floor layout
1 Offices
2 Elevator core
3 Public entrance lobby
4 Private entrance lobby
5 Four-storey atrium and reception area, with access between Neue Mainer Strasse and Neue Schlesinger Strasse
6 Elevator core
7 Public elevator with direct access to restaurant, viewing gallery and studios on the 53rd storey
8 Central building management core





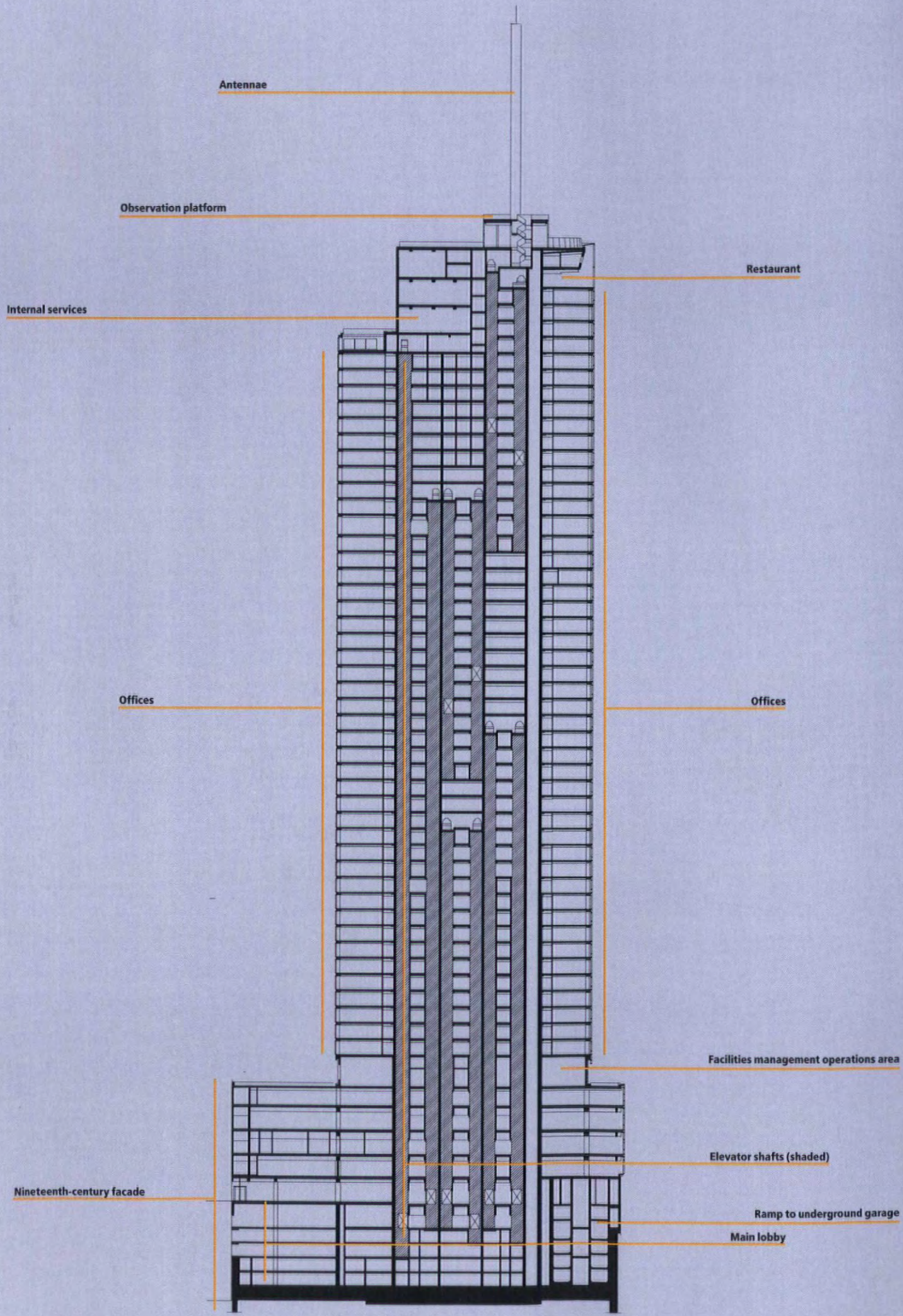
height of the old eaves. The initial impression is that the squat, square base is out of proportion with the steep tower structure it appears to support. But once inside, the *trompe d'oeil* becomes clear. The circular tower has foundations of its own, housed within the square base.

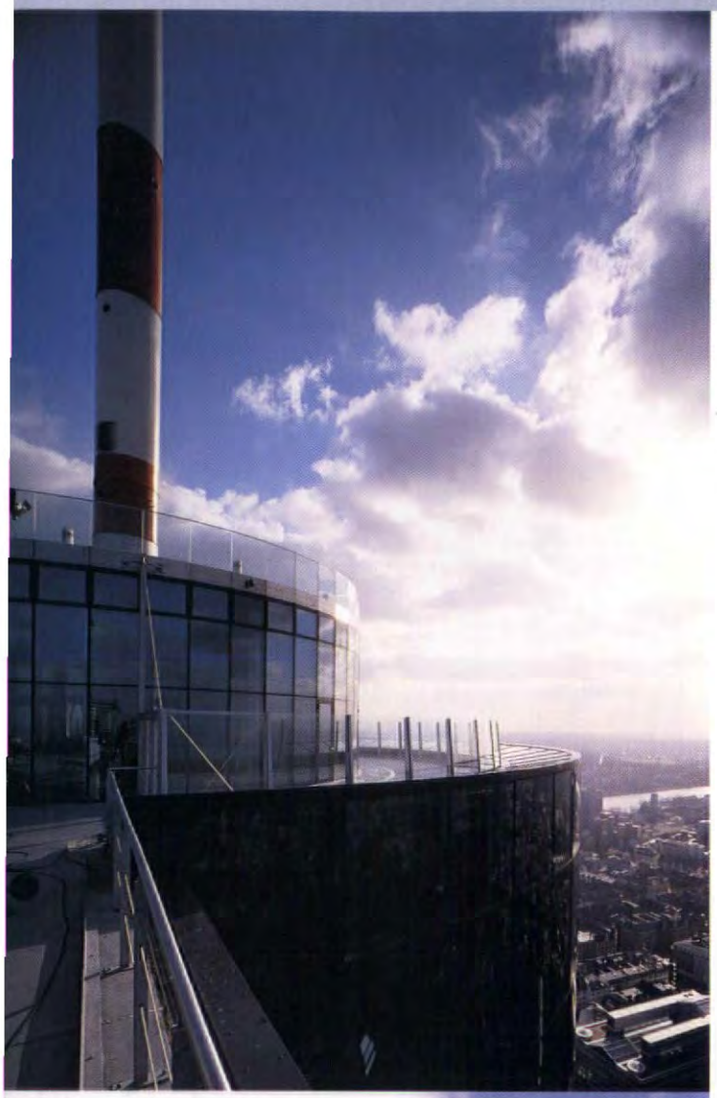
The square part of the tower has a facade of structural bronze. The warm brown tone, which will alter over time, emphasises the severity of the building's shell. The plasticity of this tower element is enhanced by the slim bronze window frames, which project 100 millimetres from the facade. By contrast, the single-shell glass skin of the circular part of the tower seems flowing and lucid. The window frames are mounted in a flush design, producing a severe graphical network surrounding the entire circular section.

Entry to Main Tower, from street level, is initially through a two-storey arcade. From here, it is plain that the historical stone facade has been preserved as a stage set in front of the actual base structure of the tower. Since the plan has been robbed of its original coherence, Schweger & Partner consciously abandoned any idea of integration. Two slim, rounded columns interrupt the flow of the square pillars of the arcade structure, and a metal ring in the floor traces the contour of a circle.

Stepping into the entrance hall of the tower block, the rounded columns return and the circle is picked up again by a slim rail of lights on the ceiling. Only someone with architectural training would realise that the slim columns are the supports which form the round part of the tower about which the outer skin is anchored. The bronze square arcades in the foyer now turn out to be parts of the square aspect of the tower.

The offices are all on the external faces, and are glazed from floor to ceiling. In each office, a segment of window stands out


Antennae
Observation platform
Restaurant
Internal services
Offices
Offices
Facilities management operations area
Elevator shafts (shaded)
Nineteenth-century facade
Ramp to underground garage
Main lobby



Facing page: The public are welcomed into the 53rd-storey restaurant via an express lift which travels 190 metres in 45 seconds
Left, top: All the superlatives – the TV and radio studios are the highest in Europe, and the view is among the best in Frankfurt
Left, below: The tower appears to sit on a squat, 19th-century facade – a requirement of city preservation strategies

parallel to the facade. Each window can be individually opened. But the degree to which the window can be pushed open is controlled by a central system and depends on the wind and weather conditions.

One of the ambitious goals of the design used for the Main Tower was to be economical with energy. With an annual energy consumption of less than 75 kilowatt-hours per square metre, the aim is to operate at values in keeping with a low-energy building. The tower has its own heating generator, which produces energy over and above that needed for heating and cooling – almost enough to cover all the needs of the common areas. Furthermore, during winter, cold air is collected from the roof and fed via the ground switching storage – an 80-kilometre-long tube system reaching into the foundation piles of the tower – to cool the ground underneath the basement slab for use during the summer. It is not without pride that Peter Schweger describes the building as an "intelligent" high-rise.

Visitors to the restaurant and employees of the Hesse radio station get to the 53rd floor with an express lift, which travels 190 metres in 45 seconds. From the restaurant – occupying two storeys in the round part of the tower – every visitor can enjoy an undisturbed view of the city, river and surrounding chains of hills.

This tower combines all the superlatives in one: the radio and TV studio is the highest in Europe and the viewing platform is undoubtedly the finest in the whole of Frankfurt. But Main Tower's "intelligence" is the key to its success: perhaps the most intelligent things about it is that, instead of alienating and intimidating the people of Frankfurt, it attempts to involve them in the city's metamorphosis. For this alone, Schweger und Partner and Helaba should be applauded. WA

Architect
Novotny Mähner & Assoziierte
Reviewed by
Ulf Meyer

Eurotheum tower
Mixed blessing

Client
Commerz Grundbesitz Investmentgesellschaft
Project management
AYH Homola
Structural engineer
Arcadis Grebner Gesamtplanung
Building services engineer
Lahmeyer International
Facade engineer
Albrecht Memmert & Partner
Technical design
Von Rekowski und Partner

The Eurotheum Tower, which combines luxury apartments and commercial space, is the first truly hybrid skyscraper in Europe, let alone Frankfurt. Meaning that its architect – Novotny Mähner und Assoziierte (NMA) – is the first European practice to attempt to show that tall buildings are not mono-functional by definition. But has the experiment worked?

The idea of a multi-functional skyscraper has been tried in Asia – SOM's Jin Mao tower (*WA*79 page 67), housing offices and the world's highest hotel, being probably the best-known example. But the experiment needed to be successful in Frankfurt as much, if not more than, in other cities with a tall building heritage. Frankfurt city planners have made no secret of their concern to rid Frankfurt's of its reputation as a rather dull, lifeless city, and local politicians supported the Eurotheum because they were terrified of what a central business district that turns into a ghost town at 17.00 could do to the image of the city.

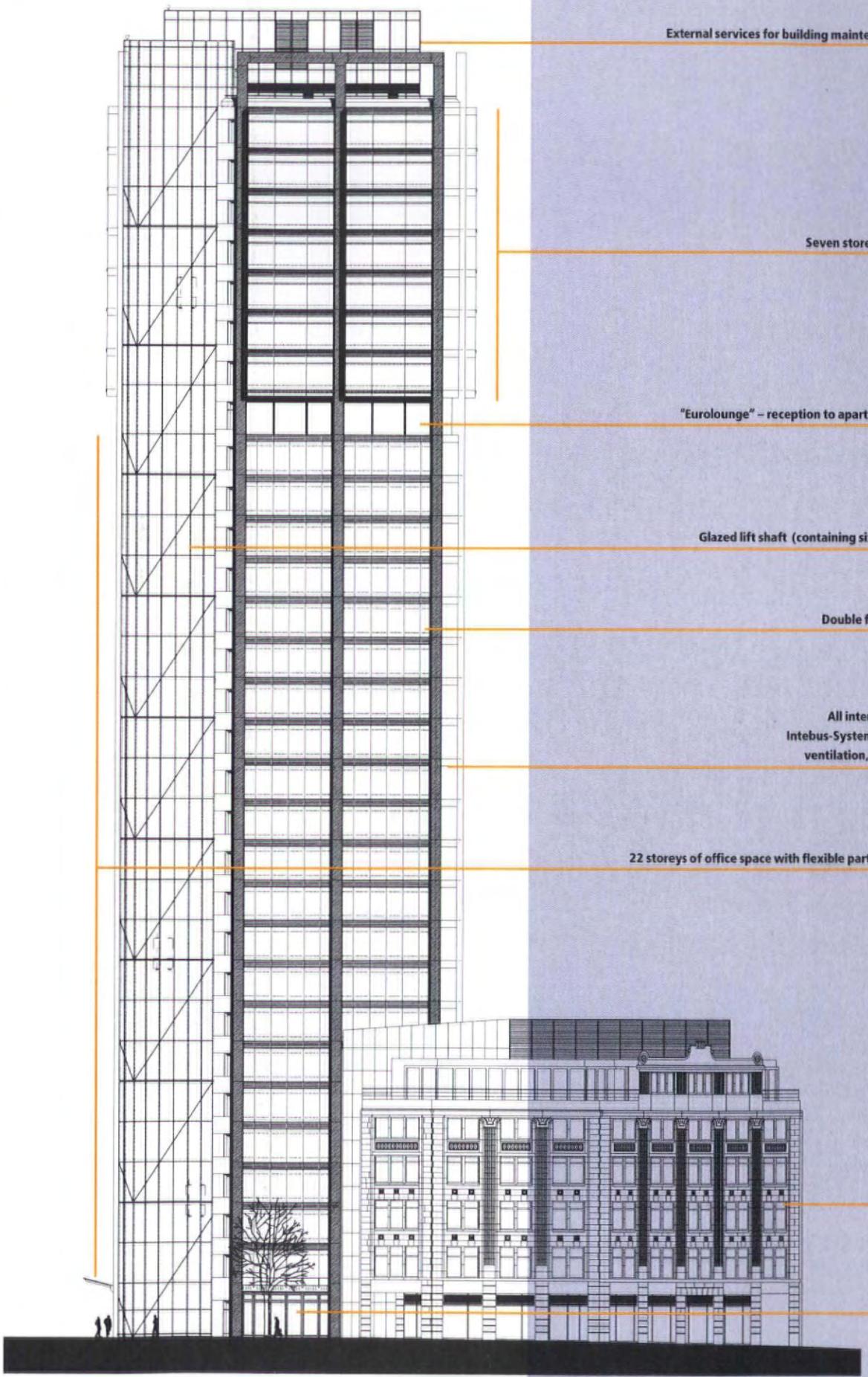
NMA won the commission in a limited competition, via the unusual pitch of building apartments into its own offices to prove to the client that a circulation routes and floor plans can be mutually supportive to both residential and commercial uses. Of course, a mixed-use building has commercial appeal, and the client, Commerz Grundbesitz Investmentgesellschaft, is not dependent on fickle real estate cycles for revenue.

The fifth element

NMA is one of Germany's larger practices – its headquarters are in Offenbach, east of Frankfurt, and it has six branch offices throughout the country. The Eurotheum is the firm's fifth tower in Frankfurt, following the Trianon Tower, BCN-building, the American Express Building (all completed in 1993), and the HeLaBa-Tower (1976).

The Eurotheum sits on the corner of Junghofstrasse and Neue Mainzer Strasse, right next to Main-Tower (see pages 60-65). Its square profile was dictated by the geometry of the site. With its 30 storeys extending to 110 metres on a dense city block, it is one of the smaller towers in Frankfurt. Project architect, Peter Natter, wanted the building "to form the northern entrance to the banking district [Bankenviertel], as part of the tall building ensemble there". Bankenviertel is one of the three central areas affected by Jourdan & Müller's Frankfurt 2000 masterplan (see "Über city" pages 56-59).

The lower six floors are partly concealed behind a sandstone facade, the remnants of a listed monument which had to be protected, although the building behind it was torn down. The facade was taken away, cleaned, remodelled and rebuilt in


External services for building maintenance
Seven storeys of apartments (66 in total)
"Eurolounge" – reception to apartments
Glazed lift shaft (containing six lifts)
Double facade
All internal services are based on the Intebus-System with automatic sunshading, ventilation, cooling, heating and lighting
22 storeys of office space with flexible partitions
Facade of 19th-century registered landmark
Ground floor with seven-storey glazed entrance hall

Left: The seven-storey glazed entrance hall is hidden behind a 19th century low -rise facade – a protected monument. The hall houses the main reception, shops and a public plaza.

order to blend the new concrete construction behind it – a familiar story in a city struggling to combine a sense of regional history with a blaze of new development. At entry level is a glass lobby, and a passage to Main-Tower. The north-east corner is defined by a full-height glass cylinder housing six glazed elevator shafts.

Particular attention was paid to the transparent facade, through which the tower's two functions are clearly articulated. The upper seven floors cantilever over the office floors below, with fewer partitions in the facade.

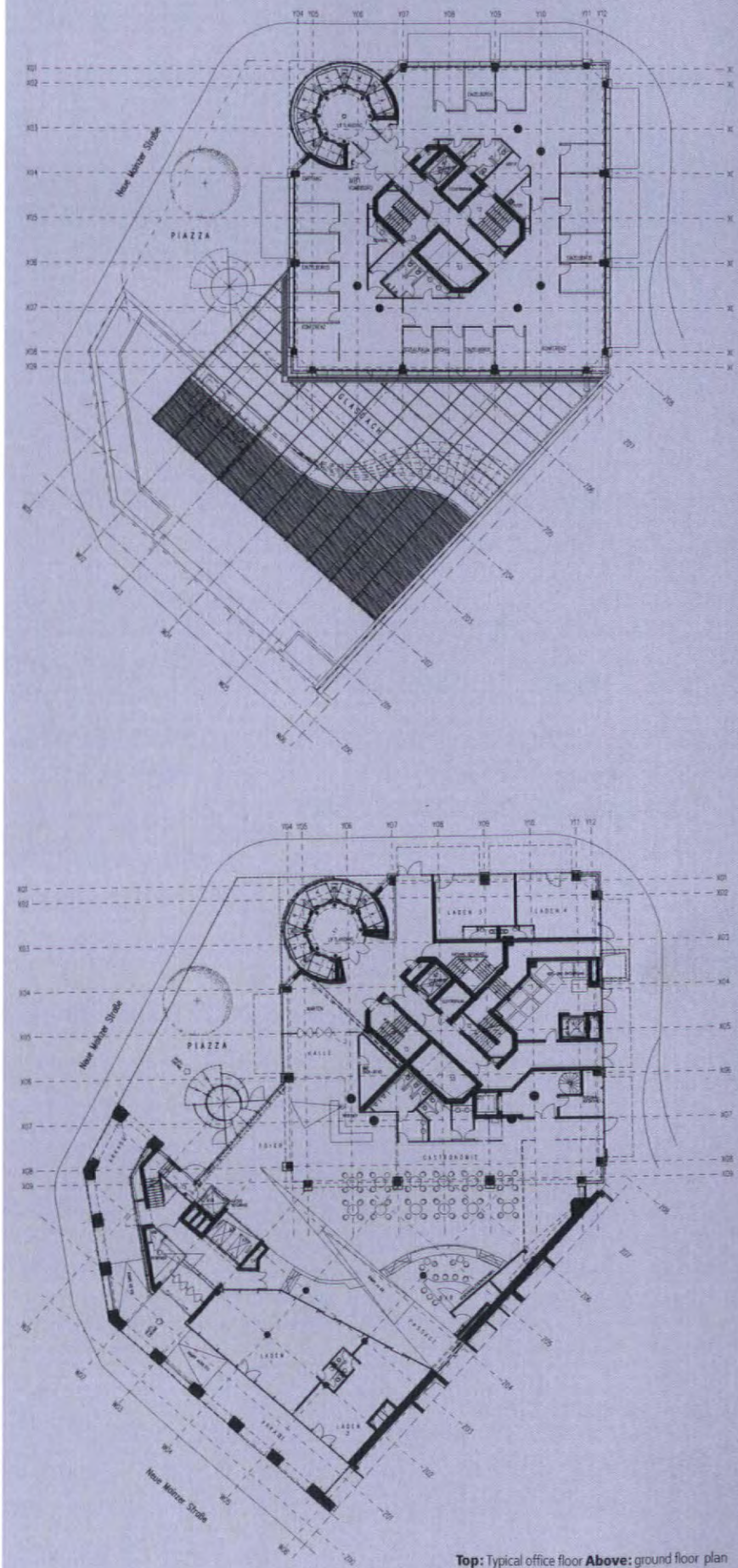
The costly double facade is made from prefabricated full-height elements, 7 metres wide, with a 350 millimetre gap between the sheets of glass, which are separated at every level. Fresh air is taken in through round openings in the vertical profiles, and used air streams out through lamellas in the sunshades. This air cooling, combined with chilled ceilings, is interrupted when sensors detect that windows have been opened. Sun-shading, air-conditioning, heating, cooling, and lighting are all automated, with sensors identifying whether a room is in use and adapting accordingly.

Two's company

The floorplan is arranged to accommodate a maximum of two tenants per floor, in a flexible layout allowing single and multi-offices in areas varying from 190 square metres to 600 square metres. The reinforced concrete hard core, diagonal on plan, contains staircases and plumbing, while a soft core contains WCs and kitchens that can be designed according to the needs of the tenant. The elevators arranged around lobbies offer views of the opera, the Deutsche Bank twin towers and the northern part of the Frankfurt skyline.

The 66 studios in the upper seven floors vary in size between 35 square metres and 80 square metres. According to the American model they are fully serviced – even dog walking is on offer to residents. The 22nd floor, immediately above the 21 storeys of office space, houses a reception area and the cringingly named "Eurolounge", piano-bar, gym, sauna and conference rooms. The interior decoration, carried out by Krafft Design of Hamburg, is based on the idea that the building should be equally attractive to residents from different cultures, generations and characters.

The tower may not be beautiful, or even particularly tall, but it is a widely held belief in Frankfurt that the success of the city can be measured by the success of the Eurotheum experiment. It will be years, rather than months, before we know the answer, but the mixed-use Eurotheum is a step in the direction that Frankfurt has to take. WA



Top: Typical office floor **Above:** ground floor plan

A change for

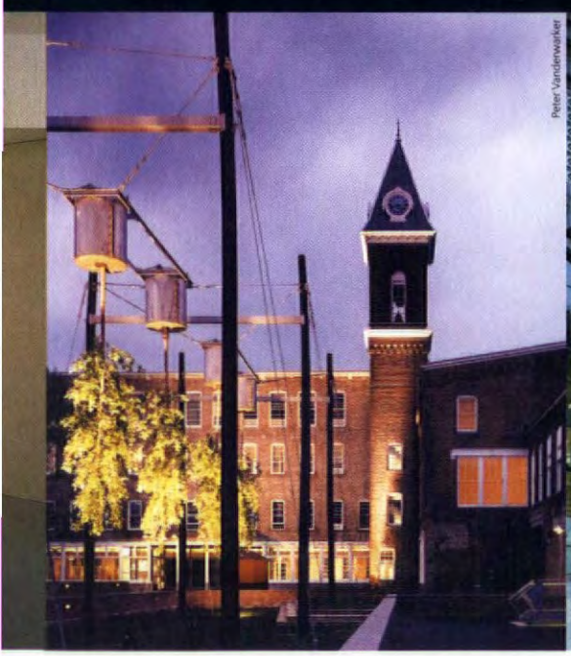
The following guidelines for historic preservation projects from Jack Pyburn, AIA, are easily adapted for any refurbishment project:

- Ascertain the owner's prior involvement in preservation of a historic property. This will help to determine the owner's understanding of the rehabilitation process.
- A property's original and last use gives a clue to the characteristics and condition of the property.
- A property's current condition suggests the scale of cost to produce a desirable final product. Anything can be accomplished if there is enough money, but this is seldom the case.
- It is good to know the owner's goals for the project – altruistic, financial, social and/or political – as they suggest the owner's motivations.
- Knowing the property's proposed use provides some idea of the scope of improvements.
- Is the owner's concept compatible with the budget? The information in the points above will provide some indication.

Ben Goodenough of Hanscomb's London office notes a few essentials when costing proposed works to historic buildings.

- Sound knowledge of the building materials and techniques in use at the time it was built. Special materials or skills may be required to execute proposed work.
- Knowledge the history of the building. Alterations may have been made to the structure – for example it might have been extended at some time in a way not immediately obvious from external or internal visual inspection. This will often result in removal of non-historic materials and features.
- Dimensional survey as detailed as possible. This is a corollary to the second point. Such a survey will help identify anomalies, which again may not be visually obvious, and which would require explanation. This will help reduce costs from redesign, schedule sequence disruptions and changes during construction.

the better



Peter Vanderwarker

Michael Moran

Jeremy Dixon is keen that the new Royal Opera House in Covent Garden, London, (pages 72 to 79) is not described as a refurbishment project. After the 16 years and US$353 million spent on the job you can appreciate his concern. But only if you subscribe to the view that "refurb" is of secondary architectural merit to new build.

For Dixon the label "refurbishment" has a derogatory overtone. Yet to *WA*, the reinvention of the Opera House is all the better for being a refurbishment project. Had the client chosen to build an entirely new theatre it, and the British public, would have lost out. Turn the page to find out why. The result is the best of refurbishment and "architecture" (if you insist on the distinction).

How do you define refurb? The criteria here are simply that the project uses an existing building, or buildings, and that it is more than a superficial makeover. Over the next 22 pages we profile work from London, Barcelona (an opera house rerfurb far removed from the approach at Covent Garden), New York and Massachusetts. All are proof that some of today's most aesthetically exciting and commercially successful architecture responds to an existing structure. Look at Foster and Partners' Reichstag (*WA*84 in Berlin), or SOM's designs for Pennsylvania Station in Manhattan.

In the Western world – despite variations in both listing laws and tolerance to dramatic reinterpretation of heritage – the fundamentals are the same. Ageing building stock and lack of available urban land – as well as technological advances and such societal changes as a move back towards urban living – have forced clients to consider refurb as a serious option for development.

A refurbishment checklist – evaluating the cost risks

Working with existing buildings present special problems. Estimating the costs for refurbishment projects can be particularly challenging. Hanscomb suggests some issues to evaluate:

- **Existing drawings**
  Are they available?
  Are they contract or as-built drawings?
  How accurate are they?
- **Types of assembled components**
- **State of repair**
  Is there a condition assessment?
- **Codes**
  Will there be a requirement to comply with existing codes when refurbishing?
- **Environmental**
  Asbestos, contaminated ground, etc
  Continued occupancy
- **Phasing issues**
- **Associated costs to owner**
  Swing space, moving, production disruptions
- **Hidden work**
  Expect surprises, but be diligent in investigating existing conditions
- **Changes in function**
  What impact will this have on the existing building elements?
- **Structural changes**
  From functional requirements
  From code requirements (ie seismic upgrades)
- **Adjoining buildings**
  Protection
  Disruptions
- **Salvage**
  Salvage is a thriving business and can affect refurbishment costs
  Will any removed materials have value? If so, who owns them?
- **Market conditions**
  In a busy market, contractors often prefer new-build
- **Access to space and staging areas**

Left: View from the south colonnade, facing Covent Garden market, showing respect for, but not imitation of, Inigo Jones' designs **Right:** the roofscape resembles a Tuscan hilltop village, with a copper-roofed loggia around the perimeter. The staff canteen (right of picture) enjoys the best position

Leading lady

London's Royal Opera House, Covent Garden, has been given much more than a regular facelift. The addition of a "village" of connected studios, workshops and administrative offices has transformed the grand dame of British opera and ballet into one of the best-equipped and magical theatres in the world. Nicola Turner reports. Photographs by Dennis Gilbert/VIEW.

Dennis Gilbert

Four years ago I left a summer production of *Aida* at London's Royal Opera House with only one tune in my head – the persistent fluttering of programmes of every sweaty member of the audience as they fanned themselves. The time would surely come when only the most obsessive opera and ballet fans would continue to fork out good money for performances in such archaic surroundings.

Today, visits to Covent Garden are infinitely more enjoyable. Not only have the electrical and mechanical services throughout the auditorium, public and rehearsal spaces been completely overhauled, but the new and reconstructed spaces by the Dixon Jones BDP partnership has added immeasurably to the experience.

Prime minister Tony Blair and his New Labour government have been preaching "culture for the masses" for as long as they've had a voice. The remarkable thing about this project is that although it was born in the Tory era, its eclectic style, the way it stands conventional social hierarchy on its head, and the fact that the building is used and enjoyed for other purposes, perfectly matches the current government's democratic policy for the arts.

The fortunes of the opera house and the surrounding Covent Garden market, in central London, have been debated by politicians and businessmen for two decades. First came the threat of conference centres, office blocks and shopping malls. Planning permission was granted with the proviso that no government funding would be provided. Commercial pressure began to bite and the scheme, thankfully, failed. From here, things could only get better.

Building blocks

In 1983 an alliance between Dixon Jones BDP triumphed in a competition to reinvent the Opera House and, as a result, a major slice of Covent Garden itself. "Right from the start I said that town planning was the most important issue... If I'd been more calculating I might not have said it, for fear of worrying the jury," explains design architect Jeremy Dixon.

As a young architect with little significant work to his name Dixon had everything to gain. "It was all down to Bill Jack, [of Building Design Partnership]", he explains. "I don't think I would have gone for it if it hadn't been for him." Jack approached Dixon in the knowledge that BDP had the critical mass, business acumen and experience to win the confidence of the competition jury (made up almost entirely of non-architects).

Left: James Street elevation looking towards the market. The facade, as on Bow Street, is of thin stone, with modelling in steel, as befits the more modern treatment
Right: A new dramatic full-height space houses the box office lobby and informal tea bar. It also acts as a pedestrian walkway across the block. The Floral Hall is to the right

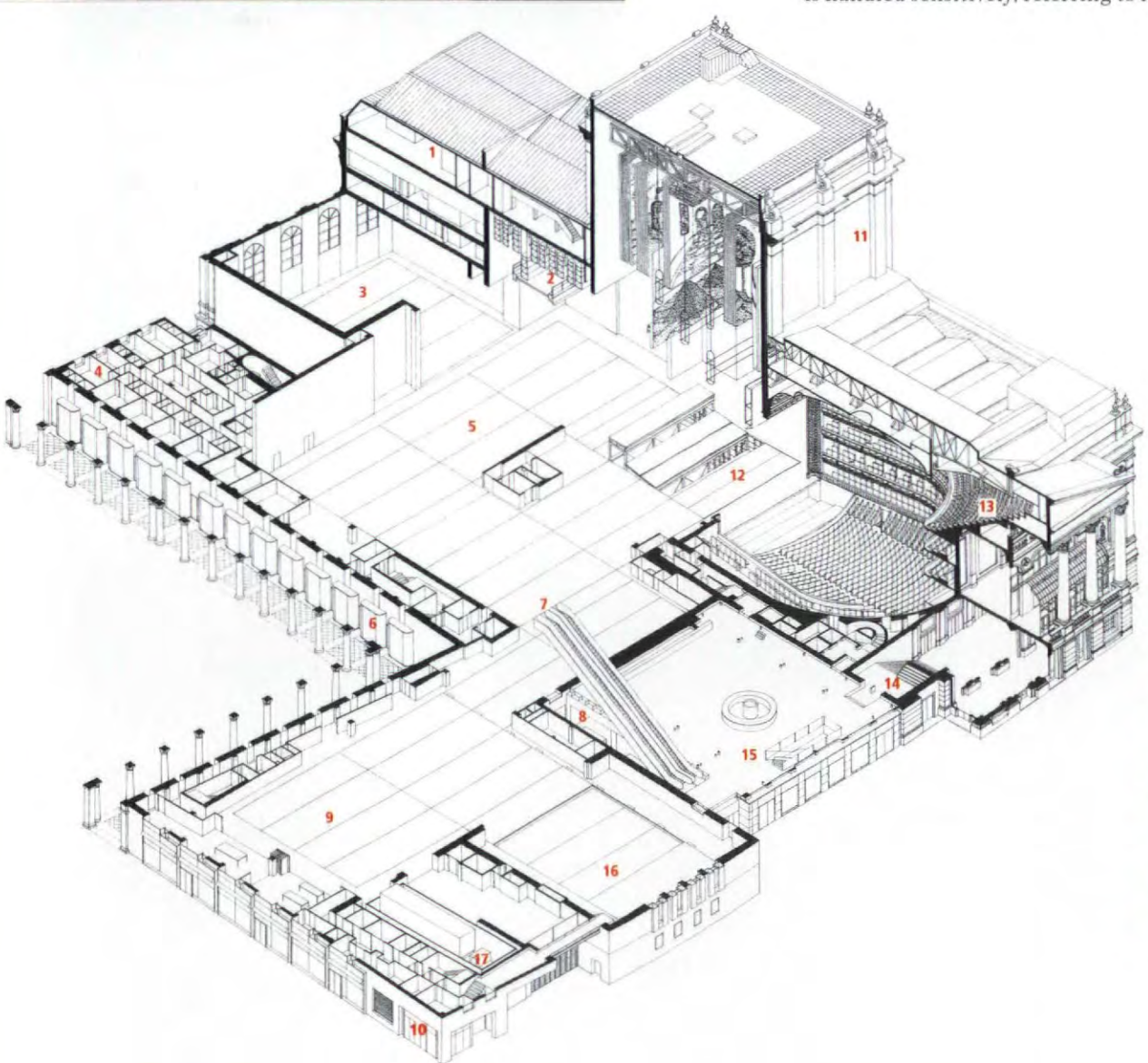
What it didn't have was a designer with Dixon's inspirational flair and courage. By approaching the project as the redesign of an entire block of prime central London real estate which would embrace tourists, shoppers and theatre-goers alike, Dixon's team made sense of keeping the Opera House in the heart of London. A new-build opera house would surely have been consigned to the docklands or outer suburbs, thus alienating it further.

"It needed to be made up of many pieces to allow it to be digestible. The original Inigo Jones square [1630s] no longer remains, but we knew it was important to be historically aware... we created a city within a city and worked on the project sequentially, like a town, to give it an archaeological nature." Dixon is convincing in his defence of this approach, finding architectural virtue in the otherwise agonising procrastination (largely due to financing) which surrounded the 16-year project.

The funding problem was alleviated in the mid-1990s with the advent of the National Lottery. The US$353 million (£214 million) cost of giving the Opera House its new life came in three equal slices from the lottery, revenue from retail (alongside and below the Opera House itself) and private donations. The only "commercial" element is the retail, which, as it is already the *raison d'etre* of Covent Garden, sits quite happily in the scheme.

Risky business

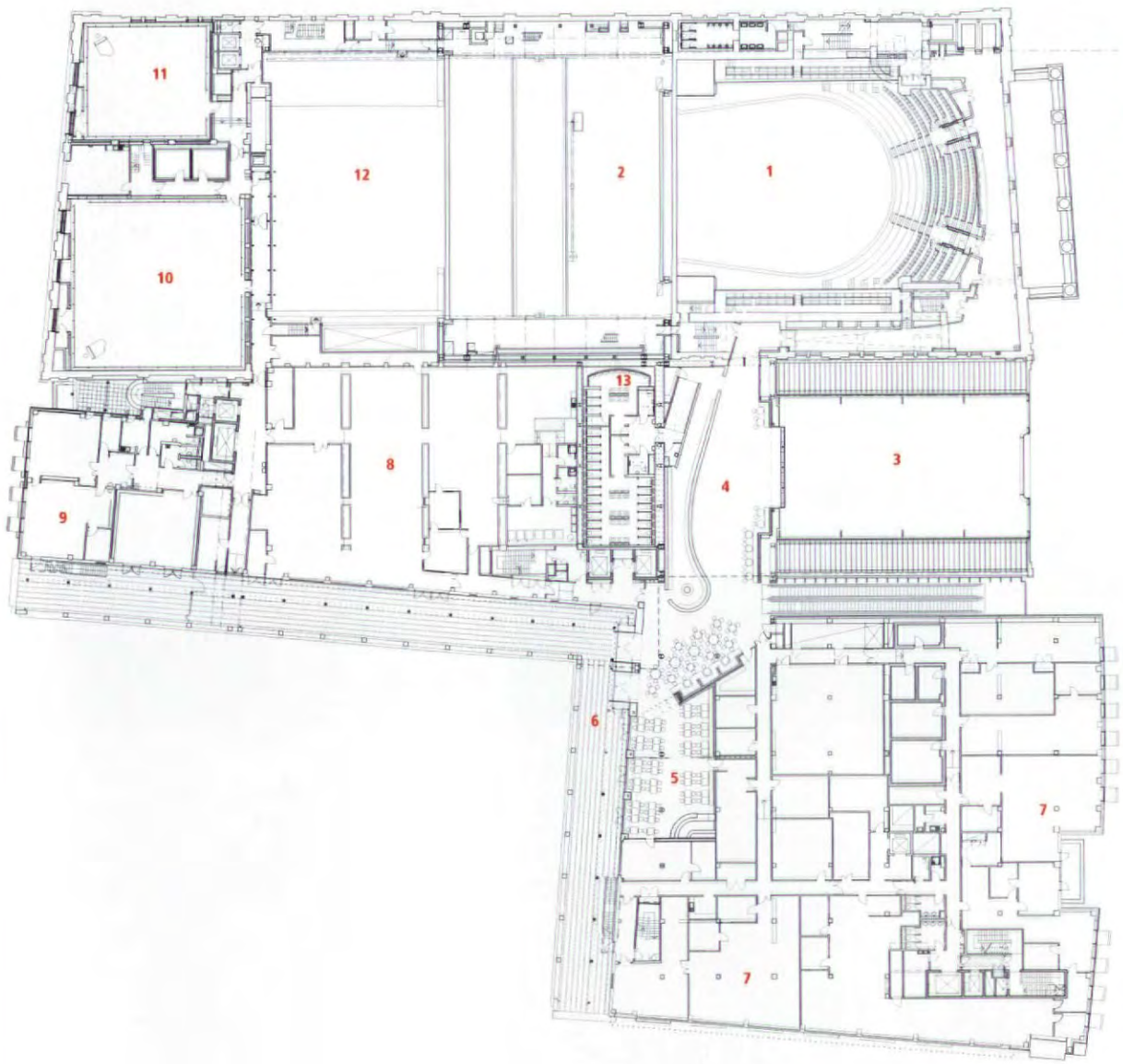
The resulting mixture of styles, from Classical revival to Post-modern "was a risk, and we knew that... you really put your intellectual head on a block if you do this." The market facade is handled sensitively, referring to Inigo Jones but avoiding



Key to axonometric
1 Production props studio
2 Cloth store
3 Existing opera rehearsal room (to be refurbished)
4 New Royal Ballet offices and dressing rooms
5 Side and rear stages
6 Shops on to the piazza and Russell Street
7 Escalators linking Floral Hall and Amphitheatre bar
8 Arcade between the piazza and Bow Street
9 Set assembly and scenery store
10 Information centre
11 Fly tower
12 Main stage
13 Amphitheatre extended
14 Existing grand stair which leads to the Floral Hall
15 Reconstructed Floral Hall
16 New opera rehearsal room
17 Loading bay and get-in lift for scenery and deliveries

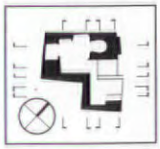
ROH SHOP & COVENT GARDEN PIAZZA

Left: Night view with reconstructed Floral Hall alongside the original entrance facade. Escalators rise alongside the Floral Hall. The flytower is three times the height of the procenium. **Right:** The Floral Hall on opening night. The diners appearing to hover in an escalator halted in mid-flight against the mirrored wall at the back of the hall are in fact against the restaurant's protruding window



Key to plan

1 Auditorium
2 Flytower
3 Floral Hall
4 Amphi-bar
5 Amphi-restaurant
6 Public loggia
7 Administrative offices
8 Running wardrobe
9 Ballet company
10 Ballet studio 2
11 Ballet studio 1
12 Rear stage
13 WC



The original 1858 interior by E M Barry has been extensively updated, with improved sightlines and underfloor aid conditioning. The back stage facilities use state-of-the-art technology

"copying the copy" of the later colonnade opposite. The Doric columns of the Opera House colonnade are topped by a plain barrel-vault, with light cuts in the stone illuminating the walkways below. This entrance marks the spot where the original Inigo Jones theatre once stood, and carved crests in each end of the stonework draw attention to the Opera House which might otherwise go unrecognised from this elevation.

The Opera House itself embraces, and becomes subservient to, the public domain by housing a series of cut-throughs across the city block. The public can walk from the market through the lofty, light-filled box office to Bow Street, on the other side. Here mini balconies projecting from the plain, curved facade take the eye around the corner of the building.

Making an entrance

A minimal lobby has been reinstated in the pedimented main entrance of the original Opera House; the restraint before the opulence of the grand foyer. To the right, new lifts have been inserted. To the left visitors begin their processional route through the building. Orientation is provided by visual clues, such as huge picture windows linking public areas.

Dramatic contrasts in colour and building materials assault the senses. From the plush velvet, red and gold of the refurbished foyer visitors glimpse the Floral Hall, all steel, glass, and timber decking. At the forefront of the Dixon Jones BDP scheme was the "scrambling" of convention – including the identity of public and private space, front and back of house – illustrated via the diverse architectural treatment and materials.

The Floral Hall's unconventional location on the left of the original house has an "accidental advantage", making it easy to cordon off during productions, but also able to fulfil public uses. The original foyer, the heart of the original Opera House, was only ever accessible to theatre-goers. Now, the reconstructed Floral Hall, which acts as an additional foyer, has become the primary public meeting place where people can meet to eat, drink and observe. Escalators run up one side to a restaurant, where diners appear to hover as if in a glass elevator halted in mid-flight, against the mirrored wall at the back of the hall.

In contrast to the vertical sweep of the cavernous Floral Hall, the restaurant has been designed to emphasise the horizontal space. A long undulating bar encourages diners to look outside to the dramatic views over central London and Westminster.

Ashton ballet studio showing the flytower through the skylight. Each studio has been individually designed

Client
Royal Opera House
Architect
Dixon Jones BDP
Design directors
Jeremy Dixon, Edward Jones
Project director
Charles Broughton
Original competition winner with Jeremy Dixon
Bill Jack
Interior design adviser (auditorium)
Mlinaric Henry & Zervudachi
Historic buildings adviser (auditorium)
Margaret & Richard Davies and Associates
External envelope consultant
Arup Facade Engineering
Theatre design consultant
Anne Minors
Technical consultant
Haddon Few Montuschi: Duncan Few
Structural and services engineer
Ove Arup and Partners
Acoustic engineer
Arup Acoustics
Theatre consultant
ROH Theatre consultants
Cost consultant
Gardiner & Theobald
Construction adviser
Stanhope Properties
Construction manager
Schal Construction Management

It is the views from the "roof village", which includes the canteen, rehearsal studios, administrative offices and workshops, which have given as much to the dancers and the opera singers as the improved facilities within. The canteen now enjoys the plum position, with ample roof space for sunbathing and smoking. Attic-type spaces for the costume workshops have retained a garret quality reminiscent of the hotchpotch of dishevelled studios across London, but have been given improved facilities, particularly natural light.

Village people

Although the name "Opera House" gives dominance to opera over ballet, the new building has given most to the ballet company. Unlike the Royal Opera, the Royal Ballet has a resident company which, until the completion of the new Opera House, has had to travel by underground from a clutch of rehearsal facilities in Baron's Court, west London, to perform at Covent Garden. The dancers' reaction to their new rehearsal space has been ecstatic. Large, light-filled studios look out over the capital, with acoustics and technical facilities emulating stage conditions as far as possible. A small new theatre, the Linbury, provides the opportunity for a more diverse performance programme.

To navigate this warren of artistic creativity, lift colours and stairwells are colour coded, and numbered S (for stage) + a number: just one example, and the most obvious, of the determination to orientate everything around the stage.

The auditorium itself has improved sightlines, with a steeper rake in the stalls and the amphitheatre, as well as the much-needed under-floor air conditioning. Back-stage, the vast spaces required to house the equipment needed to shift stage sets horizontally, or vertically into the fly tower, are reminiscent of great 19th century turbine halls. These were engineered by the Opera House itself.

The scale of it all is awe-inspiring. Standing here, watching the set for *Otello* being manoeuvred onto stage, Dixon describes opera as the "most extreme" art form. "It's high risk and has a kind of lunacy about it." He could just as well be describing the architecture around him. Most of the world's great opera houses are stand-alone monuments, statements of aloof grandeur. By directly engaging in the public drama at its feet London's Royal Opera House has become so much more. WA

Phoenix from the ashes

Solà-Morales modernisation of Barcelona's Grand Theatre of the Liceu, finally made possible by a devastating fire, is a 20th-century homage to the 19th century institution of opera. By David Cohn

Architects
Ignasi Solà-Morales, Lluis Dilmé & Xavier Fabré
Structural engineer
OMA: Agustí Obiol, Lluís Moya
Mechanical engineer
OIT: Josep Martí, Miquel Camps
Security consultant
Francesc Labastilda
Acoustic engineer
Higeni Arau
Stage machinery
Techplan
Audiovisual engineer
Pere Vila
Consultant
Ove Arup & Partners

Architect Ignasi Solà-Morales had been waiting for years to launch a major modernisation of Barcelona's historic opera hall, the Grand Theatre of the Liceu, when a fire gutted the building in January 1994. Planning had begun in 1986, but funding troubles and legal tangles had delayed construction. The fire served as a tragic catalyst for the project, with politicians declaring amid the smoking ruins that the theatre would rise again.

Designed by local architect Josep Oriol Mestres in 1861, the Liceu's eclectically styled building on the Ramblas, the main street of the city's Medieval quarter, had replaced a previous structure of 1847 which was also destroyed by fire. The reconstruction by Solà-Morales – also the architect for the recreation of Mies van der Rohe's Barcelona Pavilion in 1986 – called for enlarged state-of-the-art backstage facilities, improved public foyers, and a mimetic reproduction of the lost theatre (the entry vestibule and exterior facades had survived the fire intact). In the process, the size of the building would almost triple, from 12,000 square metres to 32,000 square metres. Space was gained with new basements and roof structures, and the expropriation of several neighbouring buildings.

Previous record

For the recreation of the theatre, Solà-Morales worked from photographic and planimetric records prepared before the fire. Sightlines were improved, which reduced the capacity by 80 seats to 2,300 (still one of Europe's largest). The acoustic design, under the direction of Higini Arau with Ove Arup as consultant, sought to reproduce the crisp original sound of the hall, and acoustic "shadows", revealed in 1989 studies, were corrected by introducing slightly angled planes to certain ceiling areas.

Flammable old finishes such as wicker-reinforced plaster, silk panels, wood floors, oil-based paints and gilding were replaced with fire-resistant substitutes. To his surprise, Solà-Morales found local craftspeople, some descendants of the theatre's original builders, who maintained the labour-intensive tradition of moulding plaster ornamentation. Two contemporary decorative elements were introduced – a stage curtain by Barcelona fashion designer Antonio Miró, and eight ceiling rosettes, repainted by local artist Perejaume. In the expanded backstage area, the most advanced scenic machinery was installed, including seven hydraulic lifts and a modern flytower, allowing up to four productions to be staged concurrently.

The US$110 million cost of the work was met by local and national governments, with contributions from local businesses. The original owner, a group of long-time patrons, ceded the property to this public consortium, a change accompanied by an effort to open the opera to a larger public. This policy influenced the redesign of public spaces, which include a new 800-square-metre multi-use foyer for recitals and other activities in the basement level under the hall, which has drawn new life to the building between performances. Access was upgraded for emergency evacuation, and was democratised – in the old building, upper balconies had a separate "second class" entrance. The new interior spaces and new facades were designed in clean contemporary lines using traditional proportions and materials.

Since its emotional re-inauguration last October, the Liceu has been a tremendous popular success. In answer to some critics who would have prefered a more contemporary design in the spirit of Barcelona's other cultural initiatives, Solà-Morales defends the restoration as a gesture of respect to the old hall and its public. He points out that opera is essentially a 19th century institution, and he feels that the 20th century has failed to produce a convincing update of the type. WA

Above: grand interior spaces have been meticulously restored **Left:** restored opulence of the auditorium reflected on the polished stage floor


ONGITUD

Richard Bryant

Left, top: Entrance to Vitra's new showroom and offices, showing suspended chairs in the double-height void. The simplicity of the original 1950s industrial building has been retained, but the entrance has been moved to a corner site, and windows enlarged
Left, below: Five sliding glass-fibre screens spell Vitra's name behind a dramatic floating staircase of reinforced steel

Show business

David Chipperfield Architects is the latest collaborator with furniture company Vitra, transforming a 1950s industrial building in the heart of London's architectural community into an eyecatching new showroom. Nicola Turner reports.

As well being famous for its chair designs for the rich and discerning, Vitra has also become known as a patron of great architecture. Most famously, Frank Gehry designed the Vitra Design Museum in Weil-am-Rhein, Germany, in 1988, to which Zaha Hadid added her distinctive fire station (1994), but other collaborators have included Tadao Ando, Alvaro Siza and Nicholas Grimshaw.

The newest recruit is David Chipperfield, perhaps best known for his award-winning River & Rowing Museum in Henley, England, and for beating Frank Gehry to the job of restoring the US$990 million Neues Museum in Berlin, which will probably take most of this decade to complete. His refurbishment project for Vitra is on a smaller scale, but is nevertheless significant.

Inherited wealth

Thirty Clerkenwell Road, a 1950s industrial building, has enjoyed mixed fortunes, its most recent incarnation being characterless offices, with little or no architectural remodelling. The developer of the building, Phoa Kia Boon, selected Chipperfield to take control of the whole scheme, which includes trendy apartments above the Vitra premises. In this way Vitra really inherited its architect, which makes such an appropriate pairing all the more remarkable.

Chipperfield has turned this spotty adolescent of a building into a catwalk model, as befits the fashion-conscious client. At the same time, he has catapulted Vitra from the ladies-who-lunch environment of Bond Street, in the capital's West End, to the trendy architectural district of Clerkenwell, near the City. The area houses numerous architects' offices, as well as around 20 contract furniture companies. Vitra has joined its competitors and is already enjoying the profile and commercial benefits of being in a more dynamic environment.

If cars weren't already forced, by the heavy traffic, to crawl past the showroom's plate-glass windows, they might soon find themselves doing so voluntarily. Suspended on steel wires in the two-storey void are chairs from designers such as Charles and Ray Eames, Mario Bellini, Philippe Starck and Antonio Citterio. The mesmerising mobile display hangs from entrance level to the basement below, and will be changed every few months to reflect new themes, designers and trends.

Equally eye-catching are the floor-to-ceiling glass-fibre sliding screens, spelling out the five letters of Vitra. The symmetry is perfect: five letters for five screens fitting five original bays. The screens can be configured in any order. The client and architect both spent many hours cross-checking that it wouldn't be possible to spell an obscenity in any language from the combination!

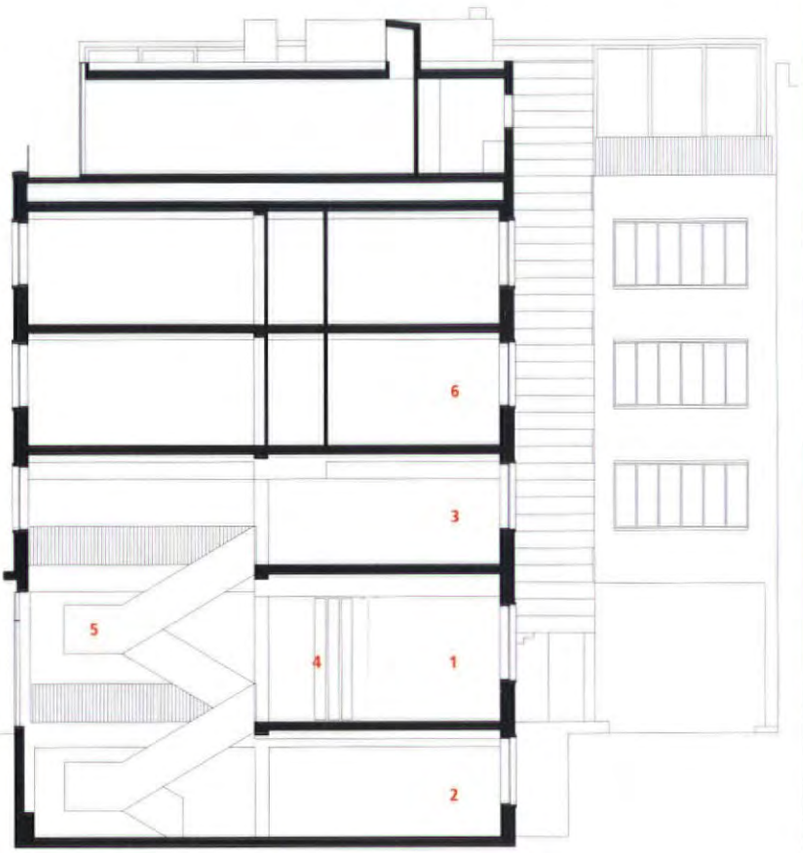
The screens form a neutral backdrop for the vibrant colours, textures and designs of the furniture in front and, more functionally, also provide a neat wall to hide the service areas behind.

Walking on air

From half-way up the freestanding cylindrical staircase Vitra's new home can be viewed in section, from the basement display area for office seating and conference furniture, to the street-level showroom and the open-plan showcase offices, for Vitra staff, above. The visual gymnastics are exaggerated by the

View from halfway up the floating staircase. The open-plan working offices are fitted out with Vitra's Ad Hoc system furniture.
Below: the entrance-level showroom

Photograph: HG Esch



Key to short section

1 Ground-floor showroom and entrance level
2 Basement showroom
3 Vitra admin offices
4 Sliding screens
5 Floating staircase
6 Apartments (two levels and penthouse)

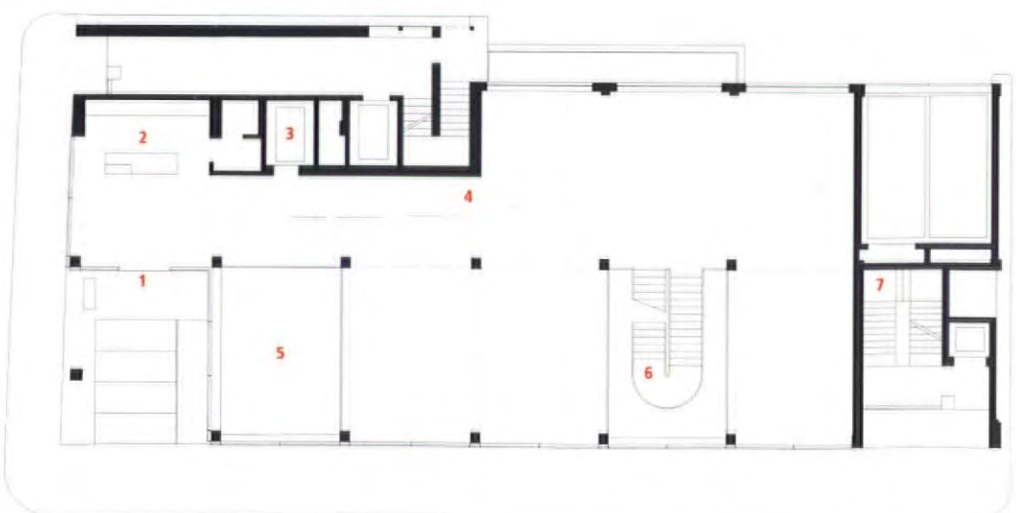
absence of a column in the eye of the reinforced steel staircase.

Although the refurbishment has been radical, the ruggedness and unassuming materials used throughout the project reflect the building's industrial heritage. The original entrance has been relocated to a corner site and, like the corner windows on every floor, is glazed on two sides. All the smaller windows have been replaced with large picture windows to increase natural light.

The only dramatic intervention not carried out, on the grounds of cost, was the cladding of the service cores in galvanised steel. Instead they are painted grey. Given that the eye is attracted by so much in one hit – the floating staircase, movable screens and suspended furniture – the absence of a glittering tardis is probably a good thing.

Vitra's showrooms in Paris, Prague and New York must be jealous of the newest addition in London, which until the German showroom in Weil-am-Rhein is completed at the end of this year, has become the jewel in the company's crown. WA

Client
Vitra
Architect
David Chipperfield Architects
Structural engineer
Michael Hadi Associates
Services engineer
Paul Bastick Associates
Quantity surveyor
Jackson Coles Construction Consultants
Main contractor
Connaught Interiors
Sliding elements
Ardern Hodges



Key to ground floor plan

1 Entrance
2 Reception
3 Lift
4 Sliding screens
5 Two-storey void
6 Staircase
7 Stairs to apartments

Industrial action

Five hectares of redundant industrial buildings, once the heart of a small US town, have been stripped back and transformed into performance and art spaces. Mary Pat Akers reports on how the richness of the complex's heritage lends itself to the future.

Described by the US press on its opening last summer as an "A list" destination, the MASSMoCA (Massachusetts Museum of Contemporary Art) has become a pilgrimage site not just for art-lovers but also – with the sheer enormity of the 5-hectare, 26-building complex – for any red-blooded building addict.

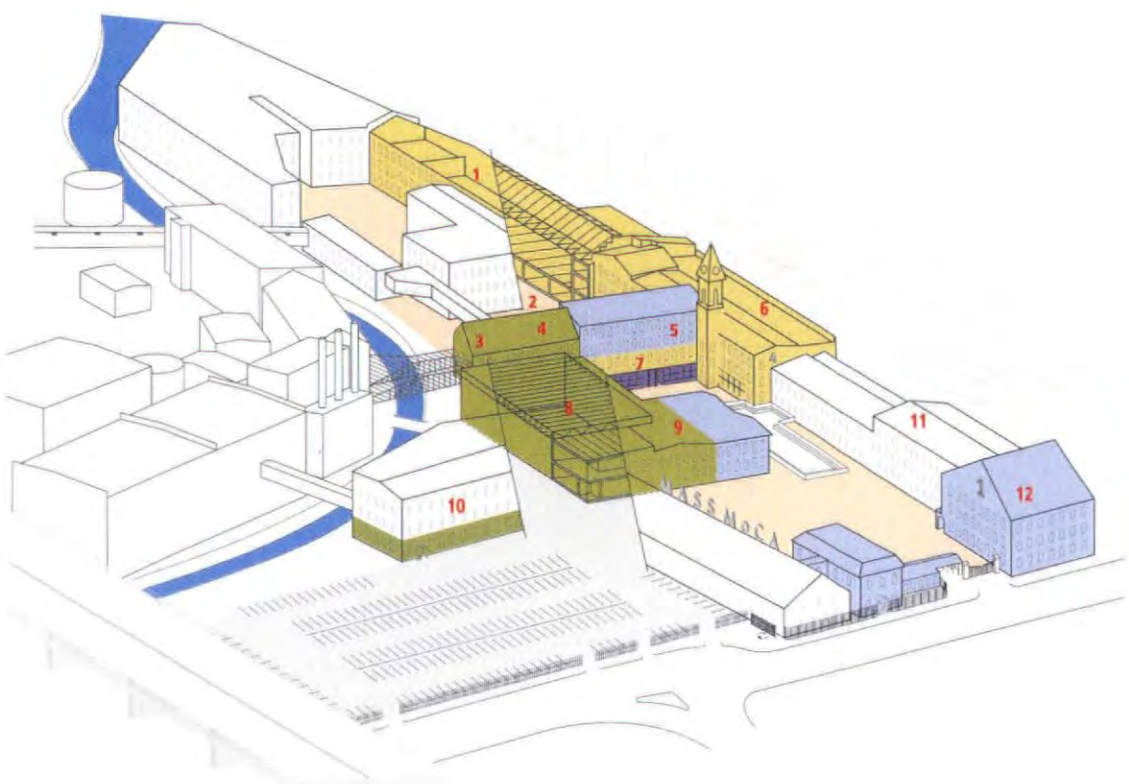
Standing both physically and symbolically at the centre of the small town of North Adams, Massachusetts, the vast 19th century mill complex occupies a third of the town's business district. Once a textile print and dye manufacturer, and later home to a leading manufacturer of electronic components, it closed in 1985, faced with rising energy costs and insurmountable competition from electronics producers abroad. With a gaping economic hole to be filled, the town's leaders took on the urgent task of finding new uses for the empty buildings.

A solution presented itself in 1986 when the nearby Williams College Museum of Art proposed a mixed-use cultural centre, to include the world's largest museum of contemporary art. However, when the US economy took a downturn, the state withdrew its initial pledge and the project had to be re-imagined without the benefit of government largess. Joe Thompson, now MASSMoCA director, helped to devise the combination of "dream factory" for art with a self-sustaining catalyst for community development.

Two feasibility studies followed. The first, by SOM, Frank Gehry, Robert Venturi and Bruner/Cott Associates, proposed a mix of restaurants, condominiums and commercial spaces, as well as the museum. With operating costs uncertain, Thompson invited Bruner/Cott – expert in restoration and renovation – to propose a simpler conversion. Ten years on, with funding finally secured, the firm was commissioned for phase one.

Creation of a world-class museum from a factory complex presented many challenges. Where to start among the hectares of undifferentiated loft space? The first buildings to be addressed were those in the worst shape. Through selective demolition, disassembly and reinforcement, the strongest pieces of the complex were preserved. The buildings nearest the streetscape were designed as commercial space, with the entrance to the museum placed at the heart of the complex to lead the visitor into its heart, creating a sense of anticipation.

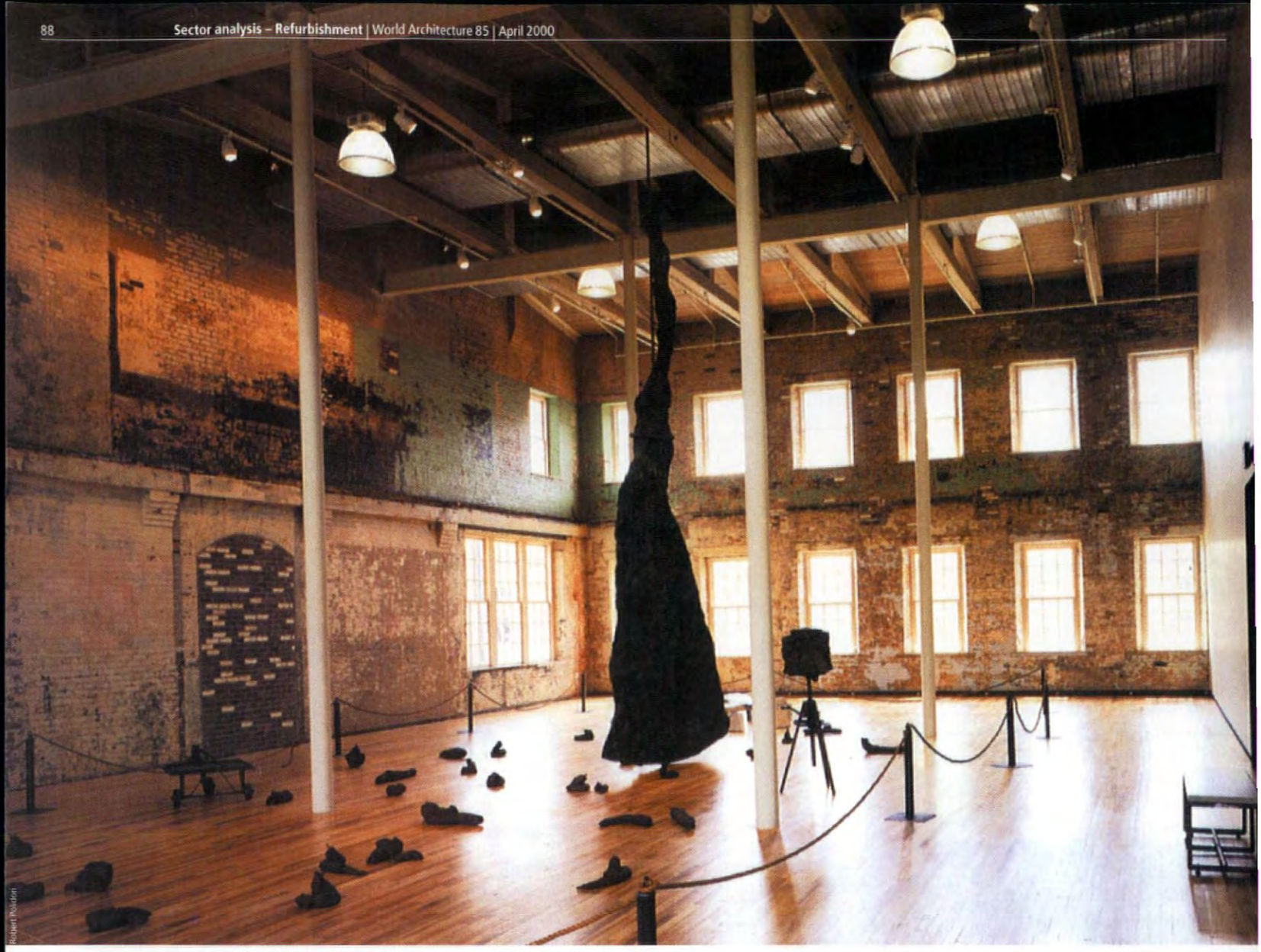
The main entry courtyard was regraded by 0.75 metre – one of many invisible landscape gestures that keeps the museum



Doug Bartow/MASSMoCA

Key to ground floor plan

1 Double-height gallery space
2 Outdoor theatre
3 Café
4 Dance studio
5 Offices
6 Triple-height gallery spaces
7 Visitor orientation and retail space
8 Black box theatre
9 Retail/restaurant
10 Night shift café
11 Future tenant
12 Computer centre tenant



Robert Polidori

barrier-free while fully exploiting its historical features. Bruner's role as landscape architect allowed it to control this dialogue between indoor and outdoor spaces. In one courtyard, steel beams rise to delineate the space where a building once stood. Elsewhere, a rectangle of new grass echoes the history of a factory floor. Courtyards like these offer venues for performance art, movie screenings and community cultural events while introducing the play of light, shadow, and the surprise of sudden transparency to the visitor's experience.

Throughout the museum, the visitor is reminded of the beauty of the original buildings, a rich record of countless choices by anonymous master builders – massive wooden beams, labyrinths of elevated walkways and covered bridges, hand-cut stones and patterns of brick. Random elements were preserved "as found" but just as often newly constructed to appear as original.

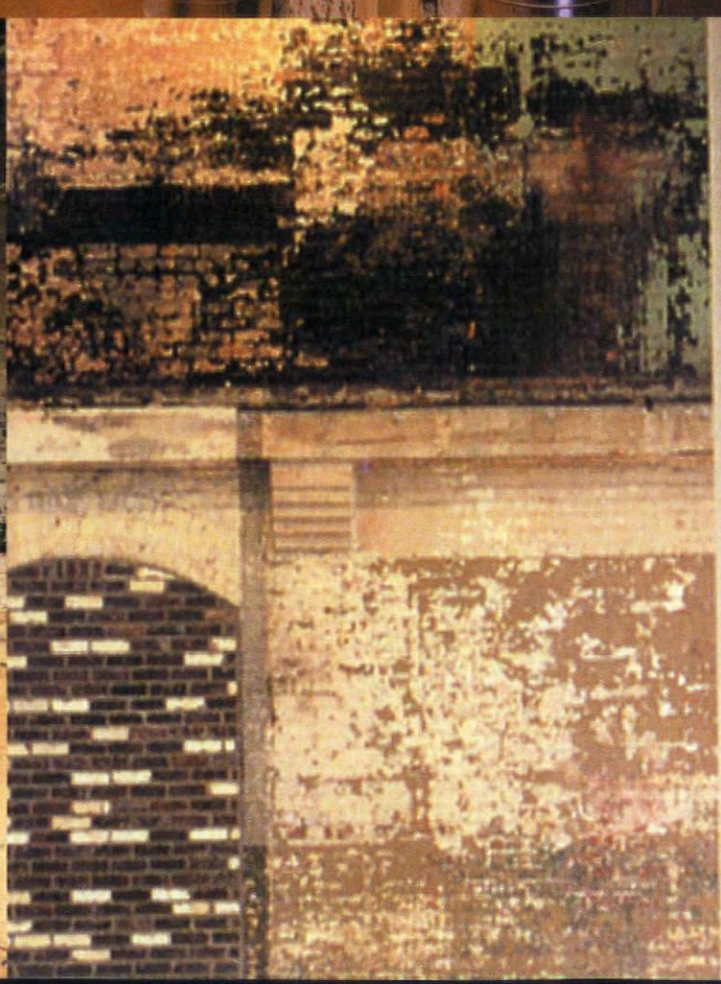
The buildings in the worst shape afforded the greatest design opportunity. As walls and rotting floor boards were torn away, dark networks of rooms were transformed into light-filled galleries. In one instance, a gargantuan 90 x 12-metre space was created, now housing a 300-metre-long work by pop artist Robert Rauschenberg.

In total, phase one of the renovation included 19 galleries with more than 10,000 square metres of exhibition space; a 1,000-square-metre black box theatre with a 10-metre-high ceiling; a 350-square-metre lab theatre; an outdoor cinema with a 15-metre-wide movie screen; two performance courtyards; one of which is 2,250 square metres; workshop and art fabrication facilities; 500-square metres of rehearsal and production support space; and 6,000-square metres of commercial space for communications, high-tech, and new media tenants.

For some, the real genius of this project may be the fact that it was constructed at the modest cost of US$680 per square metre while complying with codes, state wage and bidding requirements. Bruner looked at each building's programme separately, weighing design options against maximum value. For instance, heating and humidifying each building to museum specification was not cost effective, so money for climate control was designated for specific, limited areas. Similarly, resources were allocated to create base-lighting for opening shows that could be altered later. Existing utilities were saved wherever possible. Large but fewer elevators service both passengers and freight. Additionally, an in-house workshop was established to train residents in the skills necessary to repair the myriad of windows.

The sensitive restoration of the facility honours MASSMoCA's heritage as a place of industrial innovation, while its versatile and expansive spaces have given place to a new and vital experiment in making and viewing contemporary art. WA

Previous page: A performance courtyard, framed by steel beams to indicate where a building once stood **Above:** Joseph Beuys installation. Creating this gallery involved restructuring the roof and removing the floors and columns **Above right:** Dancers rehearsing in in the studio **Right:** The richness of the past

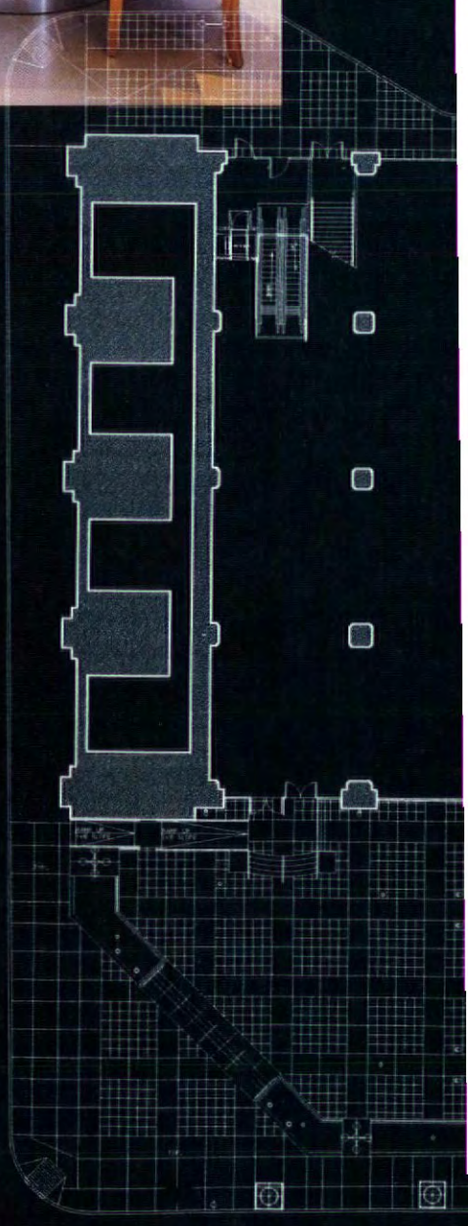


Client
MASS MoCA
Architect
Bruner/Cott & Associates
Landscape Architect
Bruner/Cott & Associates
Structural engineer
Boston Building Consultants
Mechanical/electrical engineering/plumbing
AHA
Contractor, phase I
Peabody Construction
Joseph Thompson, Director

Manhattan transfer

Nina Rappaport reports from New York on the Bridgemarket scheme, which has transformed a vast historic structure of bridge arches and vaults, by Rafael Gustavino, from unglamorous storage and service area into a contemporary commercial centre for eating and shopping.

Above: The Terence Conran shop, lit from above by glass-block rooflights **Above right:** The pavilion, by Conran & Partners, serves as the entrance to the shop



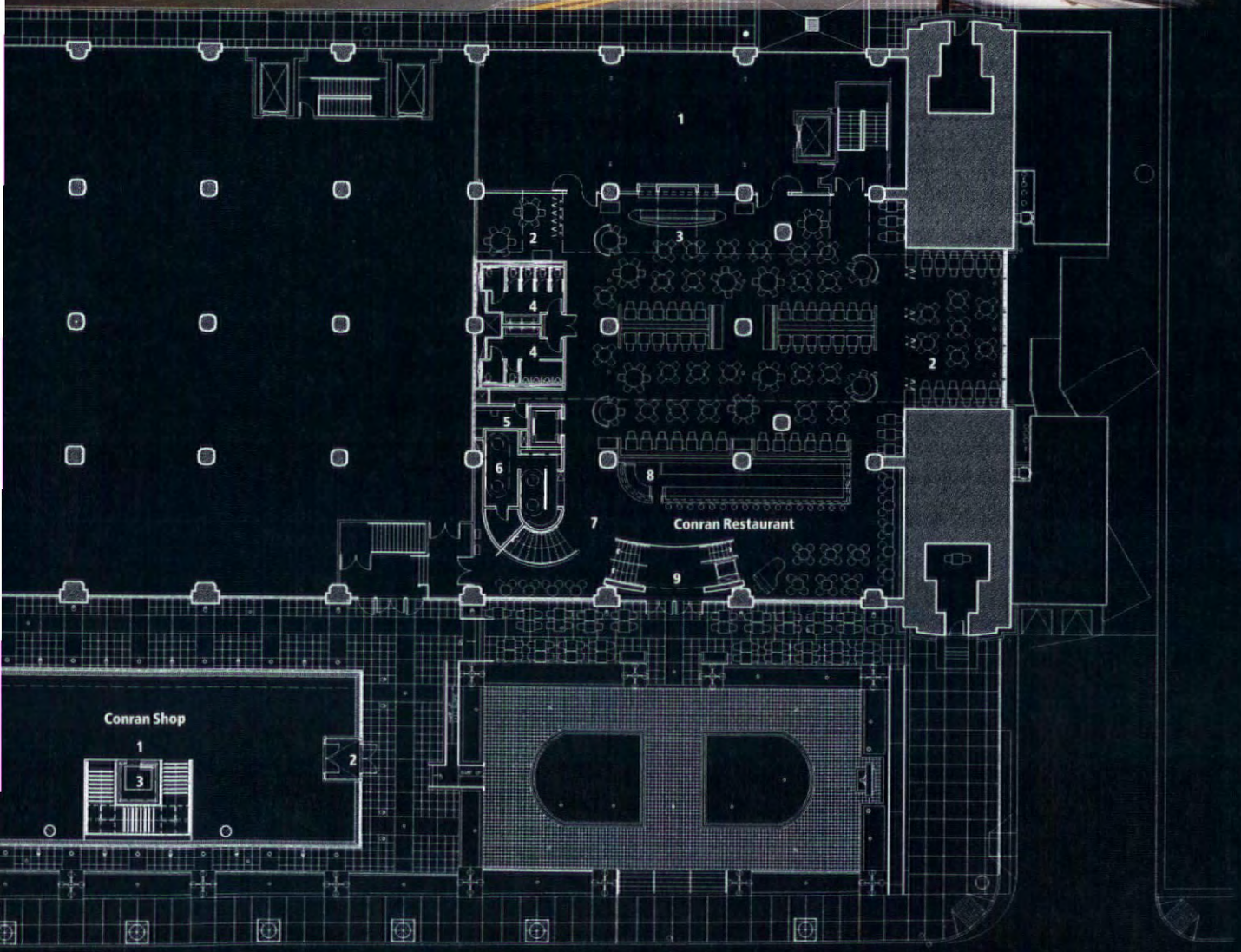
Key to Conran Restaurant
1 Conran kitchen
2 Private dining
3 Crustacea bar
4 WCs
5 Cashier
6 Coats
7 Reception
8 Bar
9 Lobby

Key to Conran Shop
1 Store
2 Lobby
3 Lift

Uncovering underused corners of cities often reveals the most exciting new spaces. Such endeavour has resulted in the networks of bridge arches being transformed to commercial enterprises, from Berlin's Savignyplatz Ubahn station with its bookstores, cafés and galleries to Paris' Viaduc de la Bastille by Patrick Berger. Now New York has its own dramatic vaulted space, Bridgemarket, a project which has been in the works for over 20 years.

The busy roadway to the 1909 Queensboro Bridge, at 59th Street and First Avenue, runs on top of a series of south-opening arches, although little was know about the huge vaulted space until developers rediscovered it in the 1970s. The innovative interior, by Rafael Guastavino for the bridge designer Henry Hornbostel, comprises a 36-metre by 82-metre hypostyle hall under a canopy of 36 domed vaults. Guastavino is known for his many vaulted spaces in New York, from Grand Central Station to St John the Divine, where he developed a system of structural self-supporting terra-cotta tiles.

Bridgemarket was used as an open market-


1
2
3
4
4
2
5
6
8
7
Conran Restaurant
9
Conran Shop
1
2
3

place until the 1930s when it was usurped by the city and used for storage maintenance by the Department of Transportation, a function it had been fulfilling ever since.

For two decades debates raged between residents, preservation organisations, developers and officials over proposals for the space, focusing on issues such as the amount of new development, the desire to keep a continuous open volume, and the amount of enclosure.

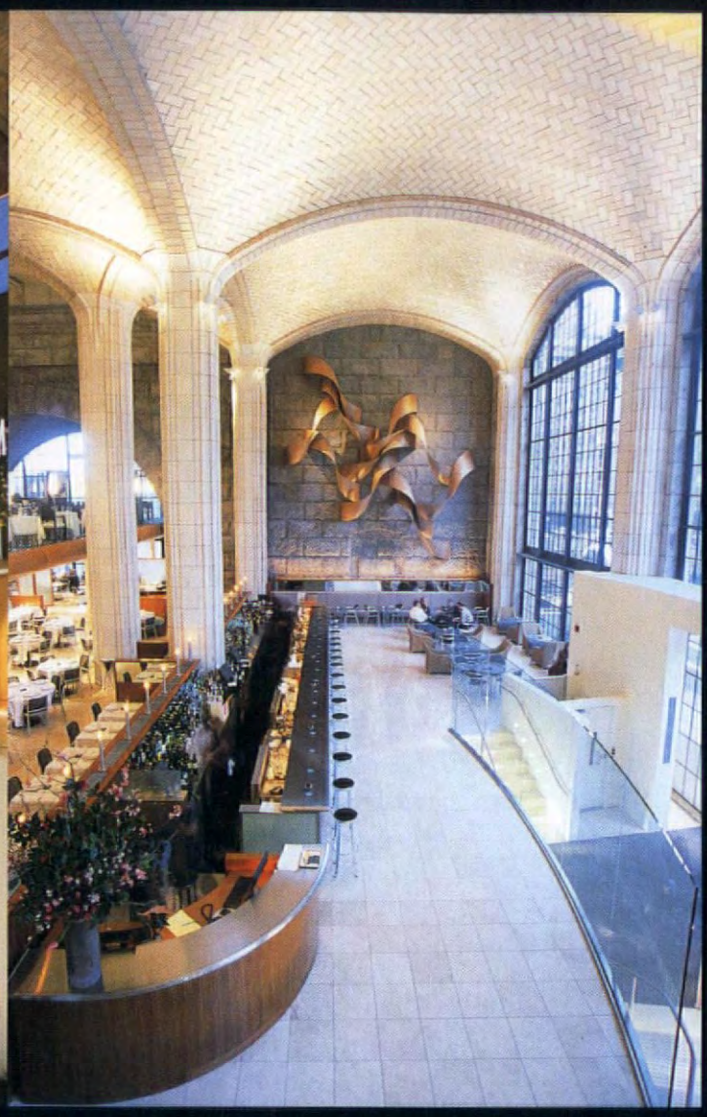
In 1977 Hardy Holzman Pfeiffer Associates (HHPA) was hired to design the restoration for a commercial venture, including cinemas, food fairs and retail. By this stage the bridge had become a New York City historic landmark, along with its grand Guastavino arches, and many residents were still fighting the development plan. A revised HHPA scheme was approved in 1995 and finally, in 1997, Conran & Partners signed a lease for a 4,200-square-metre store and a 2,500-square-metre restaurant. A major upscale supermarket, Food Emporium, leased the 3,800-square-metre contiguous vaulted space.

Bridgemarket finally opened this winter as a collaborative design between HHPA as architect of record and Conran & Partners (originally known as CD Partnership) as design architect. HHPA completed the restoration of the vaults and the base building design, including the full-height arched wooden window insertions and complex HVAC systems, while Conrans designed the interiors.

Let there be light

With HHP Conran & Partners designed a pavilion on the landscaped court. Part of the original plan for the plaza, the pavilion was originally designed to resemble a French 19th-century market, until Conran suggested a more contemporary form of a sloped roof extending over a glass and steel structure. It now serves as the entrance and first floor of the Terence Conran Shop. The ceiling is filled with a grid of square skylights of glass blocks to allow natural light into the interior. The lower level of the shop, excavated beneath the bridge's foundation columns, is reached via a glass and steel staircase around the elevator core. The column footings were exposed to create a rough, massive feel that contrasts with the lighter modern furnishings and fixtures.

From the east side of the pavilion, across a more traditionally landscaped forecourt designed by Lyndon Miller, is the entrance to the restaurant, appropriately named Guastavino's. Taking maximum advantage of the 13-metre-high soaring vaulted space is a mezzanine level inserted above the main bistro-style dining area. This separate



Right: Guastavino's restaurant makes the most of its eponymous original designer's vaults, wtih the lightness of the insertions contrasting with the monumental brick and stone

upmarket dining room is reached via a curved staircase. On the underside of the mezzanine floor is a curved wooden-paneled skin that both dampens the acoustics and carries the services. At the entrance bar fibre- optic lights glow through translucent panels.

Many flexible dining options are available, from small lounges to private areas, with state-of-the-art kitchens, one on each level, visible from the dining areas. The strength of the bridge, its heavy stone and terra-cotta arches contrast with the lightness of the inserted new elements to create a cohesive whole.

To the west of the restaurant the super-market space was designed by Food Emporium's in-house architects, Sam Burman and Roland Gebhardt, who illuminated the vaulted ceiling to highlight the space and make it as cohesive with Guastavino's design as the rest of the scheme. **WA**

BRIDGEMARKET
Client
City of New York Department of Transportation
Design architect
Hardy Holzman Pfeiffer Associates
Interiors
Caroline Betrand
Developer
Bridgemarket Associates
Structural engineer
Goldstein Associates, Consulting
MPE engineer
Altieri Sebor Wieber
Lighting consultant
Fisher Marantz Stone
Landscape design
Lynden B. Miller Public Garden Design
Construction manager
F J Sciame

GUASTAVINO'S RESTAURANT AND THE TERENCE CONRAN SHOP
Design architect
Conran & Partners
Architect of record
Hardy Holzman Pfeiffer Associates
Structural engineer
Goldstein Associates
MPE engineer
Clive Samuels & Associates
Lighting consultant
Fisher Marantz Stone
Kitchen consultant
Clevenger Frable LaVallee
Construction manager
Lehrer McGovern Bovis

Tomorrow's

Four months ago, the world's most ambitious, most public and largest tensile structure was completed. So will the Millennium Dome prove to be the last word in fabric architecture? Or is it a statement to the world that architects had better get used to it? Dan Fox looks at the building types for which fabric is now the common language, and asks where will we go next with the big tent.

Left hand photograph Christian Richters, Middle photograph Paul Rafferty

Berlin is looking on as Murphy/Jahn's US$1.1 billion mixed-use Sony Centre development (see *WA*84, page 62 to 66) nears completion, dominated by its stunning slewed tepee of a fabric roof. This technically complex ensemble should prove to doubters that membranes can provide the design prestige and visual impact that today's speculative commercial project needs to survive: there can be few tougher testing grounds than the vanity-ridden new Potsdammer Platz, where labels and the gestures count double. The Sony Centre is one of three major recent projects from around the world which are proving that in 2000 the tensile structure has come of age.

The second in the trio is the tallest membrane structure ever built. At 321 metres, Burjj-al-Arab, part of the Chicago Beach Hotel (*WA* 65 pages 54-57) in the United Arab Emirates, is the 17th tallest building in the world, and one its three facades is a double-skinned fabric canopy. As well as being an outstanding engineering achievement, the hotel reflects the rise of the membrane structure in the Middle East, a phenomenon which might eventually see realised the ambitious visions of its innovators (page 98 and 99).

London's Millennium Dome completes the set, the project that broke all the records (page 100 and 101). Grand, beautiful, ambiguous, ugly, whatever one's opinion, the Dome forced into the public domain questions of permanence and iconology that would otherwise have remained exclusively architectural issues.

Life experience

So why have fabric designers come such a long way in in the last six months? Client confidence is a major factor. The first large-scale membrane projects went up in the early 1970s, so it was only since the mid-1990s, when projects finished in the past year were at the conceptual stage, that real proof of their supposed 20-year life has existed. Today's latest materials, like PTFE-coated woven glass fibre, like Birdair's Sheerfill and Skyspan's Velaflon, will last 30 years. ETFE foil is proven to last 25, while Veleglas by Koch Hightex, and most forms of PVC, can last 20.

"Coatings are important when it comes to lifespan," says Millennium Dome engineer Ian Liddell of Buro Happold. "PTFE-coated glass fibre was chosen over the original choice

urban fabric

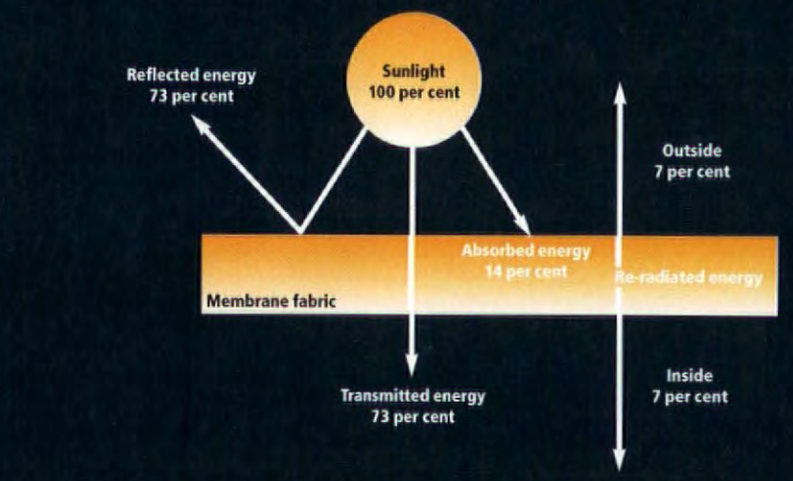
of PVC, despite the extra cost, as no decision had been taken about its intended life." Even then, there were objections to a monument to the millennium that will only last 30 years. Liddell says: "Its always risky to look at it in terms of permanence – it does have an end-life, but it is easily changed with minimum disruption."

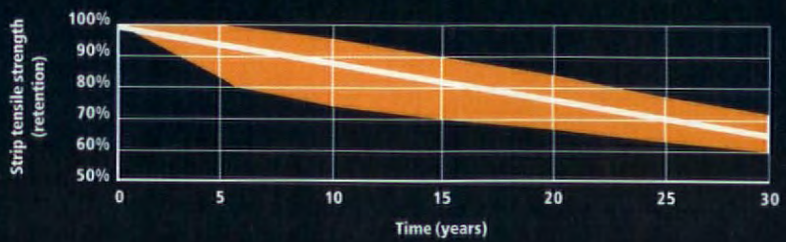
The fact that Denver international airport, the seminal 1994 fabric structure by Fentress and Bradburn, is still standing is testament to the integrity of membrane design – resistance to large snow loads is one the most impressive features. Designer Curt Fentress understands that not every-

Above, from left: Murphy/Jahn's Sony Centre, Berlin; Durbach Block Murcutt's Olympic Park Amenities Blocks, Sydney; Cox Sanderson Ness' Eureka Memorial, Australia.

A MODERN PERFORMANCE

The quality of today's architectural fabrics is a far cry from the sheeting with which Buckminster Fuller and company developed the technique. The latest precision-engineered products boast exceptional performance characteristics – improvements in energy efficiency and durablilty have been particularly marked.





TYPICAL ENERGY CHARACTERISTICS

Thickness	R-value	U-value	Transmittance	Reflectance	Shading coefficient
0.036 in	1.19	0.84	10 per cent	70 per cent	0.16
0.030	1.19	0.84	13 per cent	73 per cent	0.18
0.028	1.18	0.84	16 per cent	73 per cent	0.21
0.018	1.18	0.85	21 per cent	71 per cent	0.26
0.022	1.18	0.85	18 per cent	73 per cent	0.23
Clear glass	0.96	1.04	89 per cent	8 per cent	0.95

one was convinced it would cut the mustard: "You need a good understanding of the structural qualities, which not everyone has." Douglas Radcliffe of Birdair, a leading manufacturer of architectural fabric, concurs. "The compressant load moves down and out, the tensile load moves up and out. Architects have to learn new principles of load transfer. Increasingly sophisticated modelling software is making this easier."

Signature projects

Initial excitement about the potential for creating long-span canopies, economic in terms of time, energy, weight and construction cost, has now been superseded by a recognition of the unique signature inherent in a fabric roof. Glass, steel, brick and wood all have all had their place in the evolution of today's built form, whereas fabric is free from any architectural associations. The freedom and purity of its form, and even colour, creates instant imagery – a commodity always worth money to the building's owner eventually (as the owners of the Sony Centre have no doubt considered). At the Sydney Olympic Games complex, award-winning fabric structures like Durbuch Block Murcutt's Amenities Blocks contribute to an idiom which is already part of the consumer brand for the event.

Liddell talks of going further, using fabric as a projection screen for commercial messages. Cox Sanderson Ness' award-winning memorial at the site the Battle of Eureka in Australia offers a more tasteful take on the idea – the regimental emblem is emblazoned on a large fabric banner above the main volume.

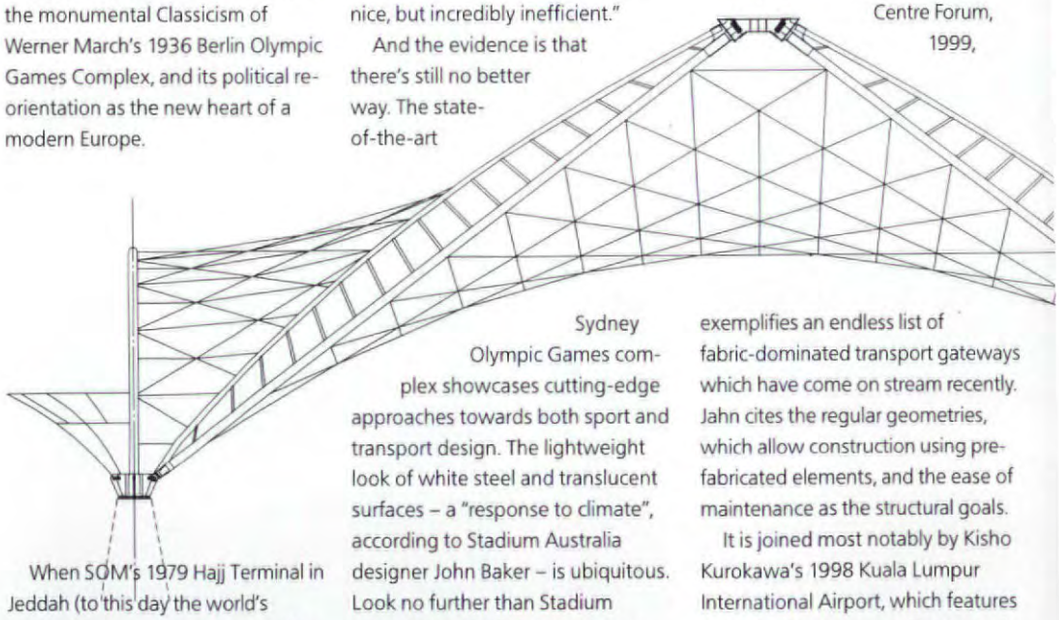
Curt Fentress says: "You start to describe these forms in terms of other things, like you would a piece of modern art. Fabric is an increasingly accepted part of our environment: from my office I see it draped over a cliff face to prevent landslides, and in Teneriffe you see huge expanses of material protecting crops from the sun, as if Christo has been at work on the hillsides."

Once a material is seen to provide economy, signage and function, it can consider itself accepted.

Where the tent is

Transport terminals and stadiums provide the settings for almost every historically significant tensile structure you care to name, and now are the only building types where fabric is a truly established part of the architectural vocabulary. Dan Fox asks why it is these two sectors that brought the big tents into the urban fabric.

In 1972 the lightweight building was no more than a futuristic vision. Frei Otto and Gunter Behnisch's Munich Olympic Games Complex changed all that, its undulating arrangement of perspex tents announcing the arrival of the tensile structure. Even today, no technique could have better encapsulated Germany's rejection of the monumental Classicism of Werner March's 1936 Berlin Olympic Games Complex, and its political re-orientation as the new heart of a modern Europe.



When SOM's 1979 Hajj Terminal in Jeddah (to this day the world's largest fabric-covered space) did for transport terminals what Munich did for stadiums, the writing was on the wall. Fabric's future as a building material would be made or broken in these two sectors. This is borne out in any list of world-renowned buildings which feature fabric. The engineering breakthroughs came with projects like Denver Airport, Hamburg Tennis Stadium (Schweger and Partner, fabric by Koch Hightex) and the Georgia Dome (FTL Happold/Thompson, Ventulett and Stainback Associates, fabric by Birdair).

Japanese tensile structure engineer Jhang Zhu, of stadium specialist AXS Satow explains: "You need natural light, you need shelter, you need to span a long distance, and you need signature, but that's all you need – Grand Central Station's Gothic stone atriums are all very nice, but incredibly inefficient."

And the evidence is that there's still no better way. The state-of-the-art Sydney Olympic Games complex showcases cutting-edge approaches towards both sport and transport design. The lightweight look of white steel and translucent surfaces – a "response to climate", according to Stadium Australia designer John Baker – is ubiquitous. Look no further than Stadium Australia itself (Bligh Lobb Sports, polycarbonate sheet roof over steel framing), the Ferry Wharf (Alexander Tzannes, tensile tented canopies) and the Railway Station (Hassell, translucent zincalume decking).

Over in Brisbane, Daryl Jackson has just revamped the historic Gabba Cricket ground with a spectacular new stand and fabric roof (Velaflon by Skyspan). He suggests that the dynamism of fabric design makes an ideal architecture for the sporting environment: "There is no attempt here though to pursue a self-conscious sense of style. There is however a desire to make the tectonics a part of the action, to see both tensile and compressive forces deployed in bringing the structural expression to fruition as new-found, somewhat spartan, athleticism."

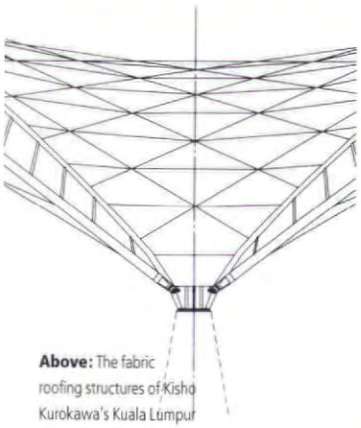
Murphy/Jahn's Munich Airport Centre Forum, 1999, exemplifies an endless list of fabric-dominated transport gateways which have come on stream recently. Jahn cites the regular geometries, which allow construction using pre-fabricated elements, and the ease of maintenance as the structural goals.

It is joined most notably by Kisho Kurokawa's 1998 Kuala Lumpur International Airport, which features conical columns supporting tented polycarbonate (H-P Shell) roofs across the main passenger terminal. KLIA is already considered an icon of 20th century architecture.

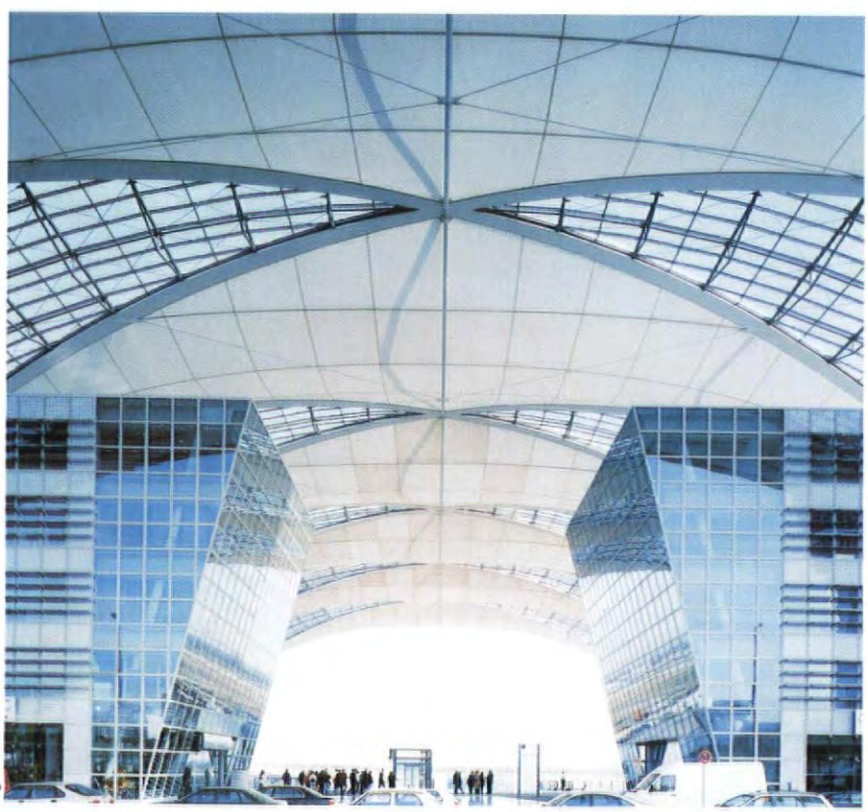
Stadiums and terminals have been an economically viable testing ground for a building material capable of lucid expression, and architects are still gratefully accepting the opportunity to create the instantly iconic forms that make public architecture popular and profitable.

no longer a gimmick

Left: Daryl Jackson's new stand at Brisbane's Gabba Cricket ground. Jackson cites "conventional technology for the fabric, innovative steel engineering for the structure; reducing cost by fire protecting the steel, and through small scale component assemblage" as key features

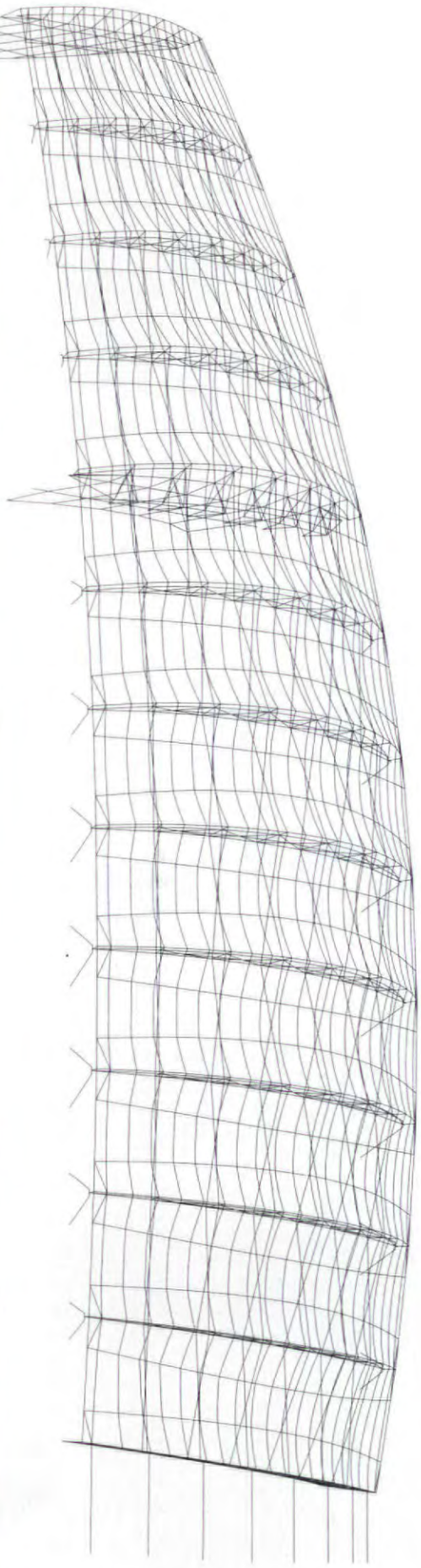


Above: The fabric roofing structures of Kisho Kurokawa's Kuala Lumpur International Airport combine to cover the main passenger terminal. Their tree-like forms create "symbiosis" with the surrounding forest – a design intent characteristic of Kurokawa



Engelhardt

Left: Murphy/Jahn's fabric and glass canopy at the Munich Airport Centre Forum. The structure covers two five-storey volumes, a vehicle drop-off point and a pedestrian plaza



Above: Line drawing showing the form of the Burjj-al-Arab's tensile fabric facade. It is braced at two points and tensioned over 12 curved trusses

Shady character

The biggest growth sector for architectural fabric is shade structures in the Middle East, where the ferocity of the sun dictates all urban development. Is this new growth in artificial environments – an idea first expounded by Buckminster Fuller when he developed the technique in the 1950s – an indication that we might at last be ready to build a covered city?

Soaring from the Red Sea outside Dubai is a 200-metre tall fabric facade. The scale of the construction, the complexity of the engineering and the function of the building could not be more alien to the vernacular style of the region, but the resounding analogy, the sail of a dhow, is acclaimed even by local critics.

The Burjj-al-Arab Tower, part of the Chicago Beach Hotel, designed and engineered by WS Atkins, is more than a demonstration of the most advanced fabric engineering. The canopy was erected purely to reduce solar gain and diffuse light for the full-height atrium created by the two-sided core structure.

The idea of using fabric to create artificial climates has been around a long time – since Buckminster Fuller, Frei Otto, David Geiger and Walter Bird first conceived the technique – but until projects on the scale of the Burjj-al-Arab appeared, there was little reason to believe it might happen. Now, the Middle East is switching on to the fact that fabric makes its spaces livable, and many experts believe it won't be long before this leads to the ultimate conclusion – the covered city.

The unique form of the Burjj-al-Arab, built to provide every room with a sea view, called for Atkins to develop new techniques to close off the land side of the atrium. David Dexter, the designer of the canopy, explains its makeup: "The double-skinned PTFE-coated glass fibre membrane (Skyspan Velaflon) is separated by an air gap of about 500mm and pre-tensioned over a series of trussed arches. The double-curved panels are able to take positive wind pressure by spanning from truss to truss and negative pressure by spanning sideways."

Mounting tension

The trussed arches, which can extend from the supports by up to 13 metres, are supported vertically at the 18th and 26th storeys by a series of cross-braced macaloy bars, anchored at level one and pre-tensioned to ensure the whole structure remains in tension. Project architect Bruce Wright says: "The tensile load is so strong that if the distribution were not perfect the core structures would be severely damaged."

But however sympathetic to context the Burjj-al-Arab, and others like YRM's British Embassy in Oman and HOK's Burgut Shopping Mall in Riyadh, are built with foreign money for a clientele with a global outlook. Aren't the guardians of the region's historic cultural heritage resisting this Western-developed style of building? Not so – at Makkah, site of the disastrous Hajj fire of 1997 which destroyed a pilgrim tented camp and took thousands of lives, German manufacturer Sonderkonstruktionen und Leichtbau has supplied 10,000 canopies made of fire-resistant Skyspan Velaplan glass fibre. They are still being put in place now – but the expected installation time is no more than eight months. In Medina, Frei Otto's Velaplan sunshades at the Prophet Mosque, which open gradually as the sun passes over, have been overwhelmingly popular.

Birdair's Douglas Radcliffe offers an explanation for fabric's popularity in the region. "In Muslim culture, tent-like forms are much more widely accepted. They do not carry the inherent notions of impermanence that they do in the west. As a style, the tent is truly vernacular, evolved from climate and available materials."

Loitering within tent

Ten thousand fabric tents, or a 200-metre-high canopy, can control the climate over a pretty large area, but not entire cities. But, according to Millennium Dome designer and keen speculator Ian Liddell, of engineer Buro Happold, what we learn from them puts us closer than ever to making that covered community a reality. "Bucky Fuller came up with the idea years ago. But we actually put together a real proposal for an air-supported covered city once."

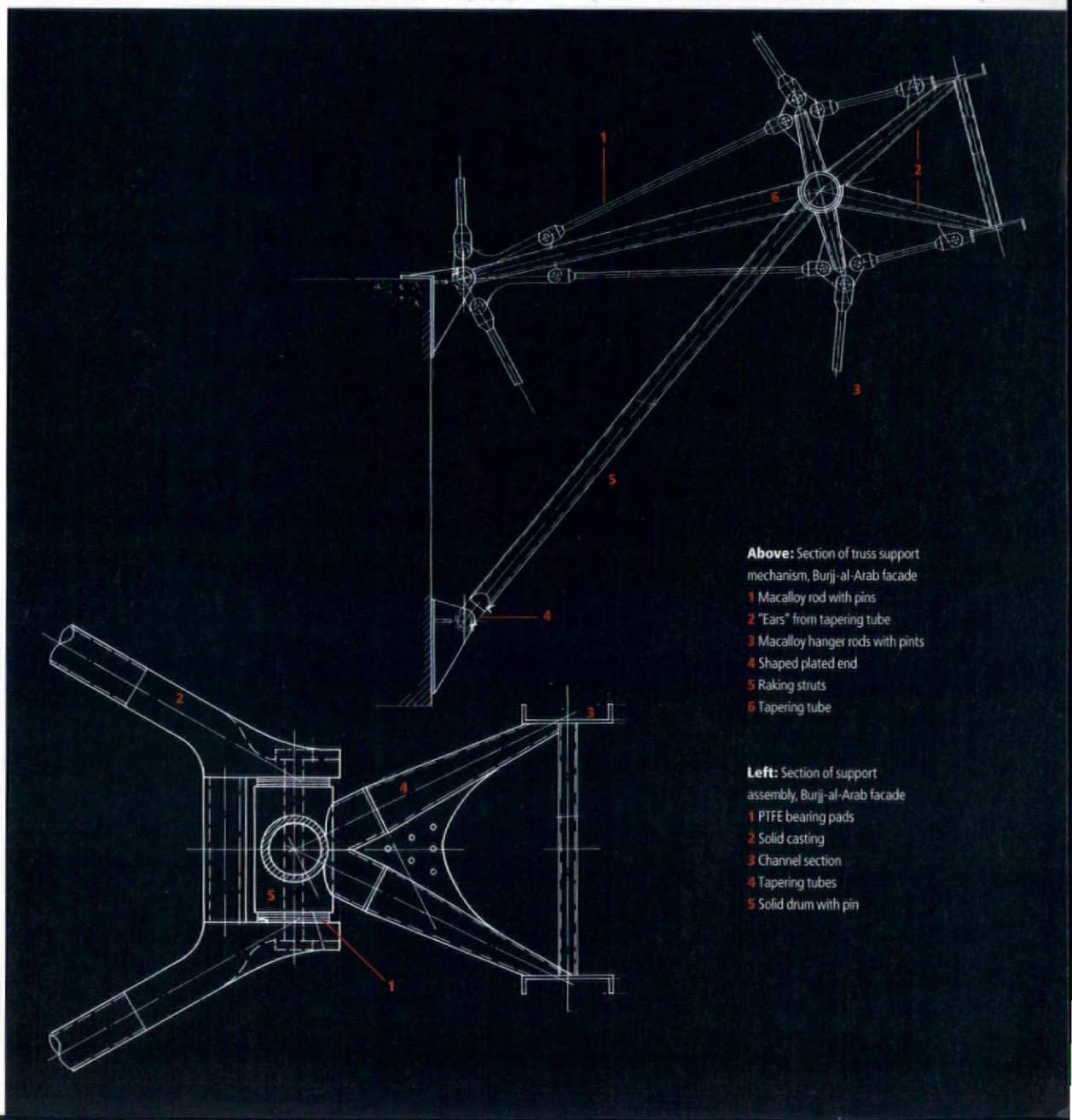
Buro Happold's design with Frei Otto was for a drilling town in Northern, Alberta, Canada. It comprised a cable reinforced ETFE foil roof prestressed by internal air pressure, covering 14.5 hectares (twice the area of the Dome). "The problem with an air-supported structure

Above: The Burjj-al-Arab, showing WS Atkins record-breaking 200-metre canopy – an engineering feat. In the foreground is an example of the vernacular – fabric has long been in use in the region

is water – you need it inside but get the risk of condensation. You can also loose pressure if your maintenance is wrong – which would lead to 'collateral damage'. But most of those potential problems have been solved by now." In the event, the drop in oil prices put paid to the project.

"Desert climates have the opposite problems," Liddell continues. "There is low humidity and high dust. But there is a definite need for shading. You use PTFE-coated glass fabric for that – it's reflective, and it's easier to get cool air to stay on the ground than warm air. The structure would be bigger and flatter than the Dome. At the moment in the Middle East water is taken from wells and it's running out fast. Extensive shading would humidify the desert climate."

The technology required to build the Millennium Dome has been around for years, although it took a particular political, cultural and financial climate to actually get it built. Burjj-al-Arab shows how far the technology involved in, and the commercial demand for, large-scale climate control structures has come. No longer is a fabric structure seen as just "roof", a perception that Fuller never intended. So is the will to take the next step there? Concludes Liddell: "You'd need a benefactor, so perhaps something like a university type campus would be where it might happen. But I really don't see why not..."



Above: Section of truss support mechanism, Burjj-al-Arab facade
1 Macalloy rod with pins
2 "Ears" from tapering tube
3 Macalloy hanger rods with pints
4 Shaped plated end
5 Raking struts
6 Tapering tube

Left: Section of support assembly, Burjj-al-Arab facade
1 PTFE bearing pads
2 Solid casting
3 Channel section
4 Tapering tubes
5 Solid drum with pin

You again...

The world looked on in awe as Buro Happold and Richard Rogers' Partnership erected the Millennium Dome. The idea of building a canopy of such incredible scale is nothing new – but nobody had proved it could be done. WA shows you how – and why it's so special.

WHAT THEY SAID...

"It was never the design intent to create an icon in quite the way it turned out. It was just seen as a cover. Nobody knew it would be taken in the way that it was. People keep reinterpreting it, putting different iconic values on it.
Ian Liddell, Buro Happold, Dome engineer

The size, complexity, integration of architecture and engineering, and the conception and verve of this enormous project, make it a... work that expresses the scale of vision represented by architecture in the 1990s.
Richard Meier, *World Architecture* 10th Anniversary juror (see *WA*78)

Buro Happold has used existing technology in a very innovative way. Building the Dome is a more cost-effective solution on that site than the original proposals
Professor Geoffrey Hewitt, Royal Society of Engineering (UK)

Growing interest in large scale structures like the Millennium Dome means more designers are incorporating fabric in their projects. We're due for a far greater interest in tensile canopies and shade structures, and overall growth in the fabric architecture industry.
Bruce Wright, editor, *Fabric Architecture* (US) "

THE PUBLIC 'WOW' FACTOR

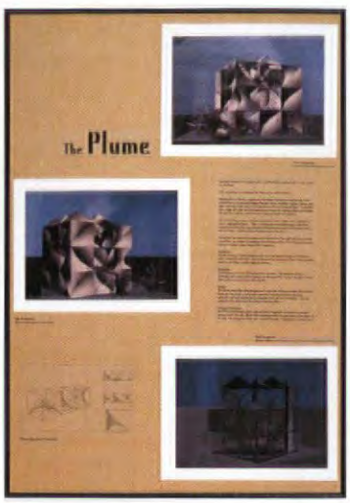
- The circumference of the Dome is 1 kilometre, its diameter 320 metres. It is 50 metres high at its centre and each mast is 100 metres long. It's the largest dome of any kind in the world.
- PTFE-coated glass fibre was chosen over PVC for its superior lifespan and ecological credentials. Nearly 200,000 square metres were installed. It's the largest ever single fabric structure.
- The cable net arrangement comprised 70 metres of cable. The innermost circumferential cable is a tension ring. It supports the dome cap and 72 pairs of radial cables running to the ground.
- The structure is so strong you could sit a jumbo jet on top of it.
- The weight of the air inside the dome – 2.1 million cubic metres – is greater than that of its structure.
- Laid on it's side, the Eiffel Tower could fit inside it, and it could contain the Great Pyramid at Giza. It sits in both the Eastern and Western hemispheres.

THE PROFESSIONALS' WOW FACTOR

- To resist the uplift forces from the tensioned cable structure both screw-in anchors and grouted cable anchors were used.
- Tensioned steel cables are arranged radially on the surface of the Dome and held in space at the nodes by hanger and tie-down cables at 25-metre intervals. Both the tensioned cables and cladding carry the loads by deflection, accompanied by some increase in tension.
- At the perimeter the radial cables were collected by catenary cables to 24 anchorage points at ground level. To resist the cable forces is an arrangement of vertical anchors with a ring beam to take the horizontal component of the forces.
- The roof shape with tapering segments prevents ponding under rain or snow loads, because as the span of the fabric panels increases, their slope also increases.
- To prevent the circumferential cables causing dams at each circumferencial line, they are held above the surface of the cladding with rigid members (wishbones) and connected to the nodes with criss-cross cables.
- To control the deflection of the radial cables, each of which spans 25 metres, a pre-tension of 400kN, about two-thirds of the peak tension was used. The prestress in the fabric was to be 4kN/m.
- The masts are constructed from eight 323-millimetre-diameter steel tubes braced with rings at 2.5 metre spacing. The cables are connected with radial plates at the top and bottom, arranged to ensure that the cables theoretically meet at a single system point.
- During the design development stages the structure was analysed using Tensyl, the BH software specifically developed for tension structures. It can calculate the form of the structure under specified tensions.

Different spokes

Membrane structures can take many forms – pyramid, coil, crysalis – and any one of them are potential neighbours of the Millennium Dome, as envisaged in student entries to a worldwide competition.



Left to right: Fabstruct 99 entries – Victor Hugo Roldan Gonzalez (Mexico City, Mexico); Masanobu Hino, Kohei Kawabata and Joaquin M Oleastro (Kyushu, Japan); Roy Oei (Toronto, Canada); Andi Neidl (Toronto, Canada)

The Fabstruct student design competition is regarded in the membrane structure design community as a key breeding ground for tomorrow's stars. The 1999 competition called for a hypothetical international student centre, to open on the eve of the millennium on the Millennium Dome's Greenwich Peninsula site. Entrants from 12 countries submitted work to a jury which included Ian Liddell (engineer, Millennium Dome), Tian-Fang Jing (long-span specialist and veteran of the Georgia Dome and Shanghai Stadium) and Denis Hector (author and director of graduate studies at the University of Miami's Graduate School). To the surprise of the American organisers, and for the first time in the competition's three-year history, none of the winning entries originated from the US.

First place

Victor Hugo Roldan Gonzalez (Mexico City, Mexico) – V-260575

"Pyramids have always been a transcendental element in the history of mankind – as a symbol of vision and architectural purity, and as a monument and icon in ancient cultures.

"The membrane is of PVC-coated polyester. The metal structure is made of narrow stainless steel (mostly traction-working members) making the building aesthetically and structurally neat. The inner part of each pyramid face holds a tensegrity system which pulls the membrane, from three points, to the interior through circular steel plates. The membrane is pulled to the exterior by three cables in the centre of each triangle."

Second Place

Masanobu Hino, Kohei Kawabata and Joaquin M Oleastro (Kyushu, Japan) – Ra-Sen-Maku

"The spiral supports the coil-shaped membrane, made of Sheerfill-V. It is constructed with high-resistance flexible steel with circular sections that slide through two large steel columns, allowing the membrane to move freely while generation different heights and shapes.

"Half the box is underground. Topping the box is a moveable, multi-functional space supported by a hydraulic system which travels up and down according to the needs of the event."

Third place (tied)

Roy Oei (Toronto, Canada) – Fab Structure

"I decided not to hide the structure, but to express it. The truss masts curve out along the same lines as the membrane wings. The masts support and accentuate the roof with a visual contraction. The tall masts are transparent, a design reflective of the Millennium Dome.

"Cables stemming from the masts tension the wings. The voluminous domed shapes are held by triangular trusses running diagonally from the x and y axes, meeting at the apex of the dome. The double-curved surface is enhanced by the use of rigid cables. Because of the high intended occupancy, PTFE-coated glass fabric was chosen for its high durability and dirt- and fire-resistant properties"

Andi Neidl (Toronto, Canada) – The Plume

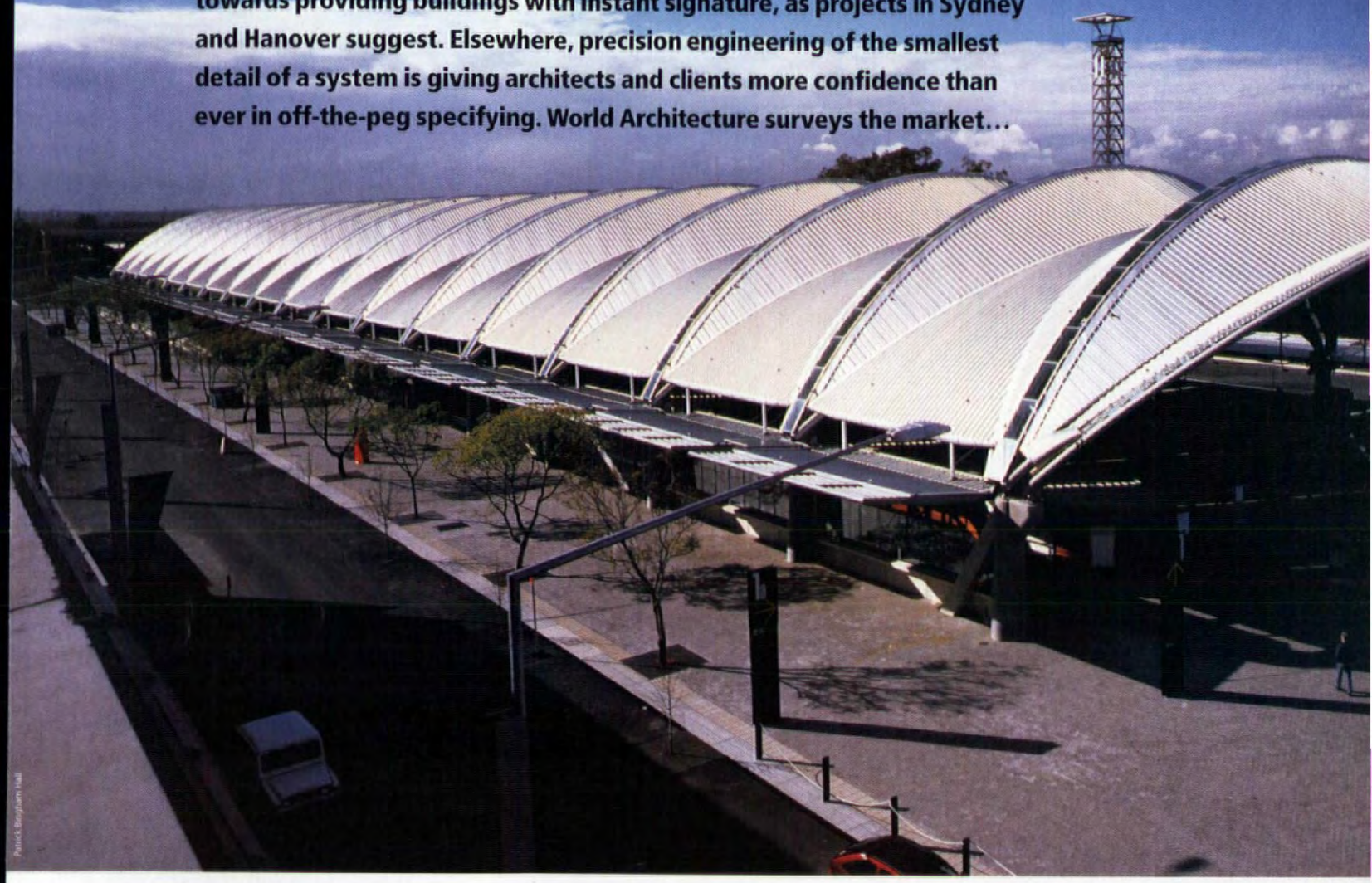
"The Plume, in concept, lies somewhere between the modular nature of the metabolist movement and an insect chrysalis. The PTFE-coated fibreglass fabrics take the form of hyperbolic paraboloids that occupy a portion of a 9-metre by 9-metre cube. All the fabric membranes share a common point in the centre of the cube – the intersection of the cube's internal diagonals.

"The clamp for the fabric runs the length of the rod and fabric joint with a broad surface to minimise tensional point loads on the fabric – to distribute the tensional force evenly across the edge of the fabric and from the fabric to the structure."

Left hand page photograph: Philip Tanner

System addicts

Commercially available roofing components are increasingly geared towards providing buildings with instant signature, as projects in Sydney and Hanover suggest. Elsewhere, precision engineering of the smallest detail of a system is giving architects and clients more confidence than ever in off-the-peg specifying. World Architecture surveys the market...



Patrick Bingham Hall

Above: Hassell's Olympic Park Rail Station, Sydney

Sydney's new Olympic Park Rail Station, winner of both the Royal Australian Institute of Architects' prestigious Sir John Sulman Medal and the Sir Zelman Cowan Award, is really little more than a roof. It's the latest example of how, with rigorous design and meticulous specification, a roof can do all the talking. With lightweight materials and computer-aided engineering, you're likely to encounter the outer limits of your imagination before being confronted with structural impossibilities. And isn't that just as it should be? After all, providing shelter is the first object of architecture.

Hassell, the architect of the Sydney station, is rarely seen as the award-winning type, and any awards are as likely to be from the Australian Property Council as the RAIA. But the steel-framed roof, a series of identical repeating vaulted roof trusses infilled with glass and "zincalume" panels, expresses the metallic nature of the modern materials while referring to the great railway stations. Translucent glass admits light which is then reflected on the steel panels, addressing the green agenda and suggesting the permanence required of such public architecture.

Often overlooked as a material with which to make bold architectural statements, zincalume, from BHP Steel, comes into its own here. Its alloy coating of 45 per cent zinc and 55 per cent aluminium significantly increases corrosion resistance, so the look may be lightweight but the permanence is guaranteed. It also imparts a striking satin finish. Although this will eventually fade (fortunately without powdering, cracking or peeling), in the case of Sydney Olympic Park Station it will be well after its big moment.

Station architect Ken Maher sums up the specification and design intent: "The roof evolved from the design concept of a sheltering canopy lifted above the station excavation, allowing for natural lighting and eliminating the need for mechanical ventilation or smoke exhaust equipment. The distinctive form arises from its structure. Simple elements are assembled to make a unified whole – singular, direct and clearly expressing materials and assembly. This is an architecture celebrating transitional space."

Hanover is another city due to thrust itself into the spotlight this year (see Hanover Expo preview pages 40 to 45), and it's not just the architecture on the Expo site that is getting noticed. Hascher and Jehle's DVG 2000, a "high fashion" CBD office development, features a spectacular

glazed space-frame construction supplied by php Glastec Systeme.

KoSa, another firm with a major presence in Germany, has seen its own contribution to the roofing market specified at one of the country's major projects, Seigel and Partners' Gottleib Daimler Stadium in Stuttgart. The cantilevered membrane roof was planned and built in only 18 months, and weighs only a sixth of its steel equivalent. The curved roof is shaped like a spoked wheel on its side and rises to 58 metres high.

KoSa's part in the project was about as far from architectural design as you can get – the company specialises in manufacturing the polyester yarn which is ultimately woven into fabric sheeting. Even at this level of detail the performance engineered into the product is impressive – KoSa's high-tenacity polyester yarn is fire-resistant, lasts 25 years (when woven and coated with Teflon) and, of course, extremely lightweight (the product's predecessors enabled the creation of Rod Robbie's Tornoto Skydome, the world's first retractable roof stadium, in the late 1980s).

Completing a hat-trick of high-quality German roofing achievements is the Architectural Stainless Service Centre of Netphen, whose products and installation expertise made possible the renovation of the historic church of Haiger, in the heart of the former East Germany, and at the opposite end of the scale the Ludwig Erhardt Haus, Nicholas Grimshaw's design for the Berlin Stock Exhange. Haiger used a panelling system using Nirosta steel from Krupp-Thyssen, using the existing roof as a substructure. Seam-welded stainless steel sheets, absolutely watertight even on flat roofs, were covered with gravel to counteract wind suction loads, and fitted with drains to remove excess water. The manufacturer claims an unlimited lifespan for the roof: the warranty is valid even if the installation company folds.

The Sharkskin steel on the Grimshaw building is a more aesthetically evolved product, the wafer-thin dulled silver panels on the barrel-shaped structure are as malleable as fashionable titanium cladding. They also offer an excellent rust-free lifespan and can be cleaned, maintained and replaced cheaply.

Hoesch has released the latest of its detailed range of metal roofing systems in the imaginatively named Roof System 2000. This lightweight, high load-capacity galvanised zinc-coated steel solution can span 10-metre gaps – as at Dresden Airport's new Terminal 2, which also employs the company's tried and tested Galvalume aluminium decking, and Pladur non-corrosive coating which guarantee a lifetime's protection.

Avesta Sheffield's HyClad finishes are gaining ground – thanks to their specification on world-famous projects like Cesar Pelli's Petronas Towers and Richard Rogers' European Court of Human Rights. The corrosion resistance of the material means it can be applied in very thin gauges, considerably reducing load on a building. And Hoogovens Kal-Zip aluminium system, as seen at Bluewater in the UK and the new Senoka Market in Singapore, notable for its 40-year durability, low-maintenance and few joints, has shot up in popularity, with 400,000 tonnes sold last year.

Don't be roofless

You can find out about the latest trends and obtain detailed technical information on the roofing industry through the Internet.

Manufacturers

Zincalume
www.spectel.co.nz/colorsteel/bhp/marketing/Zincalume.htm

Architectural Stainless Service Centre
www.assc.de

Kosa
www.kosa.com

Hoesch
www.hsw-si.de

Avesta Sheffield
www.avestasheffield.com

Hoogovens
www.hoogovens.com

Information

Asphalt Roofing Manufacturers Association
www.asphaltroofing.org

Professional Roofing Magazine
www.professionalroofing.net

Metal Architecture Magazine
www.moderntrade.com

National Roofing Contractors Association (US)
www.nrca.net

Metal Building Manufacturers Association
www.mbma.com

Construction Asia
www.constructionasia.com

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The manufacturers advertising in this issue are listed below and will provide you with the latest product information or literature to service your planning requirements. All the relevant contact information is supplied for your convenience. However, if you experience any difficulty in reaching a company please call or fax the WA enquiry service on tel +44 (0)20 7560 4120, or fax +44 (0)20 7560 4026.

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Fax: +1 678 686 5104
Web: www.lightfair.com
Email: angelaa@lightfair

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Fax: +816 3 992 731

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Fax: +49 (0) 2241 1605-16
Web: www.RAL-Colours.de

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Wilkhahn GMBH

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

http://www.wilkhahn.com

Polar Blox

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

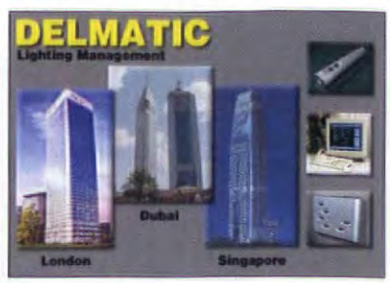
http://www.polarblox.com

ERCO Lighting Limited

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

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

http://www.erco.com

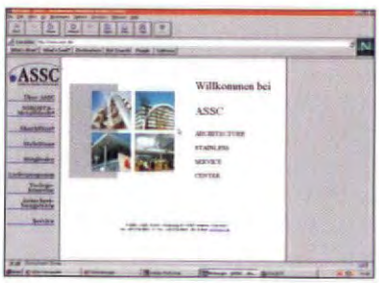


Delmatic Lighting Management

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

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

http://www.delmatic.co.uk



ASSC GMBH

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

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

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

http://www.assc.de

Liquid Plastics

Detailed technical information on Liquid Plastics' extensive range of protective coatings and seamless flooring systems can now be accessed on the internet as the Preston-based company has launched its own website.

The easy to navigate website is designed to enable architects and specifiers to instantly obtain specification details on LPL's liquid roofing systems, hygiene control coatings, external wall coatings and both decorative and industrial flooring systems. Containing over 80 pages of information, BBA certificates and literature containing technical drawings can be downloaded in PDF format.

http://www.liquidplastics.co.uk

Albrecht Jung

JUNG is one of the leading manufacturers of high quality electrical wiring accessories. The website is showing a summary of available devices/ranges, informs on the company's history, gives information on world wide sales contacts and of course offers down load possibilities for technical EIB instabus data base.

New Feature: Radio control management.

http://www.jung.de

NACO Srl

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

Tel: +3906 841 5949.

http://www.naco.it

RIBA BRIEFING

Website visits

Global networking is rapidly increasing traffic to www.riba.net. With an institute presence now firmly established on the Internet, the RIBA website is building bridges to other destinations – with remarkable results.

Active links between the RIBA site and other related destinations are focusing interest on the world's primary source of archived architectural information: the RIBA Library. Within a week of setting up a two-way Internet link with the Oregon-based Great Buildings website, the number of visitors to www.riba.net doubled, adding more than 1,000 visitors a day.

The site at www.greatbuildings.com documents hundreds of buildings and architects and features 3D models, photographs and drawings; it has one and a half million visitors a year. One click from a page takes the user directly to RIBA's online library catalogue and generates a list of references.

Meanwhile, the catalogue itself now has an online noticeboard, offering reading lists and other sources of information. Lists are updated weekly, and new topics added on a regular basis; members are invited to nominate subjects of interest.

Topics so far have included: new acquisitions – books; guides to the library online catalogue; UK architectural journals; brownfield development; Building Regulations – Parts B and M; Disability Discrimination Act 1995; electronic data interchange; London Eye; Movement for Innovation (M4I); partnering; prime contracting; pritzker prize winners; RIBA Royal Gold Medallists; Stirling Prize winners; and Wembley Stadium.

The RIBA's Appointments Bureau site at www.riba.net is also logging substantial increases in traffic, with applicants now able to use email forms.

Charity begins at work in Architecture Week

UK practices are preparing for a nationwide scheme which will allow local businesses to get architectural advice on how to improve their working environment.

Thousands of architects are expected to register for the Architect in the Office scheme, a new initiative being run as part of this year's Architecture Week. In return for a donation to the homeless charity Shelter, companies will be able to call in participating practices for a short consultation.

As well as raising money for a good cause, the scheme will showcase the profession's problem-solving skills. Business clients will be seeking advice on how to use existing space more efficiently, how to adapt space to changing work patterns and how to plan for expansion. Architects will also offer professional advice on creating or improving working conditions for employees and on energy and environmental efficiency. In return for the informal advice, participating businesses will be asked to give a minimum donation of £50 to Shelter.

This is the scheme's first year, but it has already created considerable interest among businesses and architects alike. A sister scheme, Architect in the House, has been running for the last three years, and has raised over £75,000 for Shelter.

Any business, large or small and from any part of the UK, can take part in the scheme, which will run as part of Architecture Week from June 9 - 18. There is no obligation to follow the advice of participating architects or to commission them in any future project. The scheme will, however, focus the attention of the public – and potential clients – on the profession's unique ability to combine space planning and strategic design services.

Marco Goldschmied, president of the RIBA, said: "Architect in the Office offers huge potential for architects and businesses alike. As well as demonstrating the fact that architects have unparalleled expertise in the evolving area of office design, the scheme will raise much needed money for Shelter to carry out their exemplary work for the homeless."

Shelter director Chris Holmes said: "Shelter's partnership with the RIBA has been incredibly successful, and we are keen to develop and expand our relationship. Last year over £45,000 was raised and this year looks set to be even better. It is support like this which means Shelter can continue to make a real difference to homeless people, with the aim of securing safe and permanent homes for all."

Architect in the Office and its sister scheme Architect in the House - in which architects provide free consultation to householders in return for a charity donation - are just two of the highlights of Architecture Week in June. A joint RIBA/Arts Council of England initiative, it aims to demystify the work of the architectural profession, and to encourage people to find out more about the built environment.

The RIBA is also seeking architects willing to take part in Open Practice, a scheme which invites members of the public - including students, and schoolchildren thinking about a career in architecture – to see how a practice operates. This year, participating practices will open on June 16 and 17, allowing visitors to make tours of several offices in the same area.

For more details on Architecture Week, or information on how to register for any of the schemes, contact Hilary Clarke:

RIBA's people power

The RIBA has won official recognition for its organisational skills and staff development with an Investors In People accreditation. The IIP standard normally takes two years to achieve; the RIBA has got there in just 13 months.

The national quality standard sets out to improve business performance through setting objectives for the organisation and managing staff development to meet the aims. Achieving IIP status fulfils one of the key objectives set out in the RIBA's strategy document "Meeting the Challenge", which fixed a target date at the end of 2001.

The initiative was led by director-general Alex Reid, who said "To have been accredited by Investors in People says as much about the whole staff as it does about the institute. But I would like to pay tribute in particular to Christine Wright, the RIBA's training and development manager, who implemented the system and whose energy and enthusiasm have been essential to our success. The implementation of an appraisal system, which is a key component of IIP, has radically improved the way departments are managed. IIP accreditation will also help raise the esteem in which the RIBA is held as a professional organisation, committed to ensuring that it has a properly trained and motivated staff to promote architecture and the work of its members."

Notice of expulsion under disciplinary procedures

On 16 February 2000 the professional conduct committee of the ARB removed Wyatt G D Glass from the Register of Architects for a period of two years. In accordance with the revised disciplinary procedures, Mr Glass has also been expelled from membership of the institute for the same period.

Ribanet Conference

The shadowy area between enterprise and sharp practice is illuminated in Architectural Practice, which features a report of a dispute between an architect and a landowner.

An architect offered to apply to have some of the land included in the local plan. Although there was no formal appointment, the architect sent a letter saying he would go ahead with the application; the proposed fee was 5 per cent of the new land value. The complainant says he ignored the letter.

The local plan was reviewed and the land in question included in the plan. An approach was made by a developer and a sale agreed. Soon after, the architect sent an invoice for £15,000 to the landowner, who has since discovered that the architect is a partner in the development company.

In Planning & Urban Design, one member reports the Environment Agency objection to his rowing club extension: "It's on a floodplain". Notes have been exchanged in Technology Questions on the merits of single-leaf masonry and cavity walls, and on how to keep gables stable.

In World of Architecture are market leads for Canada, Brazil, North Africa, Egypt, Turkey and Mauritius. Reform of the CAS and rebranding of the institute are discussed in the RIBA.

Advice in Legal has focused on what to do if someone steals your design, and on copyright on building regs drawings. Opportunities in Enjoying Architecture include a working holiday restoring a house in the Caribbean. In Everything Else, a TVR S3 for sale, and a marathon runner looking for sponsorship.

Ribanet is free to members – 3,000 are now online – fax +44 (0)20 7307 3786 e-mail RIBANet@inst.riba.org

RIBA's good schools guide

Major initiatives have been launched by RIBA client forums to help shape future environments for a wide spectrum of user groups – from a new generation of school buildings to improved models of care for the elderly.

The common aim of all forums, which bring together design professionals and clients working in eight specific market sectors, is to promote best practice. The framework of regular meetings and special events allows representatives of the profession and those who commission them to share industry knowledge and to look for ways of achieving added value through design quality.

In education, the focus is on the publication of the schools client forum's new "Guide for Governors". Trailed last month at a series of regional debates, the guide is a user-friendly document designed to help governors manage the school environment. It also advises on client duties and responsibilities for procuring a building project, whatever the size.

"The guide is aimed at helping school governors appreciate what is involved in looking after and developing their buildings," said client forum co-ordinator Gurinder Purewall. "The first part of the guide gives common sense advice, emphasising that quality of design is a blend of good aesthetics and appropriateness and that architects, who have skills in spatial planning, can help you get the best from the buildings you have, whether or not you get involved in a significant building project. The second part of the guide describes what goes on during a building project, whether it's a major development or minor alterations."

Throughout the guide, whether addressing the management of the school environment or the project process, the emphasis is on being a "good client"; it offers a checklist of responsibilities and opportunities for maintaining and developing the school.

This month (April) sees two major debates covering issues in other sectors: a participating sports client forum debate on pre-project planning and cultural strategies, and a health client forum symposium on buildings and care for older people – "The Good Life". Increased life expectancy and demand for greater quality and choice is putting new pressures on current provision and practice. Speakers at the symposium will address the challenges facing the care community and the latest influences on the design of care environments. There will be a series of case studies looking at a range of solutions from integrated housing to nursing home provision.

For further information on the events, or the work of client forums, contact Gurinder Purewall on email client.forums@inst.riba.org

Portland Place gets wired

One of the most ambitious exhibitions ever hosted by the RIBA opens this month, exploring the evolution of the city and mapping urban challenges of the future.

"London Living City" at the RIBA Architecture Gallery, running from 14 April until 9 July, aims to engage visitors through interactive technology and to show how, from the scale of turning on a tap to government policy on transport, all our actions can have a staggering impact on the global environment.

Powered by solar panels mounted on the building, the free exhibition will demonstrate how architecture, technology and engineering can come together to produce revolutionary new ways of creating sustainable urban environments – a key theme for RIBA activities this year.

A video projection installation, London 2000, will give a vivid impression of how the city has grown from Roman times and will show how London works – or fails to – by tracking the flows of materials, energy and information through, in and out of the city.

The RIBA's own listed 1930s building will be wired up in a project called "Sensing the City", in which its use of energy and resources will be monitored, from the water and electricity coming into the building to the waste – paper and human – going out. The changing information will be presented minute by minute and compared to other buildings around London, which will also be monitored. This graphic demonstration of how natural resources are used has been developed in association with the BRE.

"Components of Ecological Cities" shows future sustainable solutions for London and examples from around the world of projects, materials and policies. Projects exhibited include a sustainable housing development by the Peabody Trust and Bill Dunster Architects, CZWG's proposed scheme for a solar-powered village and Foster and Partners' energy efficient Greater London Authority scheme.

There will also be video interviews, access to the internet and response booths to allow visitors to make a comment or search for more information. Films, including some made by Herbert Giradet for Channel 4, multimedia packages, drawings and models will animate and explain "the living city". An "Urban Allotment" will take over the terrace at the RIBA, with experts using the garden to explore options for urban agriculture.

Exhibition curators are Urban Futures (Girardet and charlick + nicholson architects).

Legal and practice

THE FUTURE ACCORDING TO YOU

New economic research in the US shows that growth in architecture continues unabated. It also highlights new concerns in the profession – managing workloads and acquiring qualified staff are at the top of the list. But even if you survived the millennium, you may be yet to pay for Y2K...

Conditions resulting from the strong economy are top of the list of concerns at US practices, according to a recent AIA "Work On The Boards" survey. Over 37 per cent of firms mentioned managing project workloads as a major worry, with 31 per cent citing the hiring of qualified staff. Despite this, a significant number indicated that they expect to be dealing with the onset of an economic downturn next year.

Businesses cantered into the new century with solid increases in the pace of billing. There was no discernible end-of year fall-off, a pattern you can generally set your watch by. But the strength of the economy in the latter half of 1999 was to some extent boosted by borrowing against Y2K activity. Although the anticipated stock market and operational problems did not materialise, the technology borrowing by companies in anticipation did inflate the economy, and a marked slowing down in the is predicted for the early part of 2000, at least in the figures.

In another report taken from a sample of architects in California, asking practices about their likely business strategies for the new decade, the growth of international work was strongly highlighted. Not a great surprise, but the efforts of the larger firms preoccupied with the earning potential of overseas work seem to be tangibly trickling down. While 70 per cent of respondents from firms with over ten qualified architects will be aiming to increase their overseas earnings, a considerable number of sole practitioners, 48 per cent, had the same idea.

It figures when you consider that the US economy has outperformed the international economy for several years, and all the indications

DON'T GET TRIPPED UP BY CLAIMS

"Claim" is one of the dirty words of the AEC industry. Every claim made against your firm puts your reputation and business on the line. Handle it badly and a claim can wreck your corporate image, ruin existing and future proposals, and lead to disastrous legal outcomes.

There are several steps in processing a claim, and proper documentation is essential.

- Each formally presented claim should be sequentially numbered and a copy promptly sent to the project manager and to the client.
- A letter is sent to the contractor acknowledging receipt of the claim. Ignoring a claim until the end of a job will hamper the possibility of an early and successful settlement.
- Set a "reasonable time" in which to respond to the claim, and advise the contractor of this time frame in the letter of receipt. Some claims are sufficiently complex that a 60-or 90-day response time is reasonable. A 30-day response time is adequate for simple claims.
- Immediate denial of a claim may trigger arbitration or litigation. Once this occurs, quick settlement is almost impossible.

An analysis of the claim should be given a high priority:

- All facts checked for accuracy
- Records kept for negotiation/settlement purposes
- All project records reviewed to make a complete file on the claim event.
- Field records, schedule submittals, payment applications, meeting minutes, photographs, and telephone conversation memoranda should all be researched for anything related to the claim and filed for efficient retrieval.
- The contractor must prove the case and submit all documenta-

LANDSLIDE VICTORY

Earthquake-resistance is ingrained into the building design process in many parts of the world – but landslides are as big a killer. The American Planning Association is aiming to bring landslide-proofing on to the international agenda, educating architects and planners in the process.

The American Planning Association has discovered that the weight of federal attention devoted to the inherent hazards of landslides is significantly behind that afforded to other natural disasters such as earthquakes and floods. Its response has been to announce a programme of research on designing settlements and infrastructure resistant to landslide damage and human casualties. It will be made available to architects and planners on the ground as it progresses, through a website and a series of CD-Roms.

Surveys in the US show that in CBDs and suburbs throughout the world, increasing pressure to develop is being brought to bear in landslide-sensitive areas. Landslides cause one to two billion dollars in damage each year in the US alone and claim as many as 50 lives. That's more devastating than all the other natural hazards combined. They affect utilities, transportation, and all other forms of infrastructure, whether public or private.

There are reliable techniques for the identification and mitigation of landslide hazards, many of them developed by the US Geological Survey and Federal Emergency Management Agency. The APA programme will ultimately incorporate

"In CBDs and suburbs throughout the world, increasing pressure to develop is being brought to bear in landslide-sensitive areas."

are that the international economy is catching up. Architects, manufacturers and engineers will be looking beyond their own shores to capitalise on economic buoyancy in other regions – a situation that in some way mirrors that of the early 1990s, the difference this time being that then the practice of globalism is not lagging behind the theory.

Design/build will be another principle feature of post-millennial practice. Among the larger firms, 79 per cent predict a significant increase in design/build activity before 2003, despite suggestions of a backlash against the corporate "one-stop-shop" trend and a return to "boutique" design and niche specialists.

A decline in commercial construction is expected. Although overbuilding of offices is not yet considered a major problem, vacancy rates have risen throughout the year, and are hovering at around 20 per cent in some southern cities. Critical mass has been reached in retail (but solid and sustained consumer spending is keeping the sector ticking over) and hotel building is dropping off significantly. The brightest spots are in public building – demographic patterns are leading to a healthy increase in school buildings.

"Architects, manufacturers and engineers will be looking beyond their own shores to capitalise on economic buoyancy in other regions."

The concerns of architects accurately reflect the concerns of the economic forecasters - nervousness about over-expansion and awareness of the revenue to be generated from international sources belie an acute economic sensibility in today's practices. Another factor which may not have been present during the last economic boom.

tion and data concerning the alleged claim. If gaps or holes appear in the contractor's submittals, ask for substantiating records of the contractor responses.
- The reviewer should handle the merits of a claim separately from an analysis of entitlement to time or money.

A proper and objective analysis of a claim should consider all viewpoints and identify:
- What actually happened
- When it happened
- Who was responsible
- How the contract documents should be applied to the claim situation.

When the engineer, contractor, and reviewer are satisfied with the analysis and recommendations, they should discuss the proposed settlement. If negotiations are necessary, keep a record of all agreements, disagreements, and compromises. Include the supporting rationale.

If an agreement can be reached within the recommended limits, the client approves the commitment. After approvals, a change order will be issued to permit payment to the contractor. A change order records the final resolution of a claim.

If an impasse does occur, the claims analysis, recommendation, and all supporting data and documents are submitted to the client for review.

After legal review, the claim may be rejected with explanation, or additional information may be requested and negotiation recommended.

If there are still outstanding claims after the final acceptance, they can be excluded from the Final Release Certificate and Indemnity.

With thanks to PSMJ Resources, a provider of business training, information and consulting.

this data into a range of formats, ostensibly aimed at US professionals but available worldwide:
- A guidebook bringing together the science, the practice, and alternatives for planning and zoning for landslide hazards – to be seen as the industry standard.
- A training and workshop program for architects, local planners and planning commission members.
- A series of GIS and computer-based mapping and analytical tools with relevant national-level remote sensing data from federal agencies.
- A curriculum outline for use by planning schools to incorporate this topic in planning programs.

The approach will account for the diversity of the audience, whose planning functions and responsibilities vary widely in their scope, purpose, and intent (for example, local governments prepare long-range, community-wide plans, and they adopt land-use control tools, such as zoning and subdivision ordinances, whereas state governments provide enabling legislation and coordinate emergency response in times of disasters).

The initiative was launched with the APA's Landslides 2000 Symposium in February, which scoped the guidance document on planning for landslides and earth failures. It will cover best practices for identifying landslide-prone areas in advance of landslide disasters, and alternative approaches to handling such areas in the fundamental land-use planning documents of a city, town, or county. It will also recommend optional language that might be incorporated into state statutes that govern how planning, zoning, and subdivision control is executed at the local level.

Architects and other interested parties can follow the research as it become available on the website www.planning.org/Landslides/. Further information will be available form the APA, American Planning Association, 1776 Massachusetts Ave., NW Washington, DC 20036-1904, Phone: +1 202 872 061, Fax: +1 202 872 0643.

Polemic

The strange world of Internet architecture

Opinions may differ about the long term prospects for the sort of Internet companies that are prepared to pay US$8 million for a website address like "business.com", but about the galvanising effect they have had upon the demand for architectural services there can be no question, particularly in the US where the whole thing started.

By the beginning of this year niche players and big design firms in the US were running as many Internet projects as they could manage. Nor were these particularly small or dubious commissions. Ranging in contract value from US$500,000 to US$2,000,000, most were squarely aimed at getting the largest amount of space they could for their money in the shortest completion date – a combination that nearly always ruled out new build and nearly always ruled in interior conversion work and design and build procurement.

The odd thing about this gloomy sounding combination was that in general it turned out not to be the formula for seven-day-a-week drudgery that it sounds. In most cases Internet work turned out to have a surprising quality of its own – a new kind of sophistication that expresses itself even in the context of cheap space, sheetrock wizardry and Ikea furniture. Strange as it may seem, design has emerged as the crucial element that can determine success or failure.

The reason is simple. Internet companies are surprisingly large-scale employers with start-up staff numbers of 140 or 160 not uncommon, and because the staff they wish to attract fall into a limited category – young, well-educated and very sensitive to style – they have to compete with one another to attract them. These hard-to-please employees don't want to work in standard office buildings or anything that looks remotely institutional. The watchword in the e-commerce environment is "disincorporation". The expensive, in-demand staff will only work at the right address in an informal but stylish working environment. In this sense the architectural design of these projects, their facade treatment (where there is one), front office and reception area, furniture and decoration, workstations and miscellaneous benefits have become recruiting tools. E-commerce may be as fast as McDonalds but it demands its own kind of architecture in a very competitive market. In the war to attract people, new cool offices with "team areas", free-drink machines, a basketball court, fussball games, pillows, a health club and designer names are important weapons.

The effects of branding by design combined with the need for speed may be gratifying, but they are also onerous. Pressure of time has Internet architects working seven days a week for clients who constantly change their minds and – backed up by inflated stock market quotations – frequently issue impossible demands in the manner of Le Roi Soleil. Because the new Internet companies have no infrastructure all they know is that they want "cooler" offices than their competitors and they have them on line in 12 weeks. The unspoken thought is that if they had to wait for as long as it takes to build a new building they would be out of business.

It may be ephemeral but the Internet architecture boom of recent months surely points towards the future. For years, even the fastest commercial development has been an unwieldy process, slow to begin, dogged by bureaucracy and hostage to fluctuations in the economy. When the game moves from new build to refurbishment, and from years to months, architecture may be hard but at least it is running at something close to the same speed as business.

"E-commerce may be as fast as McDonalds but it demands its own kind of architecture in a very competitive market."