
THE ARCHITECTURAL
REVIEW
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THINKING GREEN
Sauerbruch Hutton in Dessau Morphosis in LA

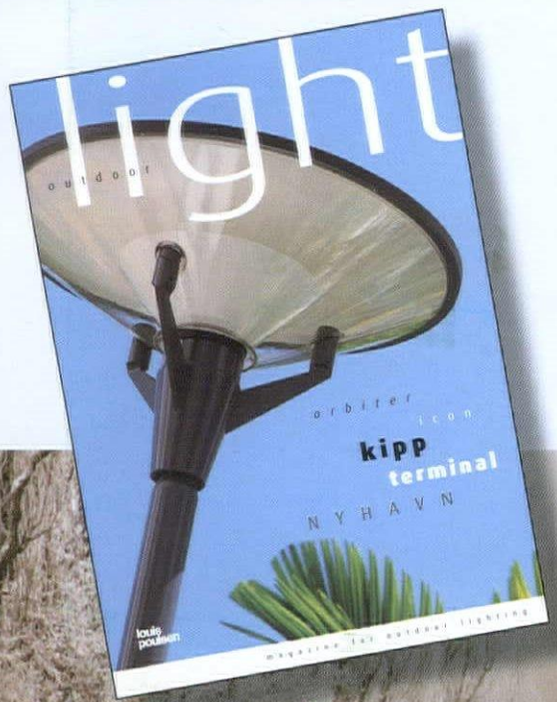
light

outdoor





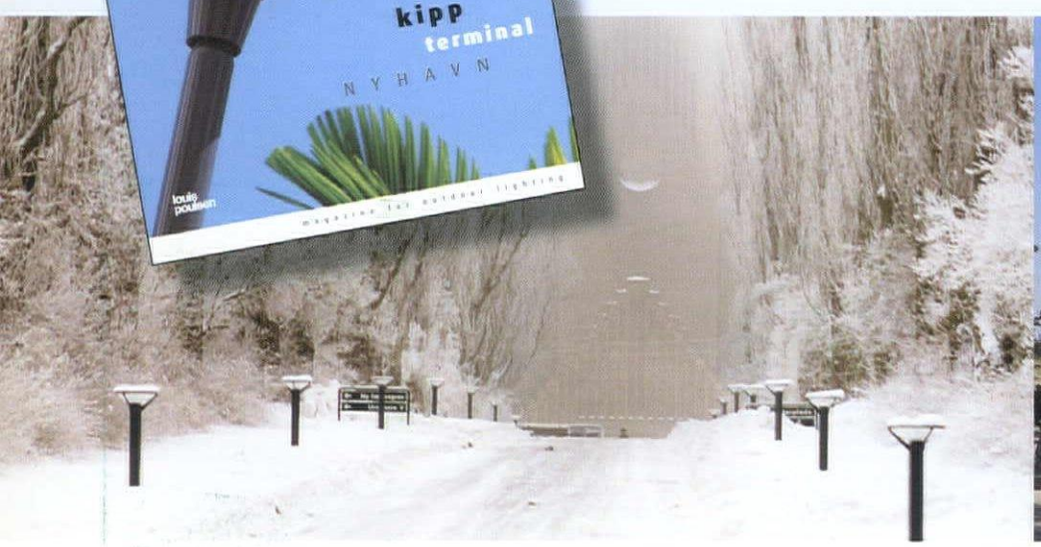




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The world's leading awards for young architects

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Sean Godsell
Sean Godsell Architects, Melbourne, Australia
Luis Mansilla
Mansilla & Tuñón, Madrid, Spain
Thom Mayne
Morphosis, California, USA
Paul Finch
Editor of The Architectural Review and Chairman of the Jury

ELIGIBILITY

1 Who can enter
Architects and people in other design professions whose qualifications are recognized by their local accreditation organization, provided that they are 45 or younger during the year 2005. Entries are encouraged from individuals, groups, partnerships, and those working for larger practices. Those working for larger practices must provide written evidence from their principal in the employing office guaranteeing the work is that of the entrant(s).

2 Completed work
The AR Awards for Emerging Architecture celebrate excellence in completed work. Entries can be made for any building, interior, landscape, urban or product design.

3 Categories
Categories will not be chosen beforehand, but decided on by the Jury. Entries to previous awards represented some of the following areas:

- Buildings – new build and refurbishment: offices, shops, schools, houses, housing, industrial, transport, restaurants, recreational, cultural, municipal and religious
- Interiors – new build and refurbishment: similar to building category, in particular restaurants, shops, houses, clubs and galleries
- Urban design
- Product design – light fittings, furniture, cladding, and structural systems
- Street furniture – lights, bus stops, bollards, signs and postboxes
- Landscape – soft and hard
- Bridges
- Temporary or portable structures – exhibition stands
- Theatre works

4 Age restriction
The age limit of 45 has been chosen on the basis that many emerging architects are unable to realise designs or develop an original vision before that time, either because of the long education and training period, or because of lack of opportunity.

WINNING ENTRIES

5 Prizes
The total prize money is £10 000 Sterling. The Jury may choose a number of winners and highly commended entries (there were four winners, three highly commended and eight commended entries in 2003; and five winners, three highly commended and 11 commended entries in 2004).

6 Publication
Winners and those highly commended by the Jury will be published in the December 2005 issue of The Architectural Review and on the website: www.arplus.com.

7 Prize-giving ceremony
The AR Awards prize-giving ceremony will be held in London in late autumn. The winners will be invited by The Architectural Review and Buro Happold to the event.

8 Lecture series
In spring 2006, winners will be invited to give talks on their work at the Royal Institute of British Architects in London as part of the RIBA's Spring Lecture Series (schedule to be confirmed). The programme of talks will be accompanied by an exhibition of winning entries at the RIBA.

9 Exhibitions
Winning and other highly commended entries will be exhibited at the prize giving and at subsequent exhibitions (schedule to be confirmed). Winning boards may be reproduced to protect originals.

10 Other media
We will provide information on all winning entries to other architectural magazines, newspapers and relevant media worldwide. Please help us by choosing your preferred local media on the entry form.

11 Providing additional materials for publishing
Additional photography, drawings and other information from winning entrants will be urgently requested for the December publication during the week beginning 3 October. Entry will acknowledge that The Architectural Review has the right to reproduce materials in whole or part without payment of copyright (where we are made aware of their names, photographers will be acknowledged).

ENTRY REQUIREMENTS

12 Entries
The maximum number of entries from any individual or practice is five – with each entry showing only ONE scheme. As there is a new Jury, work entered for previous awards may be re-submitted on new boards. Incomplete work, unrealised schemes, projects, CD–ROMS, videos, transparencies, models, prototypes and multiple schemes entered on one board will NOT be accepted.

13 ENTRY FEES
ENTRY FEE FOR EACH PROJECT SUBMITTED IS £50 (US$100 or €75). The maximum number of projects that may be submitted is five. Payment can be made by cheque or banker's draft, made payable to 'The Architectural Review' and enclosed with your entry. If paying by credit card complete the details on the entry form.

14 Boards
Each entry should be mounted on two A2 sized boards, and must include photography (in either colour or black and white), drawings and, if appropriate, a brief written description in English.
The identity and location of the submission is helpful to the Jury. Maximum board size is 420 x 594mm (approximately 16.5 x 23.4in) – preferably lightweight art board or equivalent.

15 Anonymity
To ensure anonymity in judging, no names of entrants or collaborating parties may appear on any part of the board. On receipt, each board and entry form will be allocated a number, allowing identification – for extra security please include an international telephone number on the back of the board. Only after the Jury has made its decisions will the identity of the winners be revealed.

16 Entry forms
Each submission must have a separate entry form. All entrants must be named in the submission. Please indicate whether the contact name is an administrator or part of the design team. Copy the entry form where necessary. Complete the form clearly and enclose in a sealed envelope attached to one board.

17 Entry deadline
Deadline for receipt of entries is Tuesday 13 September. To ensure timely receipt, we recommend using a carrier that guarantees delivery. All entries received will be acknowledged on our website at www.arplus.com as soon as possible after the deadline.

DELIVERY AND COURIER

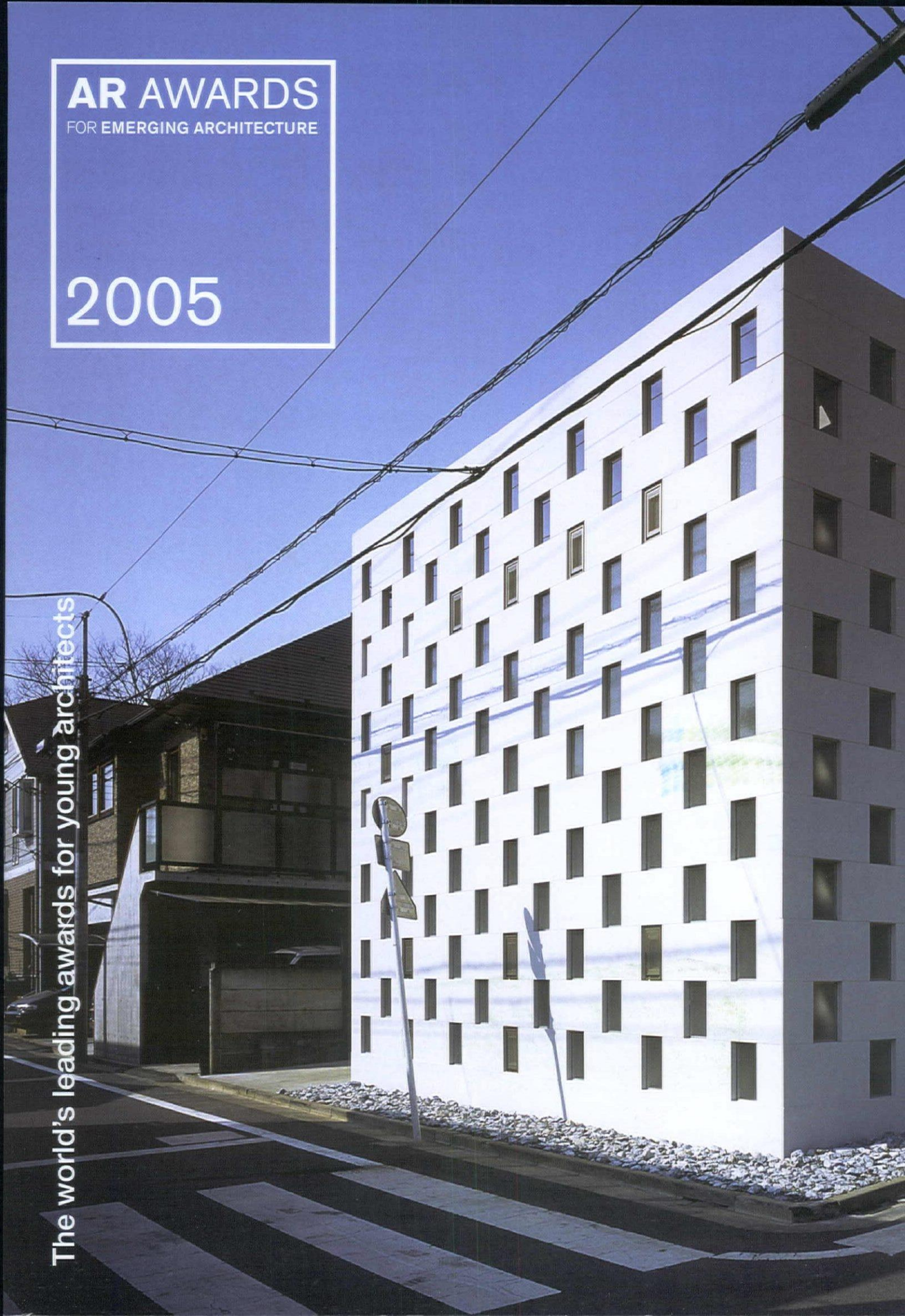
18 Send to:
Entries should be properly packaged and clearly marked 'AR Awards'. They should be sent to:
The Architectural Review
151 Rosebery Avenue
London EC1R 4GB
United Kingdom.

19 Documentation
Please ensure that entries are delivered by the closing date. Entries posted on the closing date will be accepted but must be received before 16 September.
VERY IMPORTANT:
Your entry must be marked as **NCV** (no commercial value) on any courier documentation. The organisers will NOT accept any courier charges or taxes resulting from delivery. Personal deliveries to the AR editorial offices are accepted during normal working hours.

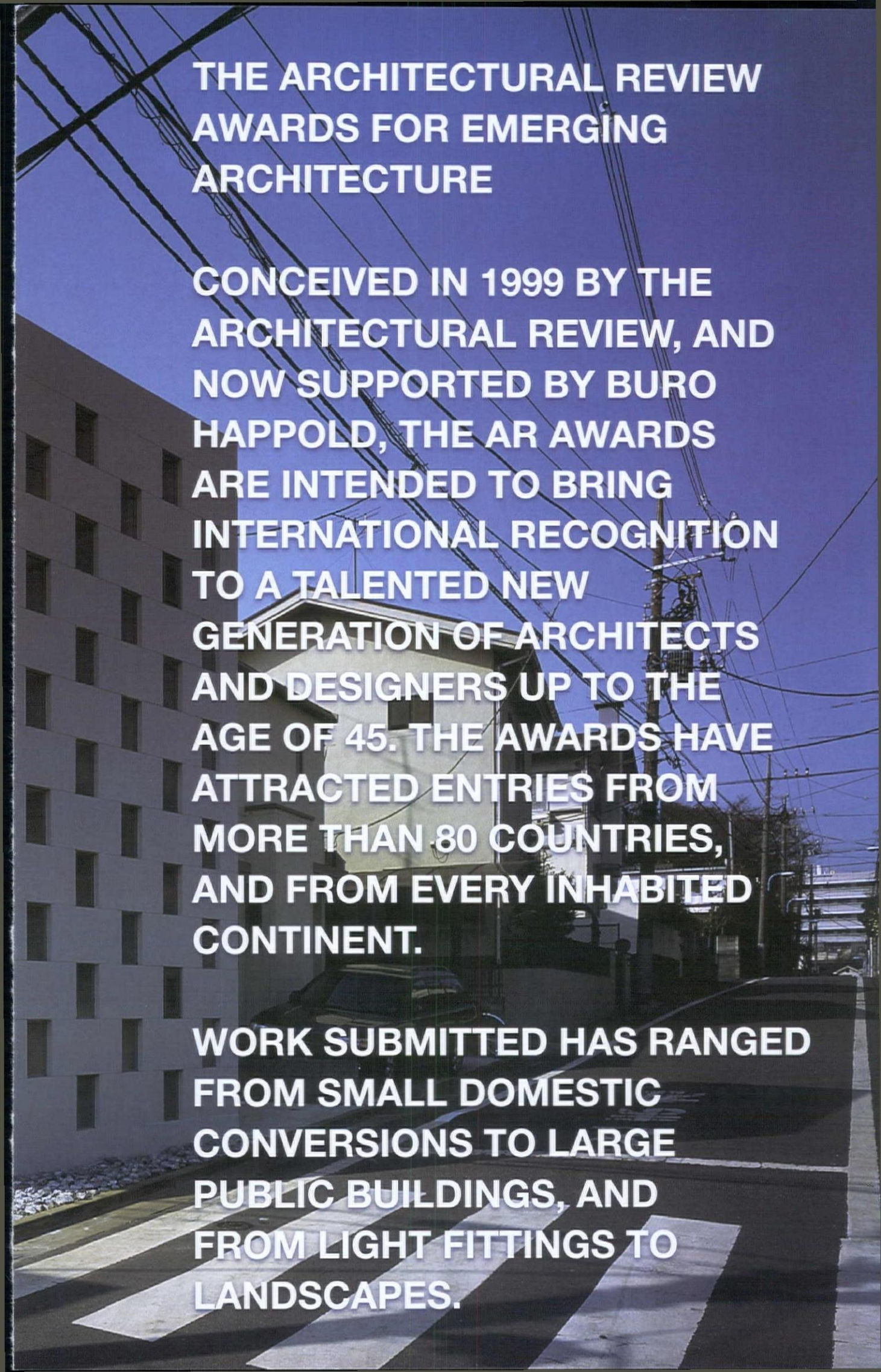
20 Return of entries
Entries will not be returned. The organisers assume no liability for loss or damage of entries.

AR AWARDS
FOR EMERGING ARCHITECTURE

2005



The world's leading awards for young architects



THE ARCHITECTURAL REVIEW AWARDS FOR EMERGING ARCHITECTURE

CONCEIVED IN 1999 BY THE ARCHITECTURAL REVIEW, AND NOW SUPPORTED BY BURO HAPPOLD, THE AR AWARDS ARE INTENDED TO BRING INTERNATIONAL RECOGNITION TO A TALENTED NEW GENERATION OF ARCHITECTS AND DESIGNERS UP TO THE AGE OF 45. THE AWARDS HAVE ATTRACTED ENTRIES FROM MORE THAN 80 COUNTRIES, AND FROM EVERY INHABITED CONTINENT.

WORK SUBMITTED HAS RANGED FROM SMALL DOMESTIC CONVERSIONS TO LARGE PUBLIC BUILDINGS, AND FROM LIGHT FITTINGS TO LANDSCAPES.

AR AWARDS FOR EMERGING ARCHITECTURE 2005

ENTRY FORM
Deadline: 13 September 2005
Please complete this entry form as clearly as possible. Photocopies of this form may be used. Complete in capital letters.

firm/practice

address

city/town/post/zip code

country

phone number

fax number

email address

contact name for entry

names of the design team

1

2

3

project name

city

We will be sending information about all the winning entries to media worldwide. Please let us have your preferred choices of local relevant media:

1 architectural magazine

2 newspaper

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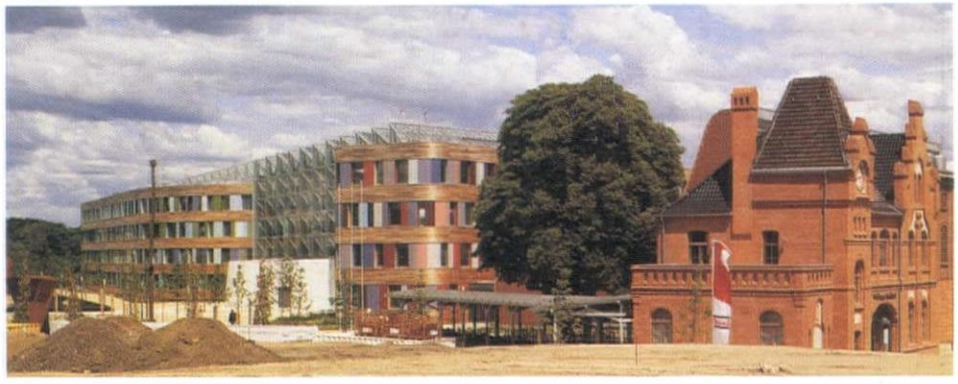
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emap communications



Federal Environment Agency, Dessau by Sauerbruch Hutton (p38), showing the original Wörlitzer Station.

THINKING GREEN

VIEW

23 Herzog & de Meuron at the Tate; RIBA International Awards; Giancarlo de Carlo remembered

COMMENT

36 The future of green architecture PETER CLEGG

THINKING GREEN

38 Federal environment agency, Dessau, Germany SAUERBRUCH HUTTON
50 Offices, Los Angeles, California, USA MORPHOSIS
56 Call centre, Galway, Ireland BUCHOLZ MCEVOY
60 Offices, Cape Town, South Africa KRUGERROOS
64 University library, Orleans, France LIPSKY + ROLLET
70 National library, Singapore T. R. HAMZAH & YEANG
74 Tourist resort, Cabo Delgado, Mozambique CULLUM AND NIGHTINGALE
77 Offices, Concepción, Chile ENRIQUE BROWNE

PLACE

80 Memorial to European Jews, Berlin, Germany PETER EISENMAN

HOUSE

84 House, Venice, California, USA PUGH + SCARPA

PRODUCT REVIEW

88 Interior finishes

REVIEWS

92 Global design; cities people planet; Christian sacred buildings; the charged void: urbanism
94 Frei Otto in Munich; Rotterdam Biennale; Browser; Diary

DELIGHT

98 Gardens of Glass: Chihuly at Kew Gardens, London DALE CHIHULY

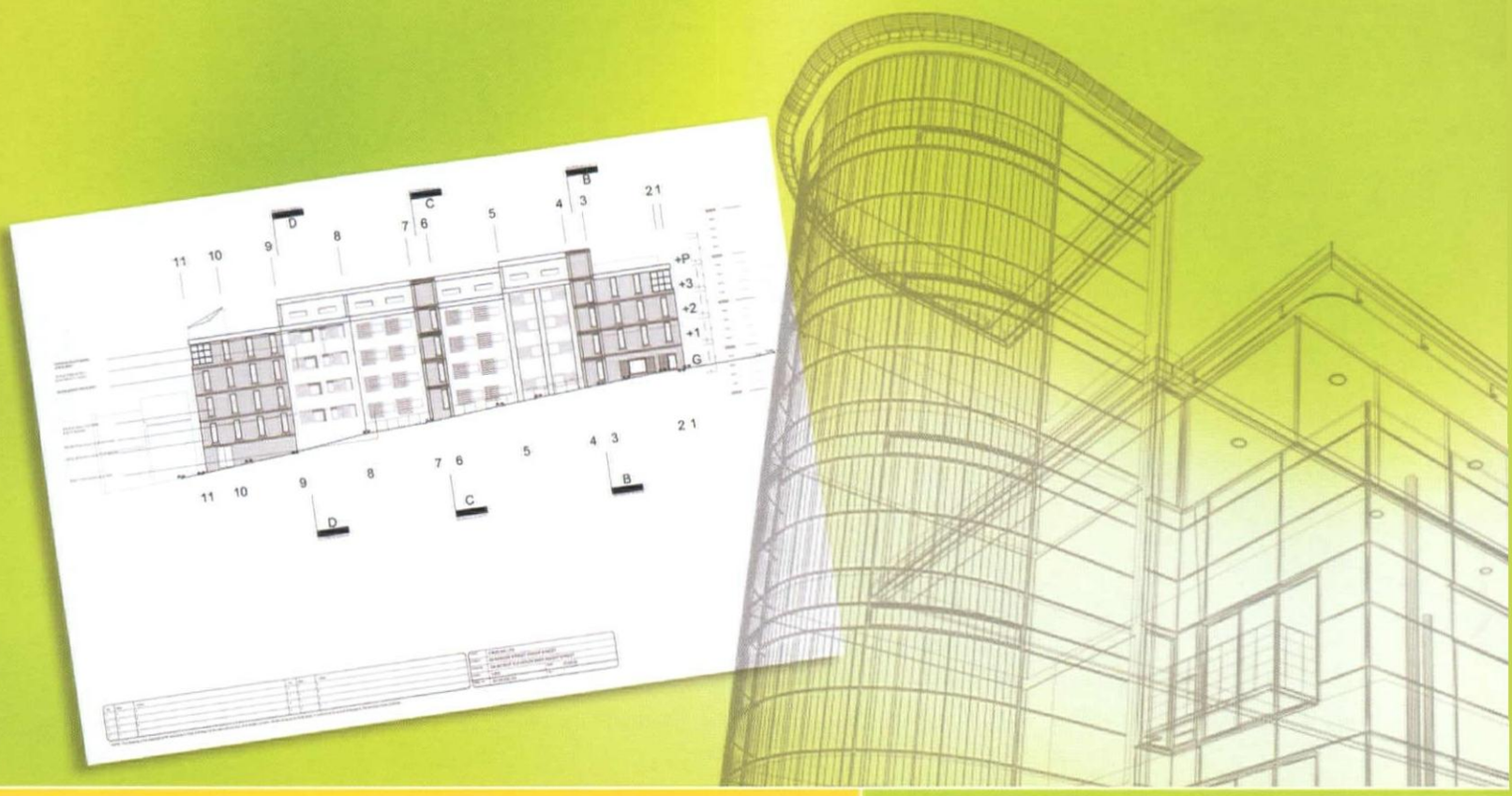
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38 Federal environment agency, Dessau SAUERBRUCH HUTTON Photograph by Paul Raftery/VIEW

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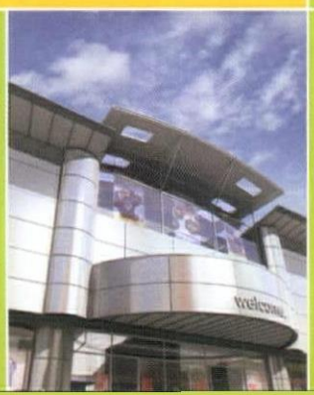


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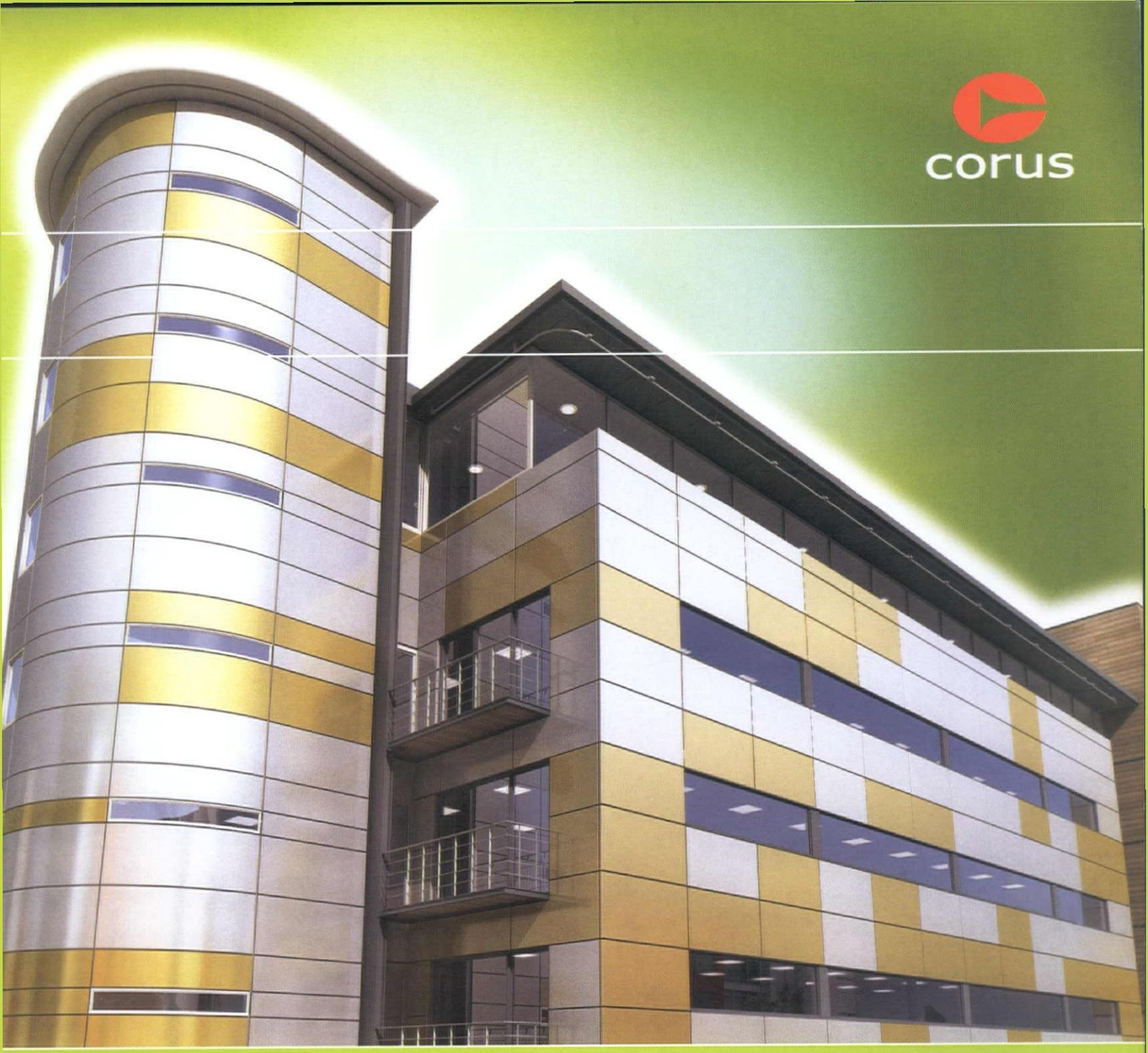
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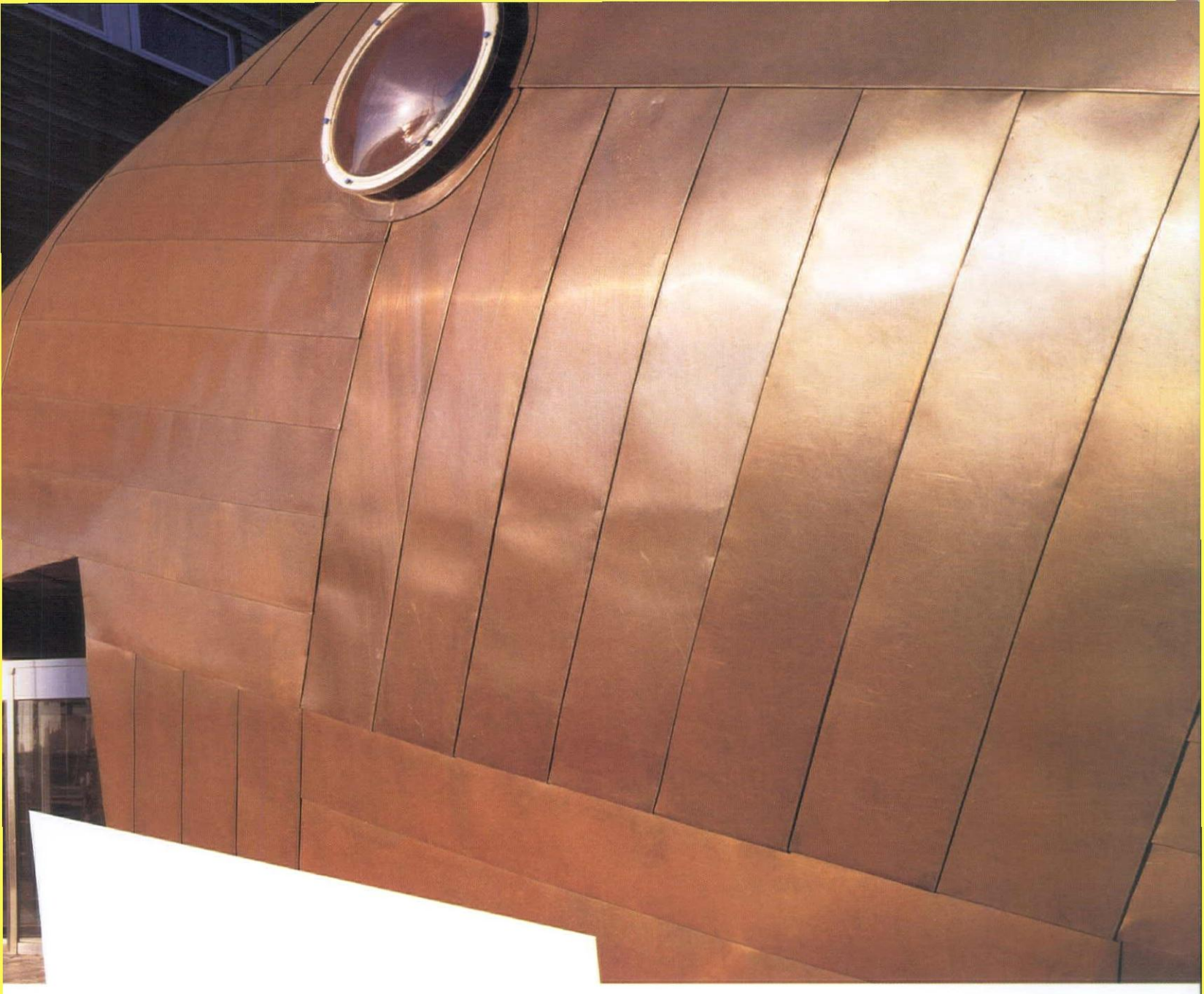


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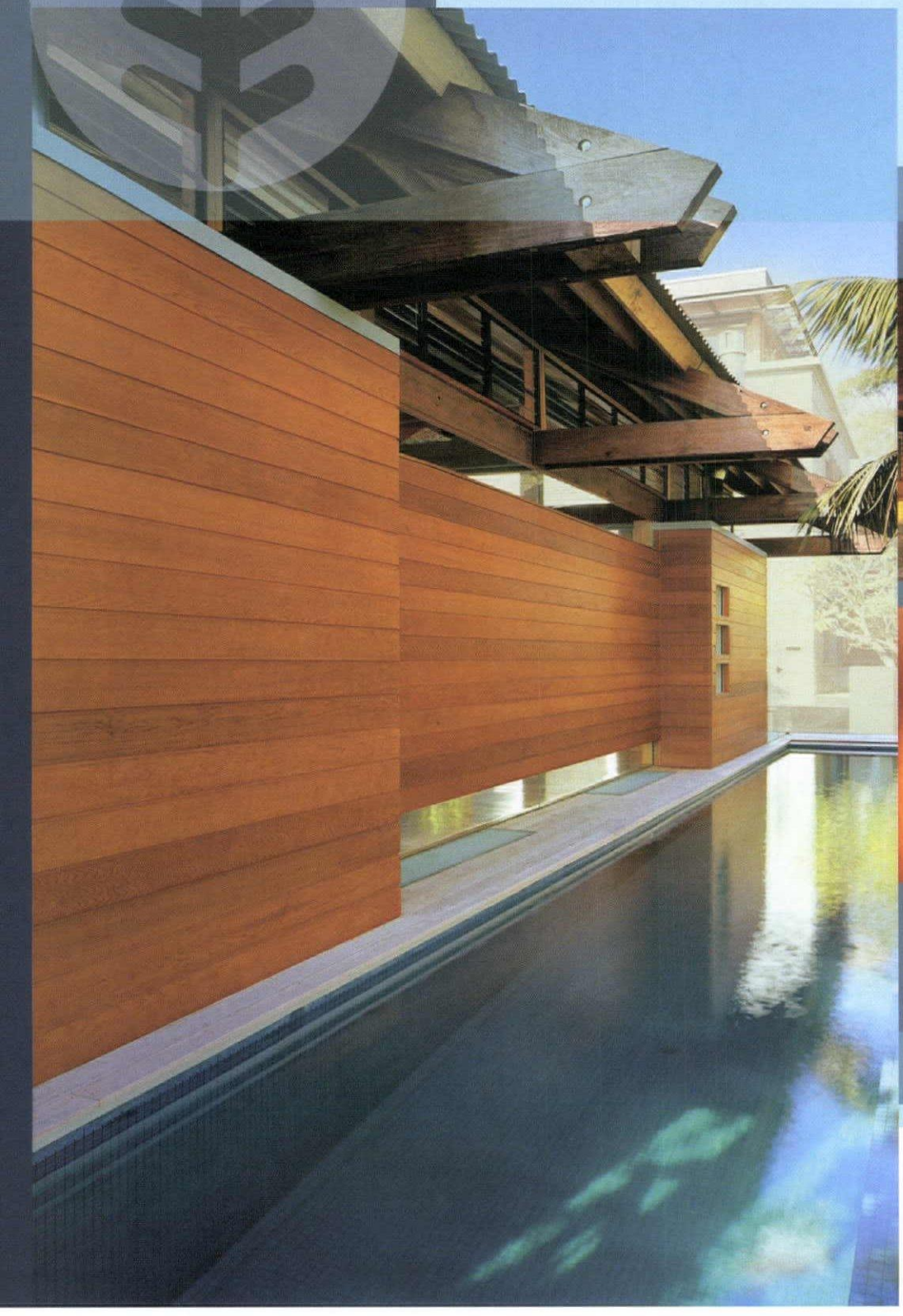
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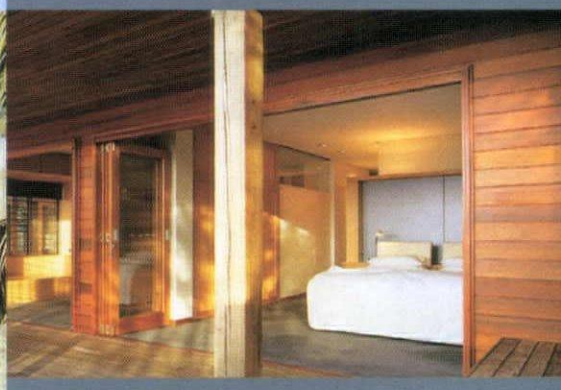
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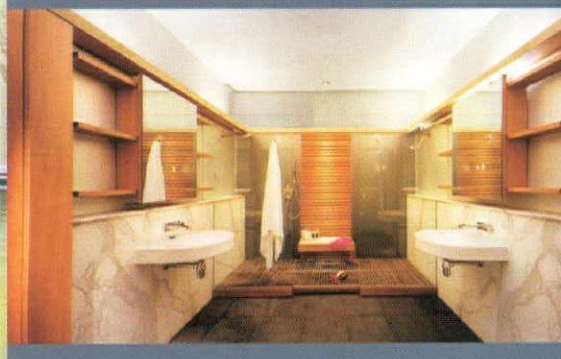
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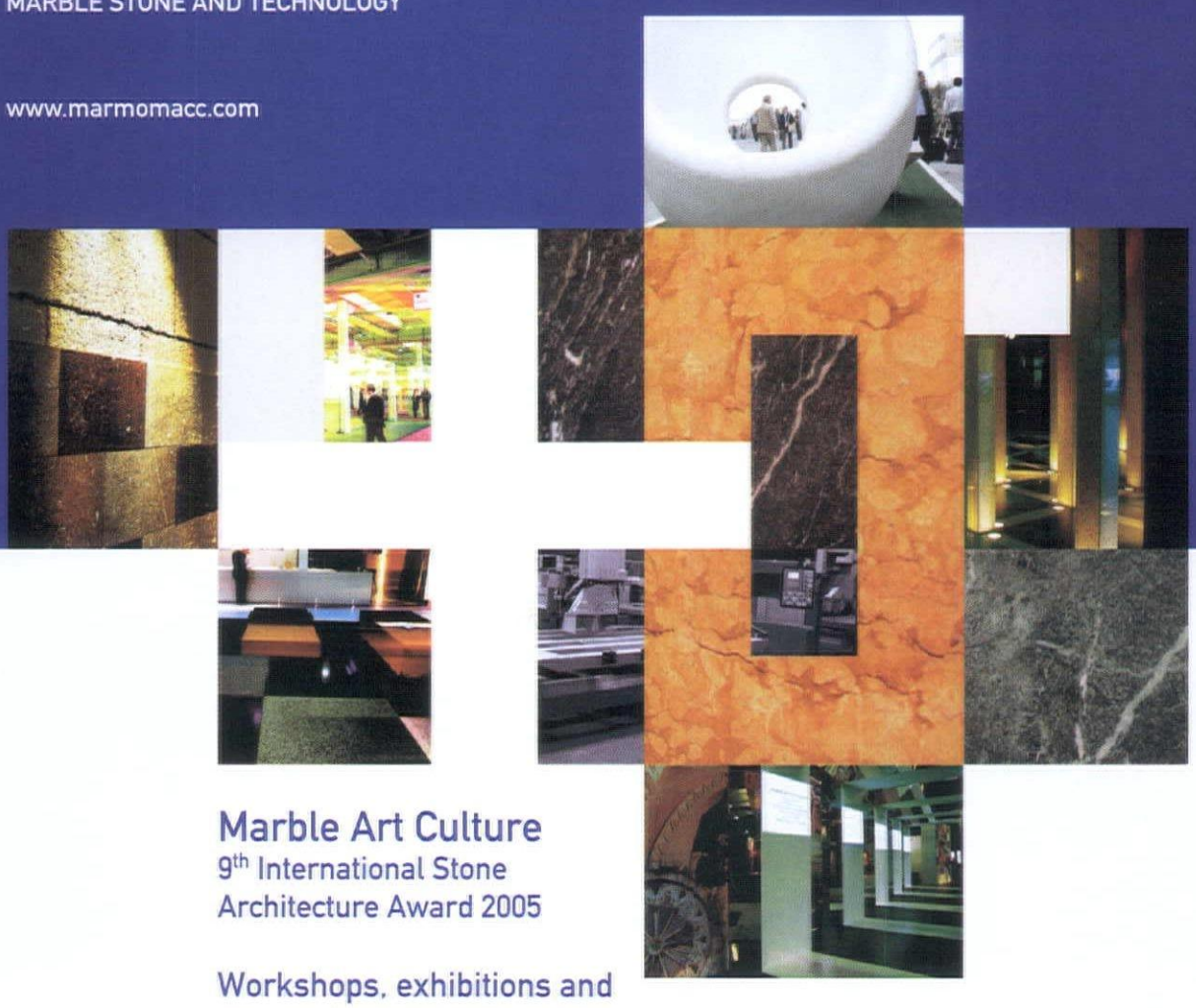


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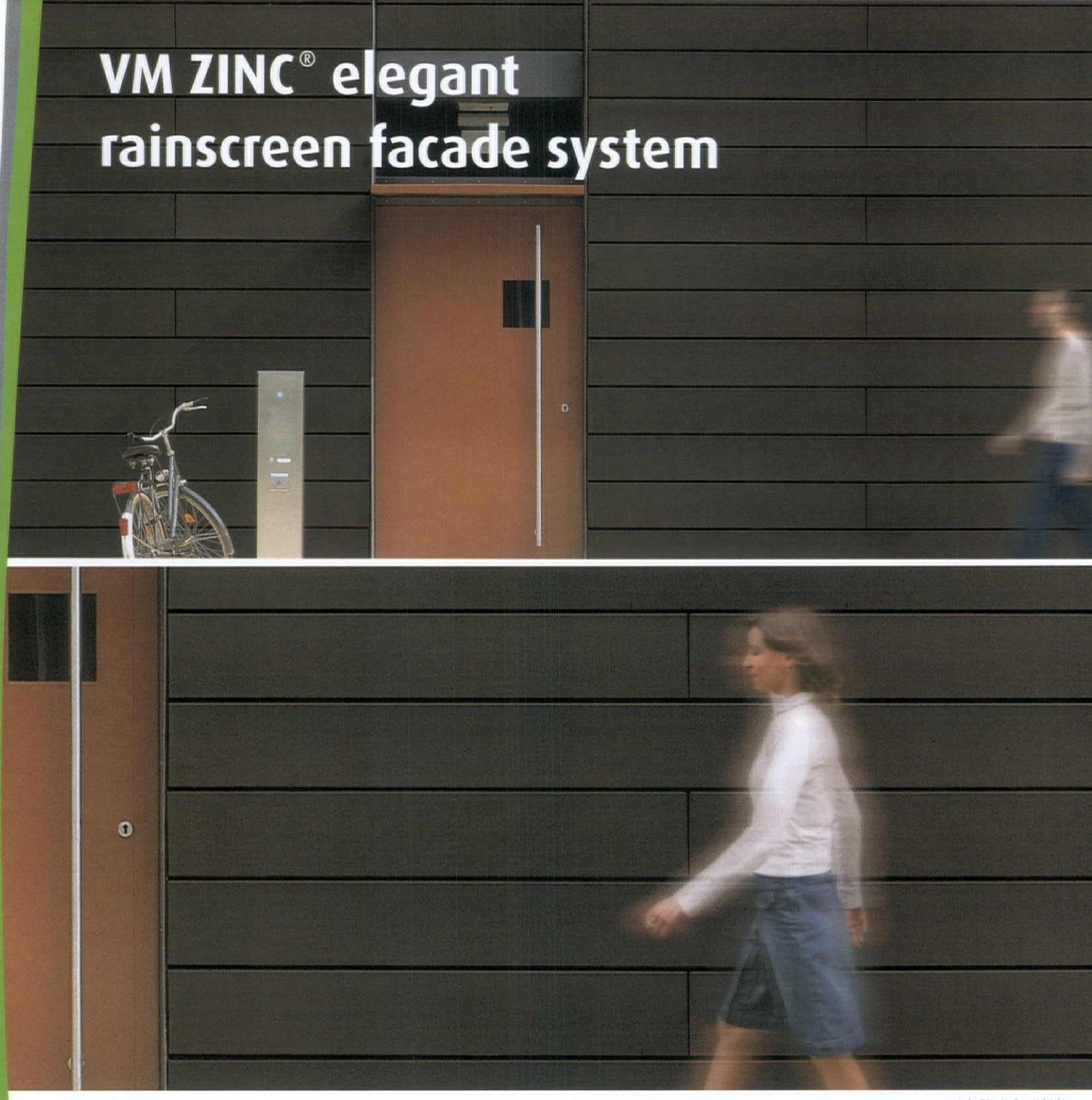
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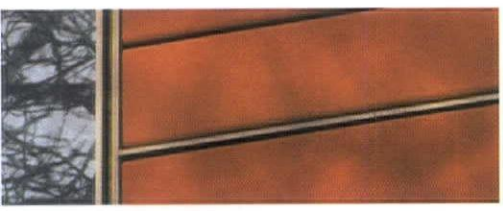
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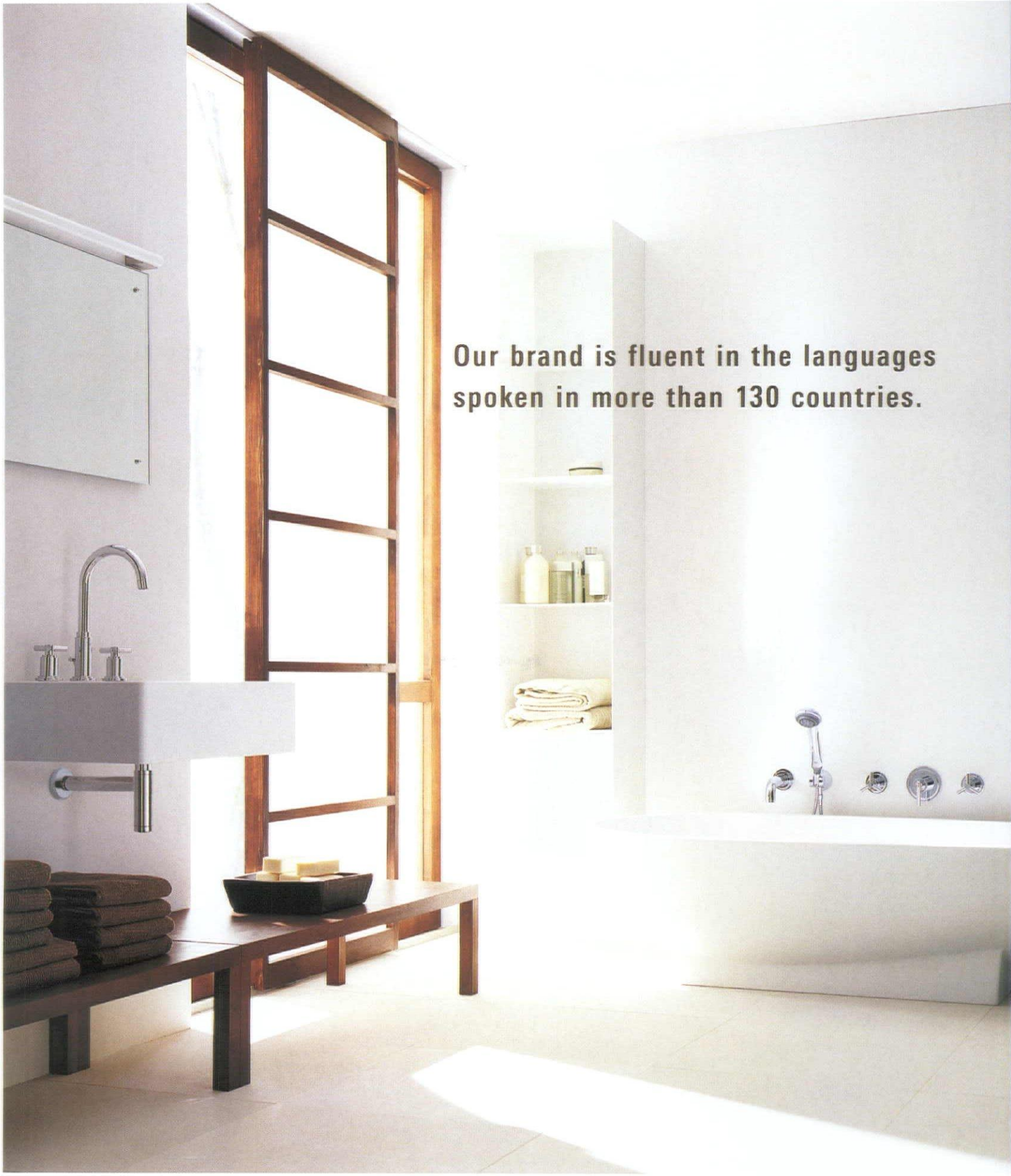
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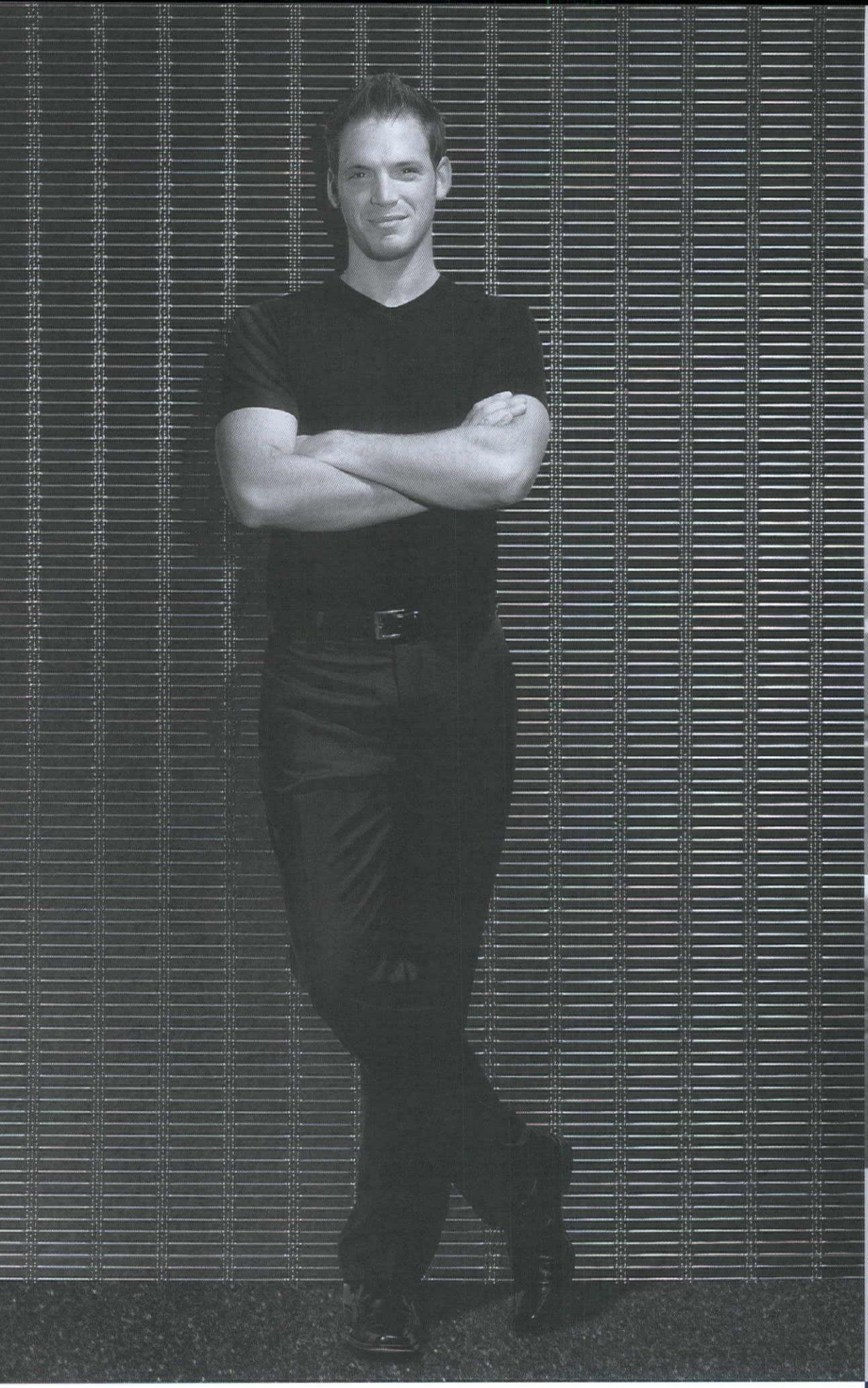
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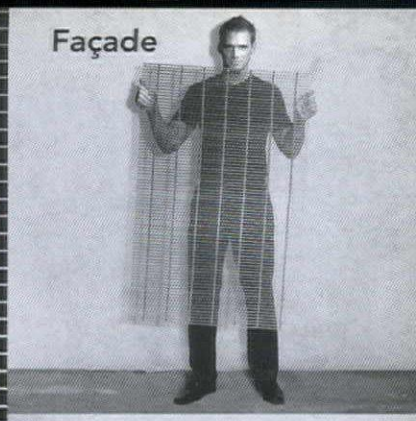


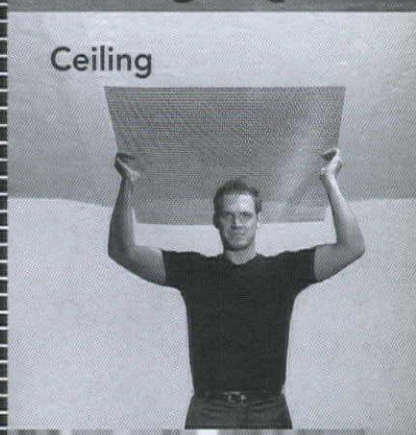
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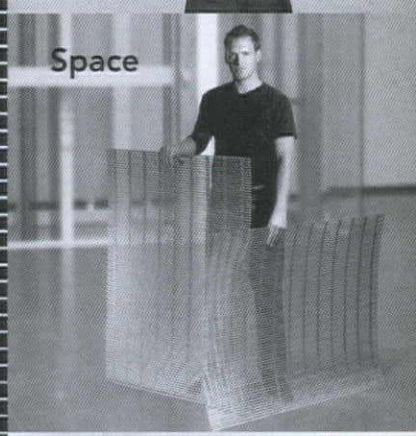
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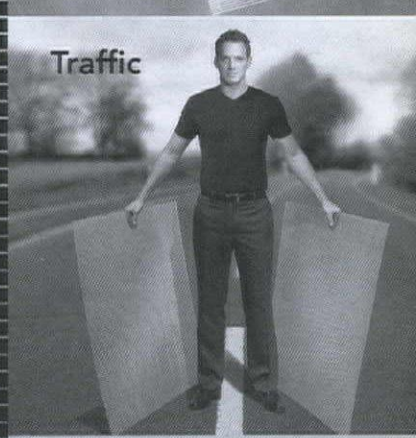
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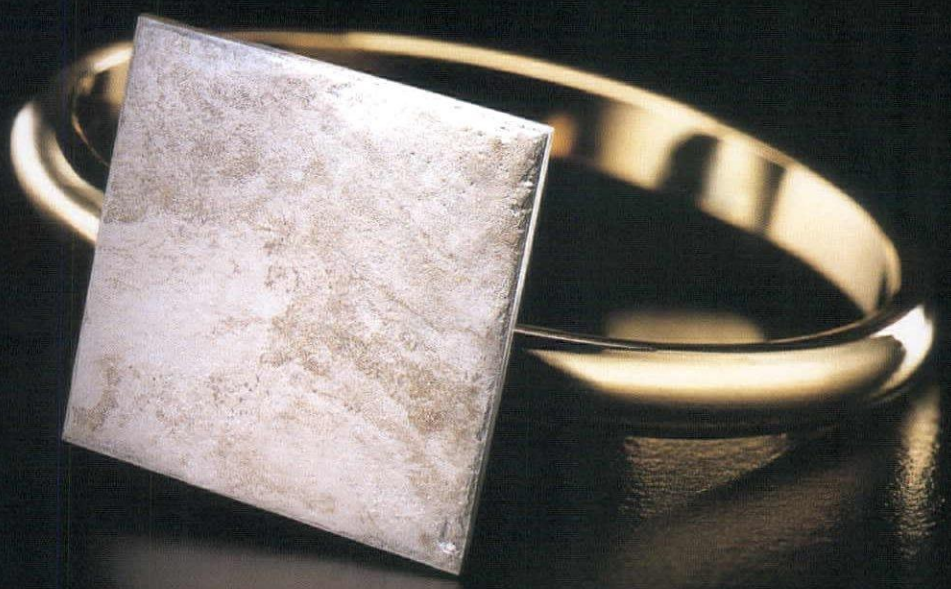
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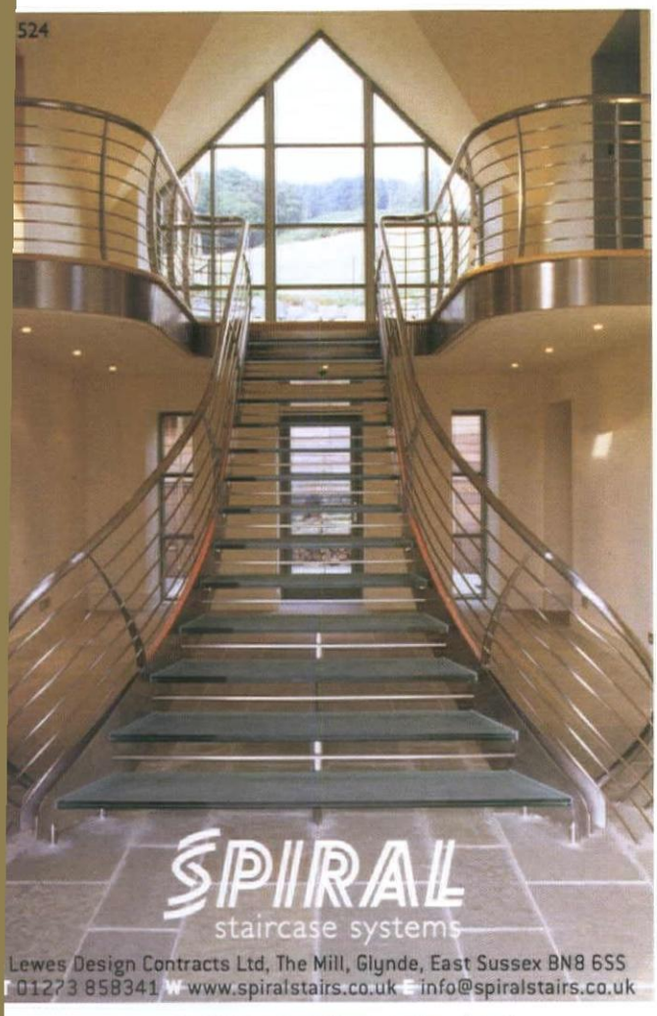
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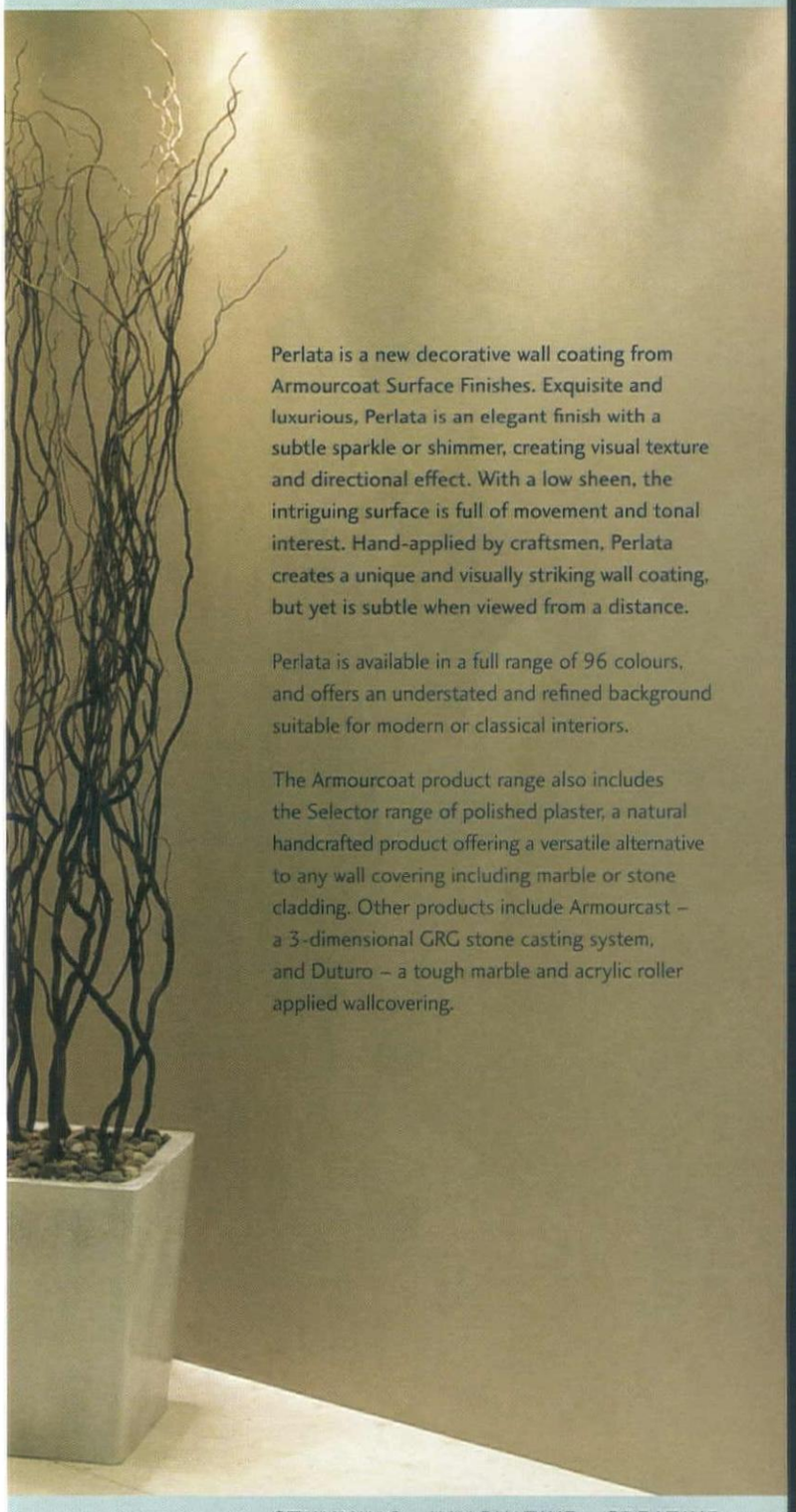
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view

HERZOG & DE MEURON – AN EXHIBITION AT THE TATE MODERN IN LONDON; FROM DEEP GREEN TO DEEP PLAN, TRANSATLANTIC ATTITUDES TO OFFICE DESIGN; BAMBOO USED STRUCTURALLY AT ST GEORGE'S ORPHANAGE, CHENNAI, INDIA; RIBA INTERNATIONAL AWARDS 2005; GIANCARLO DE CARLO REMEMBERED.

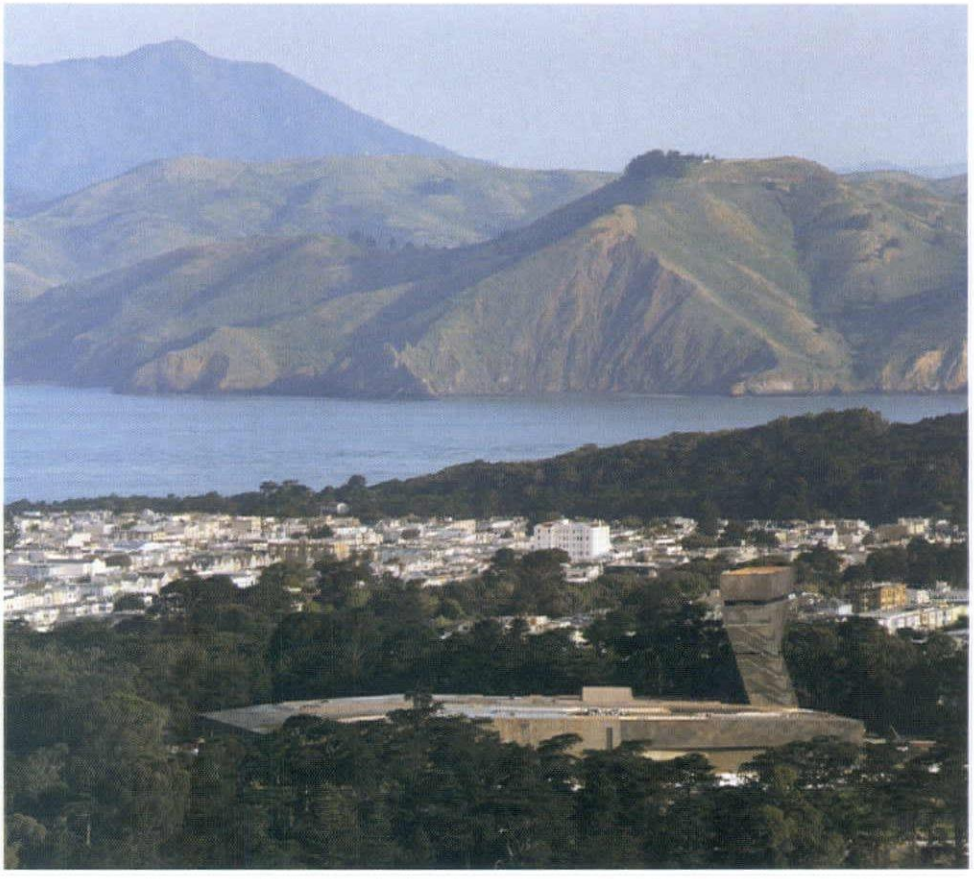
SUSTAINABILITY IS A JUDGEMENT OF HISTORY

Over-use of words like 'sustainability' reduces them to the lowest level of meaning, that is to say the level where politicians and marketing directors feel comfortable using them, safe in the knowledge that they can mean almost anything. The arrogant description of buildings, places and their architecture, as being 'sustainable' generally flies in the face of history. It is not given to architects to predict correctly those changes in social, political, economic and even climatic conditions which determine how long certain buildings are going to be useful. In Hong Kong it is a commonplace that office towers are expected to last not much longer than thirty years before being ripe for replacement by bigger or more up-to-date models. All that embodied energy kissed goodbye! In large parts of London, the idea of wholesale replacement is anathema (about 80 per cent of the borough of Westminster comprises designated conservation areas, for example). Across the world, communities based on coal-mining, or shipbuilding, or car-production, have had to come to terms with sudden geographical shifts in production, as a result of globalisation, which have rendered their economic base obsolete almost overnight. They are no longer 'sustainable', despite having been so for, sometimes, hundreds of years.

What history does tell us, however, is that buildings and developments with certain characteristics are more likely to last than others, all else being equal. By definition they will probably be robustly built; they will be capable of adaptation, and not just in relation to their initial use; they will be reasonably efficient (or easy to make so) from the point of view of energy consumption; often they will be bigger in volume if not area; they will sometimes be over-engineered in relation to their first use. That is why certain schools, churches and even power stations can survive from one century to another, examples of creative adaptation which put to shame the flotsam and jetsam which too often surrounds us.

A good question to ask of any design for a building is: if this were not a house/office/shop/warehouse – could it be capable of being anything else? And if the first use were no longer relevant, would demolition be inevitable? If the answers to these two questions are no and yes respectively, then we can be fairly sure that what is proposed isn't going to last very long; this might be taken into account in the way we think about financing and valuing construction assets. A former president of the Royal Institute of British Architects, Alex Gordon, commissioned a report on these matters in the 1970s, entitled 'Long Life, Loose Fit, Low Energy'. That might serve as a useful motto for those thinking about 'sustainable' buildings from single focus perspectives. In respect of our existing building stock, which produces a frightening proportion of carbon emissions, we can only hope that retrofit makes economic as well as environmental sense. PAUL FINCH

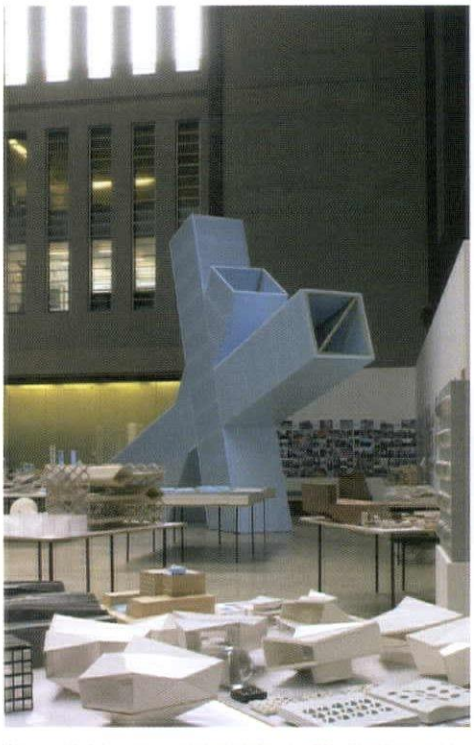
H&DM'S DE YOUNG MATURITY



Emerging above the canopy of Golden Gate Park, de Young's tower twists to the city grid. Photo: Mark Darley.

While modest in its architectural expression, the completion of Tate Modern was a significant moment in the evolution of the now globally recognised design lab, Herzog and de Meuron. Bringing the Swiss architects to a British audience for the first time since an influential show at the 9H Gallery in the 1980s, this appointment led to other commissions, including their Stirling Prize winning Laban Dance Centre in 2003. Five years after its completion they have returned to Bankside to reapply their considered invention to Giles Gilbert Scott's awesome art/powerhouse. With design work continuing on a sizable expansion project south of the Turbine Hall, completing their original competition-winning strategy to extend pedestrian links across the level one bridge, they have also been invited by Nicholas Serota to produce Tate Modern's first major architecture exhibition.

Seen originally in their home town of Basel last summer, *No 250 – An Exhibition* was designed to give insight into their working practices. With no web site, an extremely tight door policy (even employees' partners are screened before visiting their loved ones at work), and a cool phone line that is rarely answered, this is a rare opportunity. As at Schaulager in 2004, the exhibition's main attraction focuses on a jumble sale of 'waste'; unfortunately, however, nothing is for sale, and rummaging – however tempting – is certainly not encouraged. Originally entitled *Waste and Sweet Dreams*, more than 70 projects are represented on simple tables that are loosely scattered (or rather carefully placed) in the Turbine Hall's lofty east end. The by-products of their highly experimental design processes are fascinating, although perhaps more appealing to designers and artists who use similarly archaic techniques. To a wider public audience more accustomed to reading the cool and slick imagery of commercial architecture, this display may come as something of a surprise, which is no bad thing. The exhibition serves as an ideal opportunity for the Tate to promote the crafted, creative, and dare I say sculptural qualities of architecture. With full-size prototypes, mock-ups and models made with sample materials, tactility, texture, tone and technique are expressed. And, while there has been criticism of their work being increasingly concerned with surface and image, models also demonstrate Herzog and de Meuron's commitment to the form of space as well as the form of matter. If time is taken to trace each project's evolution, evidence emerges of H&dM's strategy to slow down the process of form finding. Instead of rushing to anticipate a building's silhouette, their hands-on workshop processes complement more theoretical ideas of place making, allowing context and detail to converge, and forms to evolve gradually. As a recent visit to San Francisco's de Young Museum underlined, their working method remains consistent throughout with no great leap required between design and construction. As passionately demonstrated on site by architect Jayne Barlow, even during construction the H&dM team, supported by excellent contractors and craftsmen, continue to inspire by producing highly inventive, beautifully crafted, work-of-art buildings. ROB GREGORY



Herzog & de Meuron – An Exhibition. (Tate Photography.)

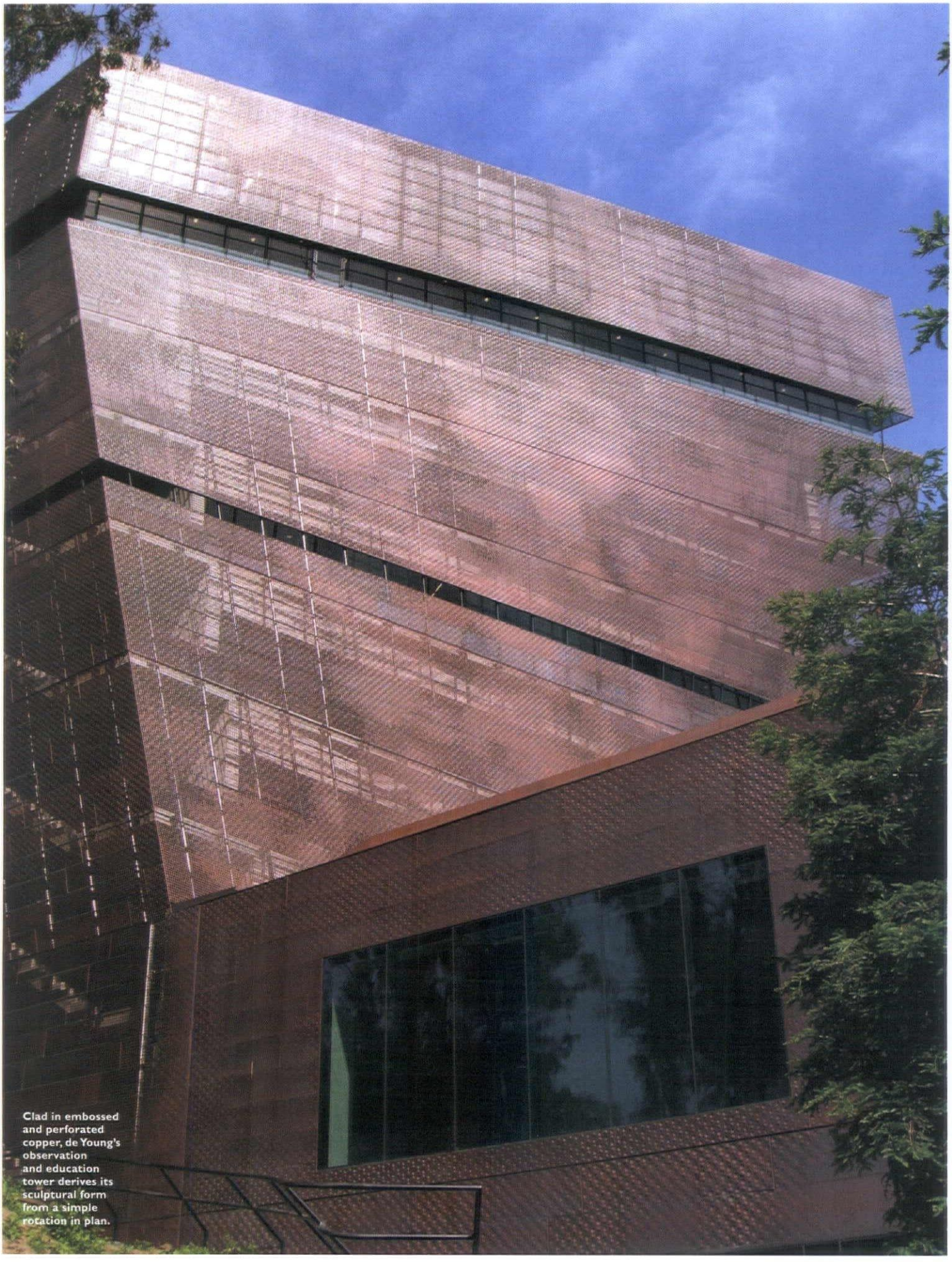


De Young's generous cantilevered copper canopy.

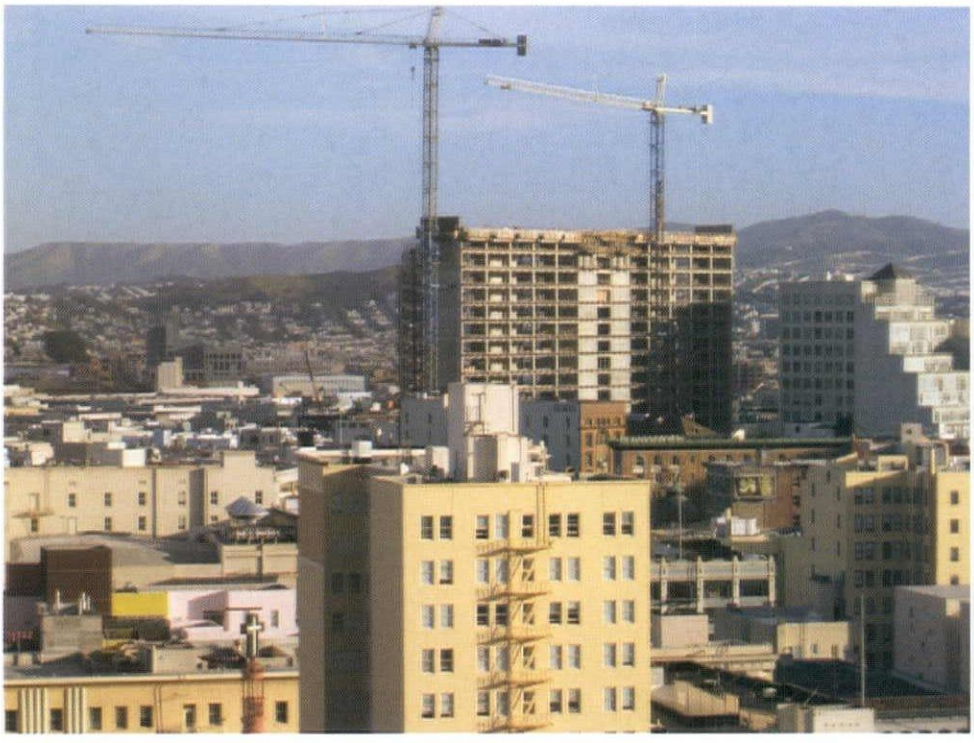


Bespoke blown-glass light fittings animate café.

Herzog & de Meuron. An Exhibition, Tate Modern, London until 29 August. Site photographs by Rob Gregory.



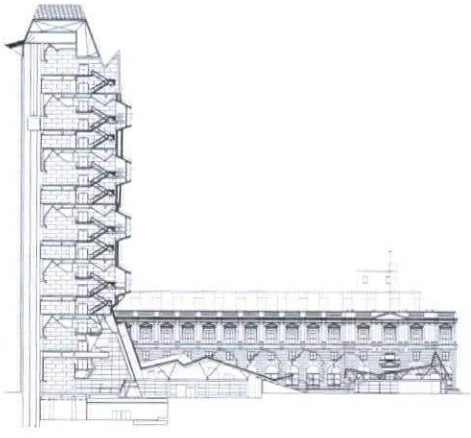
Clad in embossed and perforated copper, de Young's observation and education tower derives its sculptural form from a simple rotation in plan.



Expressing the grid shift south of Market Street, Morphosis's new federal office building in San Francisco is hoped to become a model of environmental excellence.
(Photos: Rob Gregory)



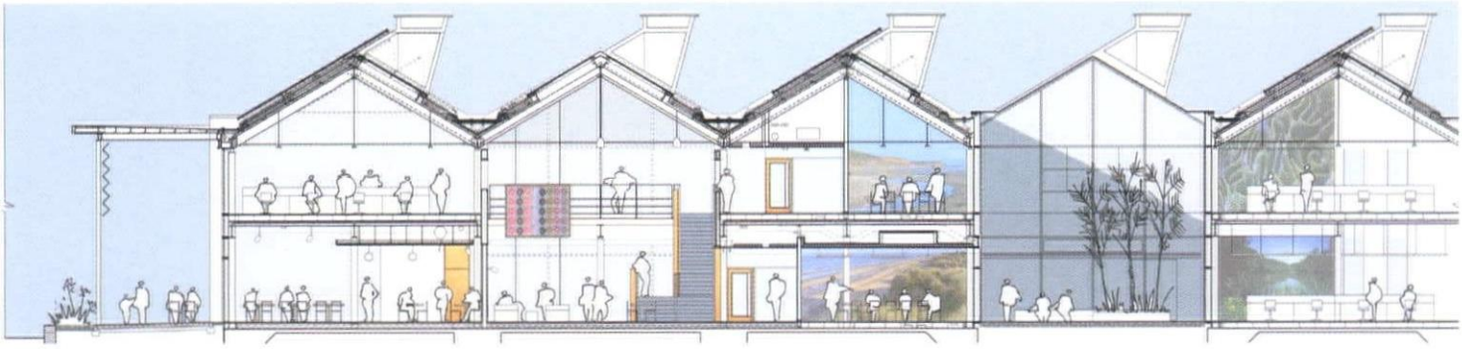






FROM DEEP GREEN TO DEEP PLAN

Theories naturally attract conflict and contradiction. Questioning promotes progress. As quickly as ideas are formalised as 'best practice', they are, and should increasingly be, challenged or even disproved by new criteria. Sustainability and its theory – taken in this instance to be a measurable science rather than a moral crusade – is currently going through a process of interrogation. Ideas traded as sound-bites of an eco-tech language are now part of a debate where counter theories and counter arguments abound. The first generation of so-called eco-warriors are now being challenged by a new generation of eco-sceptics; those who are asking, how much longer will sustainability be championed by mean-spirited pessimism that simply says reduce, reduce, reduce? How, for example, can we build more to achieve housing targets in response to the apparently ceaseless process of urbanisation. And at an extreme level (for the sake of argument), how can we honorably build to excess, where aspirations like luxury, finesse and refinement are not considered amoral? On a technical level, experts continue to struggle with formulae, for example to balance the pursuit for daylight with the problem of solar gain. Even the basic need for fresh air demands the resolution of complicated relationships between air-tightness and air-change targets. It seems that whenever man tries to harness one or other of nature's forces, elements conspire against each other. Equilibrium and harmony seem only to prevail in the wild where natural selection has no apparent ambition, moral

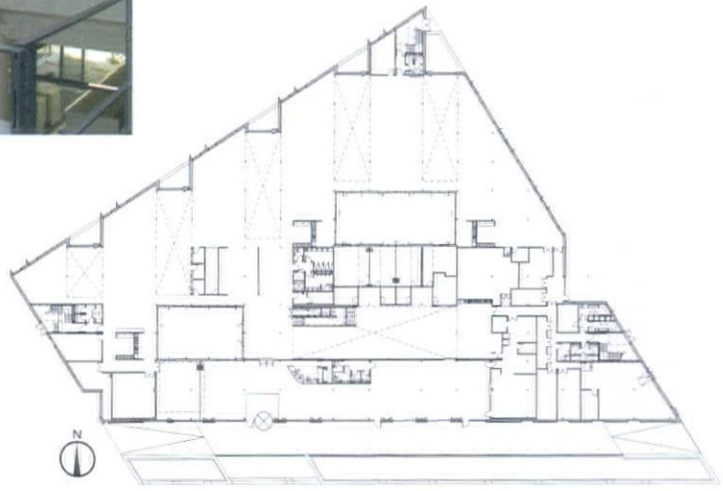








Inspired by the work of great engineers Paxton and Brunel, Feilden Clegg Bradley's new headquarters of the National Trust reinterprets the ridge and furrow roof form of industrial workshop architecture. With an unusually deep plan, the roof is the primary source of light and air, penetrating deep into ground floor spaces via double-height voids. (Photos: FCBa.)



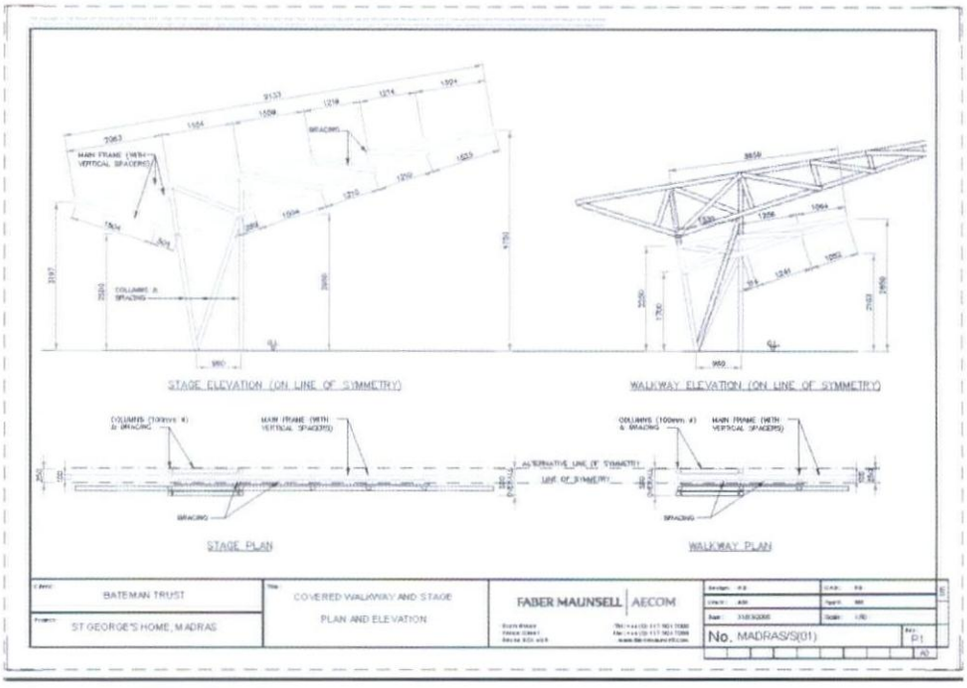
obligation or conscience. But we, as humans (and as earnestly championed by our former editor Peter Davey) are civilised beings; we have a culture that builds stuff, and when we build, however lightly, we naturally upset the balance. In this, architects who care continue to struggle with the moral and technical dilemmas of this process. Peter Clegg will explore some of the current concerns on pages 38-39, and as a prelude, these two new buildings, each nearing completion on either side of the pond, challenge the conventions of their respective office markets: an American adoption of the European office model by Morphosis in San Francisco; a thin plan, exposed concrete, night purging, naturally ventilated, orientation specific office slab. And Feilden Clegg Bradley's new building for the National Trust in Swindon; a low-rise, deep-plan, naturally day-lit, train-shed-inspired headquarters. While the Morphosis scheme takes established ideas to a new and hopefully expanding market in America – a country that is slowly recognising the potential to exploit passive environmental control, the Feilden Clegg Bradley scheme is quietly prototypical, offering a model for contorted, awkward brown-field sites that may not benefit from fine views or the ability to exploit orientation specific vertical facades. Here on a redundant brown-field railway site in Swindon, designed in collaboration with Max Fordham and Partners, the roof becomes an expansive fifth elevation oriented toward the sky, which despite its deep plan ensures that no occupier is ever more that 7 metres from fresh air and natural daylight. ROB GREGORY

CODED FOR DESIGN

Bamboo is nothing if not flexible. In last month's AR it featured as cladding on a car park at Leipzig Zoo. Here, it is used structurally for a covered walkway and stage being built for St George's Orphanage in Chennai, India. A 3m wide, 30m long and 3.6m high walkway will run along the perimeter of the site, separating the main building from open school grounds; the 6m high cantilevered roof structure of the 10m long open-air stage can be used for plays and events, while providing daytime shade and shelter thanks to 4mm thick locally sourced, hand-made corrugated bamboo sheeting.

The design brief, developed by Feilden Clegg Bradley Architects and the Batemans Trust, which runs the institution, required sustainable construction methods, resulting in use of a generally available local material, in this case the Bambusa variety of bamboo, colloquially known as spiky bamboo.

Engineers from Faber Maunsell, in researching structural use of bamboo, found there was no uniform design code, and that British timber codes were not applicable because bamboo is hollow at the centre. There are three draft ISO bamboo standards in respect of examining physical properties, and for limit state and permissible stress design. However, the ISO standards make reference to national codes – which in India don't currently exist. Faber Maunsell undertook a research project across a number of the 1400 varieties of bamboo, and studied friction rope connections; bolted connections; positive fitting connection joints and interlocking connections, the last requiring factory manufacture.



Structural analysis required design adjustments prior to construction.

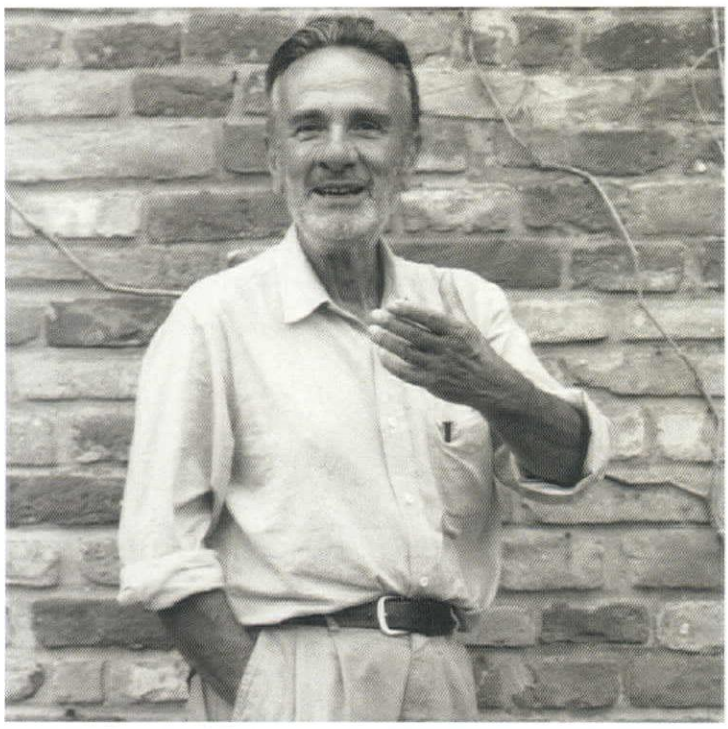
The research undertaken was applied to the architect's design, with analysis rafter self-weight, and theoretical dead loads of bamboo sheeting and live loads representing rain and maintenance. The first attempt at a design worked in terms of axial load and bending, but the structure failed in deflection and shear; subtle changes to the geometry maximised bamboo performance while keeping connection forces within manageable levels. PAUL FINCH

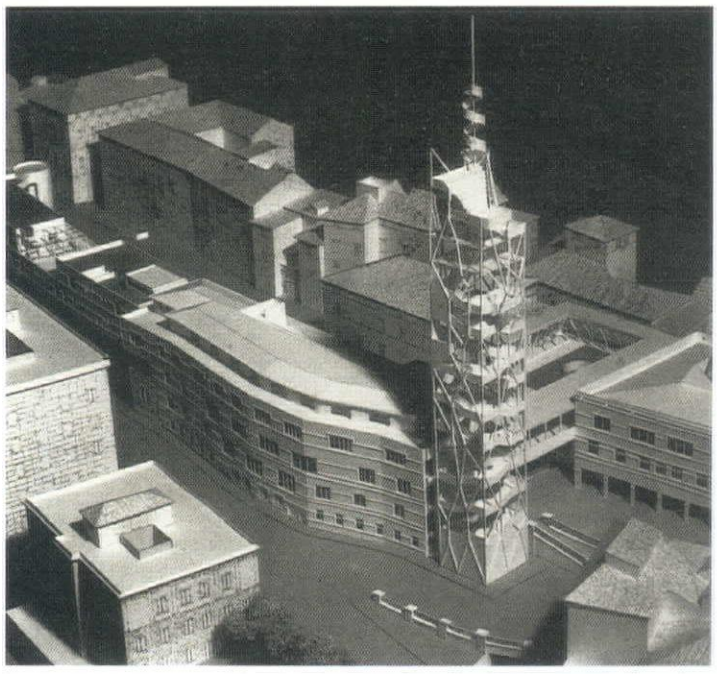


Garden hut, Sant Miquel de Cruilles by Eightyseven, commended in AR Awards 2004.

THE AR AWARDS 2005

The AR Awards for Emerging Architecture are entering their seventh cycle. Inaugurated in 1999, the awards are intended to bring wider international recognition to a talented generation of architects and designers under 45. Supported by Buro Happold, the international consulting engineers, it is the premier award for young architects in the world, and offers £10 000 prize money and the opportunity to participate in an associated exhibition and lecture series at the RIBA in London. The 2005 jury will be: Sean Godsell (Melbourne, winner in 2002), Thom Mayne (Morphosis, LA, winner of 2005 Pritzker Prize), Luis Mansilla (Mansilla & Tuñon, Madrid), Annette Gigon (Gigon/Guyer, Zurich), and Peter Davey (former editor of the AR). Paul Finch, the current editor, will chair the jury. Deadline for entries is 13 September. Entry fee is £50 (€75 or $100). Full details with conditions and entry form are at the front of this issue.





Left: Giancarlo de Carlo – passionate, political architect and placemaker.
Above: unbuilt tower for Siena.

obituary

GIANCARLO DE CARLO 1919-2005

Giancarlo de Carlo died on 4 June aged 86. He was the last surviving member of Team X, the group of young architects set up to organise the tenth CIAM conference in 1956, and re-inject social idealism and planetary consciousness into a Modern Movement that was becoming increasingly sclerotic and bureaucratic. Like fellow members of the group Aldo van Eyck, the Smithsons and Ralph Erskine (who died earlier this year, AR April 2005), de Carlo never lost his social and political commitment, nor his dedication to creating particular places, rather than the bureaucratic anonymity which was then increasingly the norm.

As a young man, he was a member of the Resistance against Fascism and the post 1943 Nazi occupation. His first book (published in 1947) was on William Morris, an idealist he revered for his marriage of political commitment and artistic activity. There are wonderful photographs taken just after the War of him passionately addressing workers' meetings in early forms of user participation. Politically aware de Carlo may have been, but he refused to become part of the corrupt Italian web that has entangled architecture, political patronage and officialdom, guaranteeing the mediocrity of so much contemporary architecture. He had no personal style (and thought little of those who have), but approached each new project freshly, seeking input from site, topography and users. Yet he was never a pasticheur and remained a committed Modernist. He saw architecture as part of a continuum of design activity and thinking that ranged from regional and urban planning to furniture.

He took numerous academic appointments on both sides of the Atlantic, and was always ready to take part in a conference or a jury, provided that he approved of the subject and the organisers, for whom he would give much time generously – and free if, like the ones organised by the AR, there was no money for fees. He was professor of architecture at Venice University for many years, but none of the overseas posts lasted very long (he couldn't bear to be parted from his Milan practice for any great length of time). He founded *Spazio e Società*, a magazine not concerned with style like most other international architectural journals, but devoted to exploring relationships between architecture and people, theory and practice; he edited it for many years before advancing age caused him to share responsibility with an American university.

In 1975, he founded the International Laboratory for Architecture and Urban Design in Urbino (ILAUD), which every summer drew students from Europe and the US to Urbino, one of the most perfect and least known provincial cities in Italy. Students were exposed to the wisdom of de Carlo and other members of Team X, and the ministrations of younger architects and critics who achieved his approval. ILAUD was intense but fun, and it was a great privilege to be asked to take part. I went once, and one evening, he took us all to the local Communist party's fête, where we drank Karl Marx (red) wine, and Peter Smithson won two tiny ducklings at a fairground booth. (Next day they were taken to a farm to be brought up in peace by Connie Occhialini, Giancarlo's dedicated amanuensis).

From the early '60s, he had a long (occasionally acrimonious) relationship with Urbino, both city and university. The place became his three-dimensional laboratory. He built faculties in the city and halls of residence for the university, and for the city he reopened Francesco di Giorgio's great spiral ramp that links the upper and lower parts of the town (he felt strong affinity for the remarkably versatile Renaissance architect and engineer). His other work included '70s masterplanning for cities as varied as Milan, Rimini, Bologna and Palermo, and much housing, for instance the Matteotti New Village at Terni (1976) and the scheme at Mazzorbo in the Venetian lagoon (AR July 1987), where he reinterpreted the traditional island pattern of living. He built hospitals and buildings for several universities, and (in more festal mood) the heraldic gates of San Marino (AR November 1996), the strange little independent republic not far from Urbino.

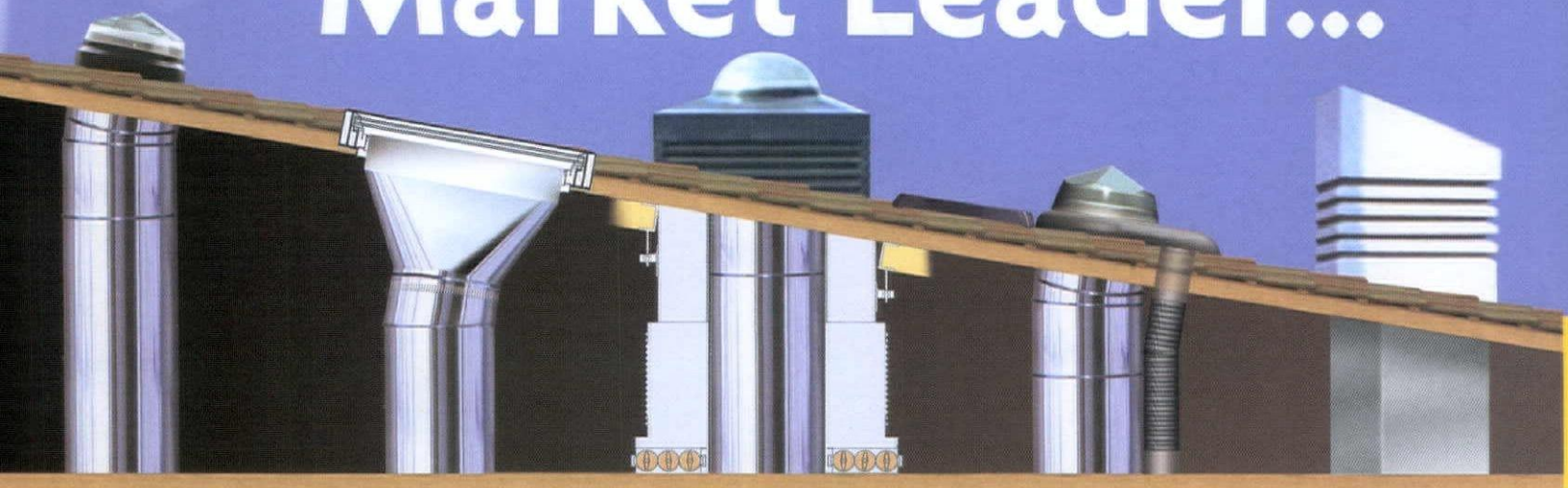
The first time I met Giancarlo was in Edinburgh, where we were both members of a jury. He walked briskly up Arthur's Seat (though he was over 60), and on the summit he was enraptured to see the city of Patrick Geddes spread out before him. The final meeting was at his flat in Milan, last summer, where although he had been very sick, he was as lively, inquisitive, witty and thoughtful as ever. His invention, energy, passion and humanity will be greatly missed by the whole profession.

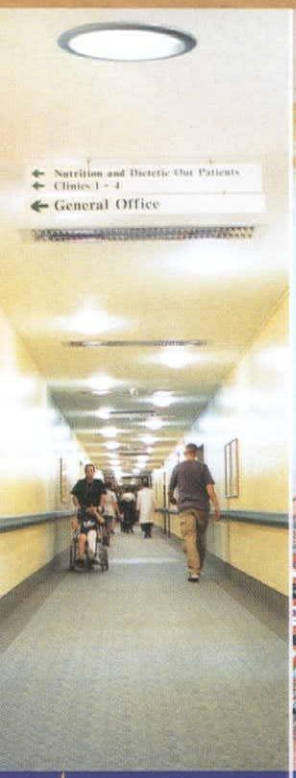
PETER DAVEY



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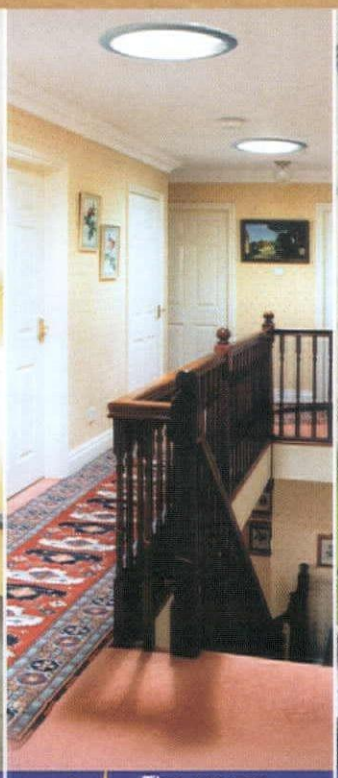
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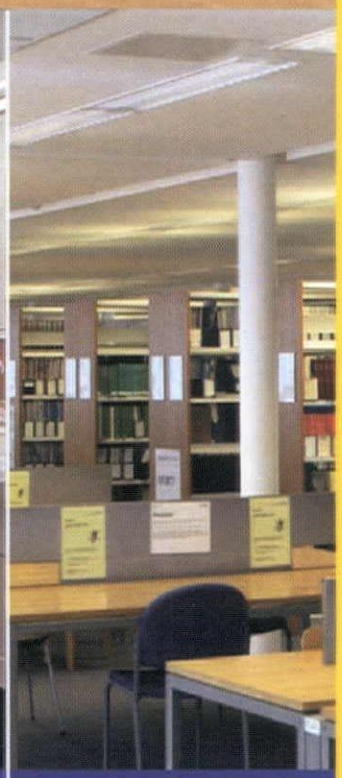
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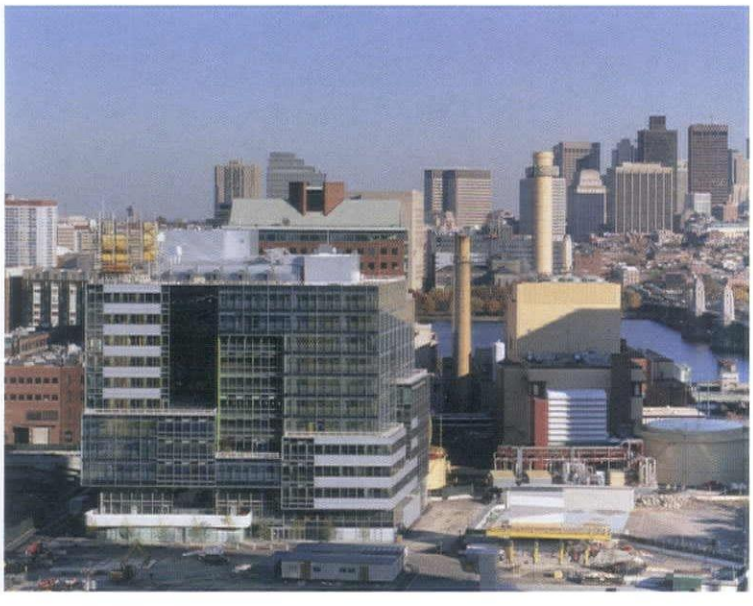
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SEVEN OF THE BEST

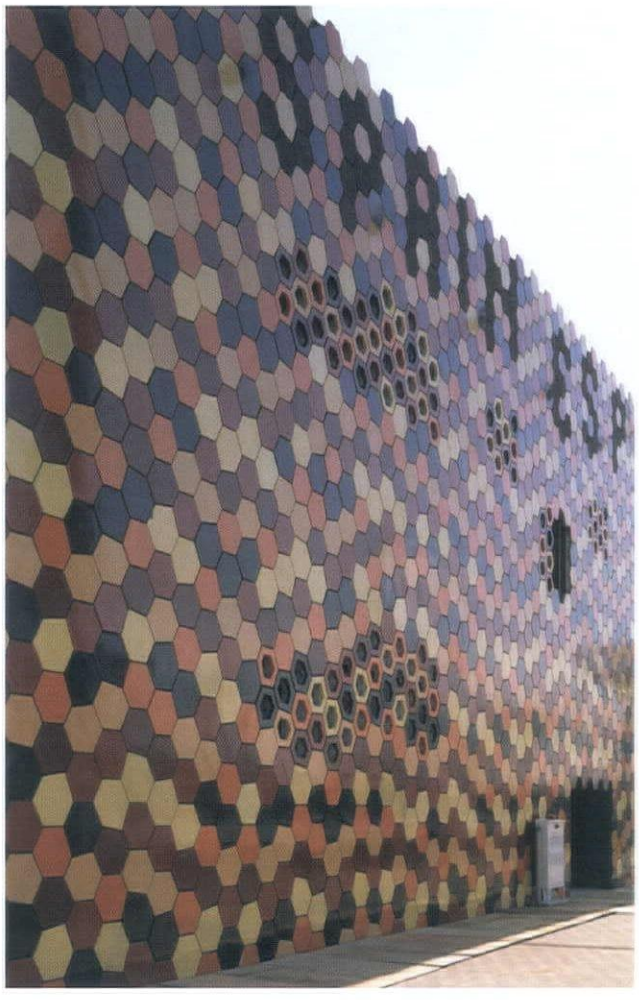
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Singapore: Esplanades – theatres on the bay, by DP Architects (Singapore) with Michael Wilford & Partners.





Singapore: Lincoln Modern apartment block, by SCDA Architects.

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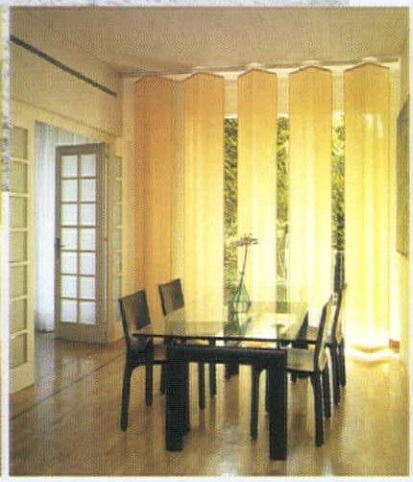
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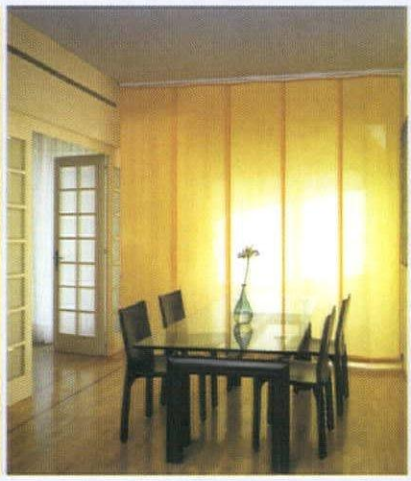
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Above, Feilden Clegg Bradley Architects' photovoltaic canopy at the Earth Centre. Photo: FCBa. Opposite, John Miller's Elizabeth Fry building at the University of East Anglia. Photo: Anthony Weller.

ELEVATION FIVE AND THE FUTURE OF GREEN

While eco-sceptics continue to question established environmental strategies, Peter Clegg raises a quieter battle cry, calling for a less expressive architectural iconography and highlighting some third-generation environmental concerns.

David King, the UK government's chief scientific advisor, suggests that climate change is a more significant threat than terrorism. If so, then architects need to move to the front line and adopt a carefully considered battle strategy. Their advance should be driven by an improved appreciation of conservation technology and bio-climatic design, as well as by changes in attitude and lifestyle in respect of energy use. The history of green architecture could be described as learning by experience; trial, and occasionally error. The first generation of green buildings (in the UK, at least) tended to rely on passive solar design. These failed when we realised that adding extra insulation to the building envelope, simply reduced the heating season to the few months of the year when there was no solar energy to harness. The second generation preoccupied itself with thermal mass, daylight rather than sunlight, and night-time cooling. These strategies worked, but quite often measured performance demonstrated failures in the basics of airtightness, and under-estimated the increase in internal gains from equipment. The sand is now shifting beneath our feet. Climate change is beginning to kick in and has added a couple of degrees to peak summer temperatures that we need to design for. And an insatiable appetite for more power at our fingertips, in both home and office, means that electricity costs and the consequent internal gains in our buildings continue to rise.

Whereas over the last twenty years we have looked to northern Europe (and particularly Scandinavia) for innovation in reducing energy demands, we now look to the south for our precedents. The art of shading will become an even more significant part of our architectural language. As for the ever-increasing use of electricity, we can either decide that power generation is beyond our architectural remit, or we can specify highly efficient equipment and investigate turning our buildings into generators. In these circumstances, the roof plane becomes the most significant climatic moderator and as our theoretical study showed at the National Trust (p27), for an office building in the UK to approach carbon neutrality, providing all of its heating, cooling and power requirements on site, a low-rise solution has considerable advantages. Daylighting from roof lights is almost three times as efficient as from windows, and roof planes are the most efficient location for photovoltaics. Land values, however, may dictate that more conventional shallow-plan, high-rise solutions are more economic and may, because of the urban density they achieve, be more sustainable.

Optimism – out from the shadows

As for lifestyle changes, we do need to be wary of overdosing on climate change and indulging in guilt. Real changes will only take place through a combination of education and legislation, with a recognition that a lower carbon lifestyle can provide real benefits. These include improving the urban realm, encouraging higher density living without burning unnecessary transportation energy, where the advantages of high quality open space, social space, communal facilities and employment opportunities all co-exist. There are precedents which prove that this sort of vision can work.

Curitiba in Brazil (AR May 1999) has revolutionised public transport much more successfully than countries which may think themselves more 'developed'. Friberg in Germany has produced a new urban architecture (using local practices) and set new standards for sustainable community planning. Germany's plans for a renewable energy future are firmly rooted in projects that depend on community energy supply companies. So the next generation of real 'Green' architecture and planning is likely to focus on the urban scale, integrating transport planning, urban landscape and building communities around car sharing, food co-ops and local energy supply companies.

There is a desperate need to learn from these initiatives, and to co-operate in advancing our understanding of reducing carbon emissions. Looking to the US we need to circumnavigate the White House and consider what is being done at the more grass roots level of states, cities and communities. There are 164 American cities (as of 10 June) that have signed up to Kyoto principles. The US benchmarking system



known as LEED (Low Energy Environmental Design) has a much higher uptake than its UK counterpart BREEAM. Technologies of photovoltaics, hydrogen and fuel cell development are more advanced, and a combination of technology and motivation could be harnessed to slow down the gas guzzling machinery that gives the country such a bad name. But as Thom Mayne's new government building in San Francisco proves (p26), there is still a need for icons (or paradigms) of green design, for buildings to tell stories, to reflect the social concerns of their time and to nail colours to an environmental mast.

A quieter paradigm

We need to clarify our definition of 'Green'. The familiar iconography of timber, glass and grass roofs of twenty years ago needs to be called into question. There is an argument that locking up as much timber in buildings for as long as possible helps develop forest industries which sequester carbon, but it is easy to produce over-glazed buildings which end up on the wrong side of the equation that links daylight to heat loss. And green roofs can look great and help with rainwater attenuation but don't stand up to much greater environmental scrutiny.

It is significant that the non-domestic building in the UK with the lowest operational CO_2 emissions is still, as far as we know, John Miller's Elizabeth Fry building at UEA. Built ten years ago using high thermal mass and insulation, a modest amount of glazing and a heat recovery ventilation system, it is not designed to proselytise. Architectural solutions don't need to be overtly green, despite the fact that clients and users often demand that they be so. Both a new iconography and a quieter language need to be developed, in tandem with a benchmarking system that should be part of the public understanding of buildings. We are familiar with the environmental performance of our cars: we can understand the scale of miles per gallon and even kilograms of CO_2 per kilometre, but how long before the profession, let alone the public, can quantify our buildings in terms of annual CO_2 emissions? The European directive requiring energy labelling will help, but the sooner we demand, advertise and most importantly measure those statistics, the easier it will be to expose false icons and develop a new visual understanding of 'Green'. PETER CLEGG

PURE AND SIMPLE

Sauerbruch Hutton's headquarters building, for Germany's Federal Environment Agency, is a model of integration.

What thoughts must have crossed the minds of Sauerbruch Hutton when they won the competition in 1998 to design a new headquarters from Germany's Federal Environment Agency (Umweltbundesamt/ UBA) – in Dessau? How much would the Bauhaus (a short walk away) and its history impinge on the minds of the designers?

Matthias Sauerbruch addressed the issue in a 2002 lecture, 'Modernism without dogma'. He noted that whereas the Bauhaus had concerned itself, in broad terms, with the unification of art and technology, the UBA stands for the symbiosis of technology and nature. The Bauhaus discounted the relationship of buildings to nature, wilfully ignoring the effects of sun by providing a giant single-glazed window facade facing west not north: 'The self-confident geometry of the building and its prismatic purity communicated ... unbroken dominance over nature (which, as we all know by now, has a purely rhetorical character, as the building is in a permanent state of decay.)'

For Sauerbruch Hutton, the Bauhaus served as 'model and warning'. It celebrated an extraordinary combination of artistic impulse, desire to build, and a truly impressive attitude to production (the entire project was designed and built in 18 months). Yet the project was flawed by 'the contradiction between standardisation/mass production on the one hand, and artistically inspired craftsmanship on the other', which resulted in very limited use of standardised construction, and hardly any industrial prefabrication. It makes the construction programme look even more impressive.

Sauerbruch suggested that despite the many and obvious differences between the Bauhaus building and the UBA headquarters, they generally stem from changes in the context in which we live, rather than a fundamentally different design spirit. (Reviewing SH's work to date, it would be hard to think of a practice more committed to the integration of colour, art and architecture, just as much in commercial buildings as in more obvious cultural situations, surely in the Bauhaus spirit.) He believed the connection between rationality (technology and planning) and sensuality (in materials and production), plus the integration of a large spectrum of aesthetic expression was exemplary: 'This dimension of real integration constitutes a quality that has more or less been lost in the meantime and which our generation has to re-acquire'.

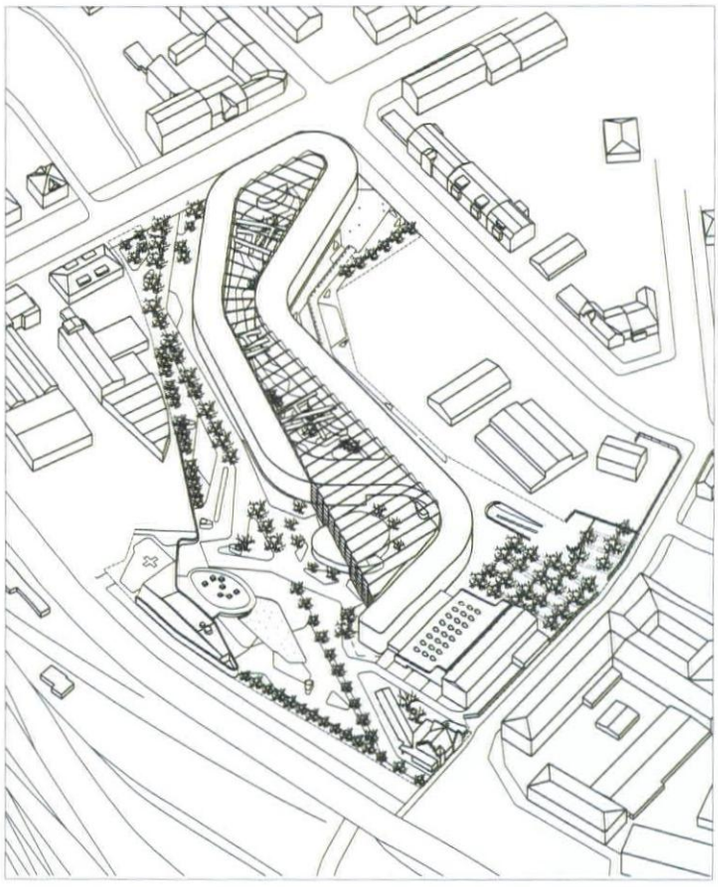
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ARCHITECT
SAUERBRUCH HUTTON



Integration was of course a keynote of the Weimar Bauhaus; Kenneth Frampton quotes from its 1919 Proclamation in his *Modern Architecture, a Critical History*: 'Together let us conceive and create the new building of the future, which will embrace architecture and sculpture and painting in one unity ...' It is an aspiration which has recognisably informed the new UBA building, opened to great acclaim in May this year, though one might say that integration has been taken several steps beyond art and architecture. Quite apart from aesthetic elements, this project (known as the 'snake') synthesises ideas about regeneration, landscape and the city, energy consciousness, mixed-use, community use and urban design in a joyful free-form expression rarely found in that generally banal typology, the government office building.

The regulatory authorities in the former East German town must have been startled by the architecture presented to them. Without close scrutiny, it would be hard to guess that the offices (for 800 workers in ten departments) are cellular standardised units, mostly of about 12 square metres to conform with public sector requirements in Germany. Laid side by side, the conceptual diagram for the building could have been a 600m long office terrace plus corridor; the competition design proposed a four-storey curved building of about 460m length, with the offices placed either side of a central corridor, and a tree-like circulation route. Apart from the flowing nature of the plan, the authorities were certainly surprised by the idea that the entire site would be accessible to all, and as a public route. No security fencing! But the real surprise, unless they were familiar with SH's previous work, would have been the bold colour palette used on the exterior (more restrained on the interior).

There is absolutely nothing arbitrary about the way in which colour has been deployed on this project. A key purpose is to break down the potentially monolithic nature of the facade, while providing a colour code for seven different areas of the building, each of the seven sets of colour related chromatically to its neighbour. The facade, which is 35 per cent glass, has eight alternating horizontal bands of timber and glass. Spandrels are clad in larch slats, which will weather to silver-grey. Clear glazed windows are set back 30cm from the timber; in between a series of glass 'blocks' of varying widths are inserted, with screen-print colour enamelled onto the back surface. In addition, the reveals of the coloured blocks have been treated with contrasting colours.



new complex curves round on itself, linked by atrium and Forum entrance/foyer

2
The 460m building occupies a formerly contaminated site at the heart of the gas industry district of Dessau.

3
A landscaped public route crosses the site; the café (left) is open to all.
4
Offices connect to an intermediate high-roof bulding which connects to a historic building, gutted to form the library.





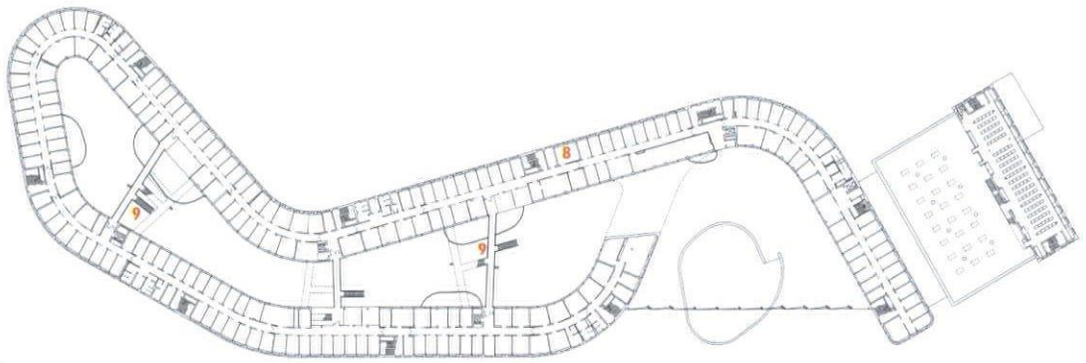
site plan showing the conceptual arc of landscape

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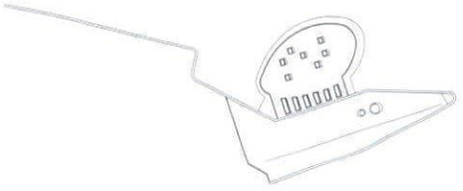


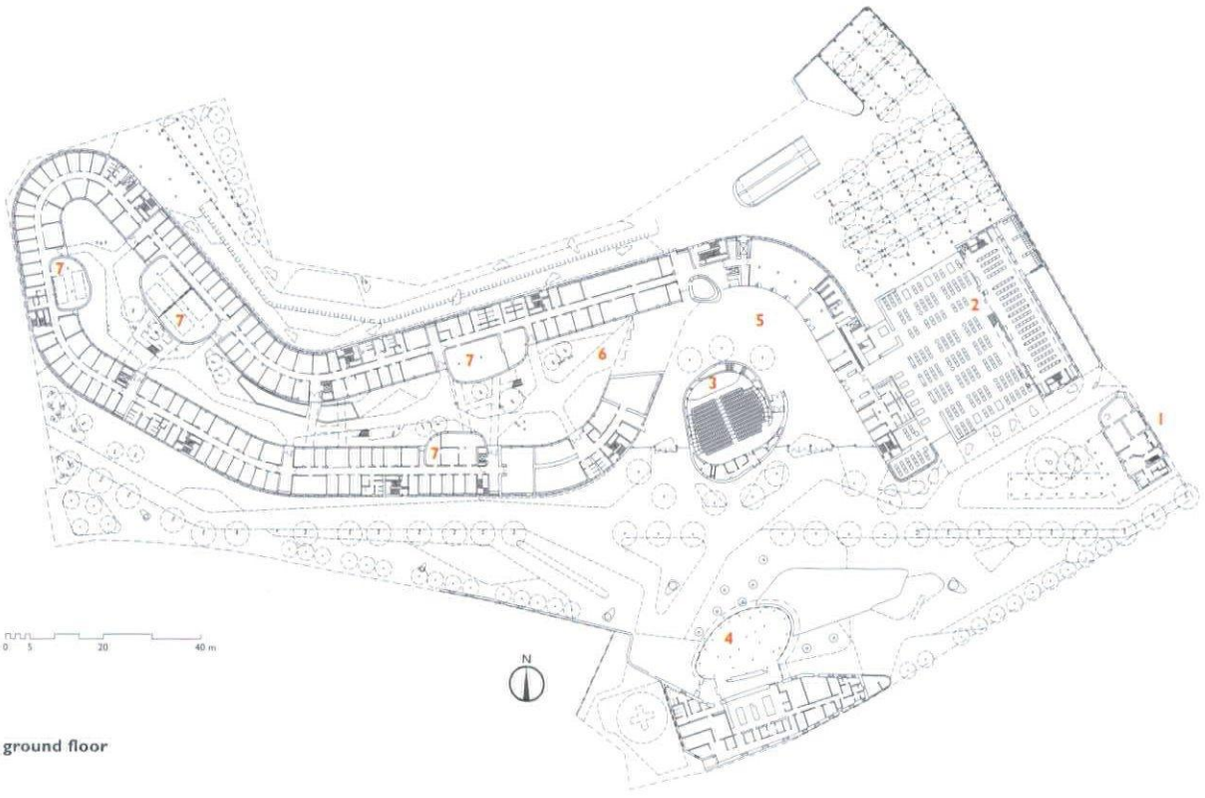
1
The front elevation, showing offices, the entrance to the glazed Forum foyer space, and the auditorium which connects inside to outside

1 Wörlitzer Station information centre
2 library and connecting building
3 auditorium
4 café
5 forum
6 atrium
7 'boulder' rooms
8 cellular offices
9 bridge links
10 parking

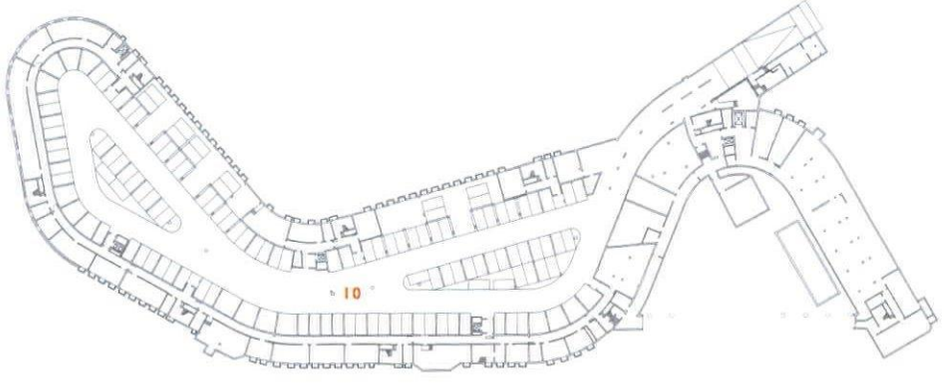


first floor





ground floor



basement

5
Artworks form part of the landscape programme, this folded sculpture by Hans-Joachim Haertel.
6
Turning point at the north-east end.
7, 8
The longest (east) elevation.

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3



4



9
The atrium connects the three groups of work spaces in the complex; soft spaces are at the 'bridgeheads' which expand or contract depending on demand.



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1. minimising heat-loss through the building skin by:
a compact building form using the Atrium as a thermal buffer
b high levels of thermal insulation

2. minimising heat-loss through ventilation by:
a tightly sealing the building
b extracting heat energy from exhaust air
c pre-heating supply air in the winter through the geothermal heat exchange system

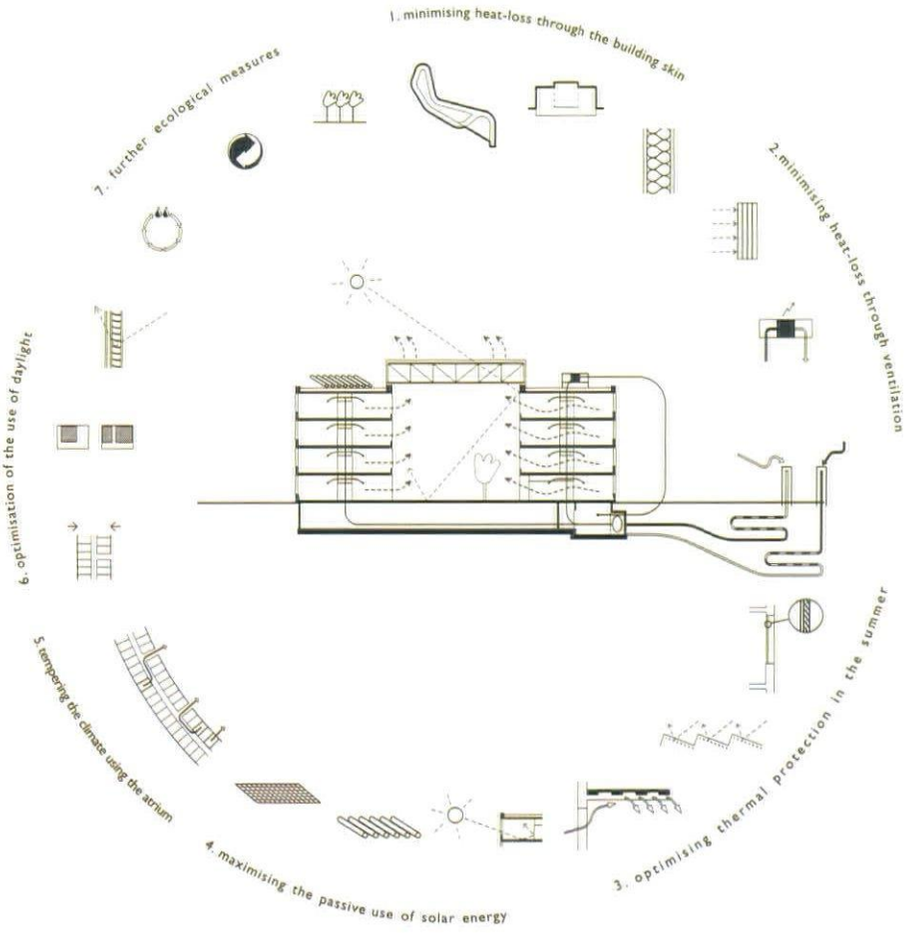
3. optimising thermal protection in the summer by:
a pre-cooling fresh air in subterranean air passages of the geothermal heat exchanger
b exterior solar protection in the tripled-glazed windows
c efficient interior-mounted shading of the glazed roof
d cooling at night with fresh air to exploit the thermal mass of the building's primary structure

4. maximising the passive use of solar energy with:
a flexible solar protection for the offices which allows low winter sun into the rooms
b active use of solar energy with thermal solar collectors
c active use of photovoltaic collectors

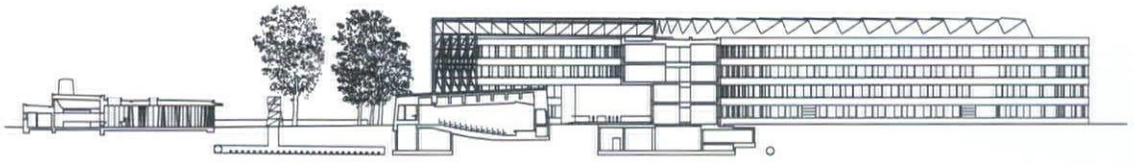
5. tempering the building climate, using the atrium:
a in offices facing onto the atrium: natural air ventilation by opening the windows, as well as exhaust air through 'overflow' elements into the atrium by natural convection
b in offices located on the exterior facade: exhaust air through 'overflow' elements into the atrium by natural convection

6. optimisation of the use of daylight through:
a a relatively narrow building width (11.8 m)
b an optimised proportion of window glazing: ca.35% of the exterior and ca. 60 % of the interior facades
c the use of surfaces to direct and reflect daylight

7. further ecological measures:
a district heating from landfill methane
b use of recycled material and ecological, biodegradable and reusable building materials
c planted roofs



energy concept

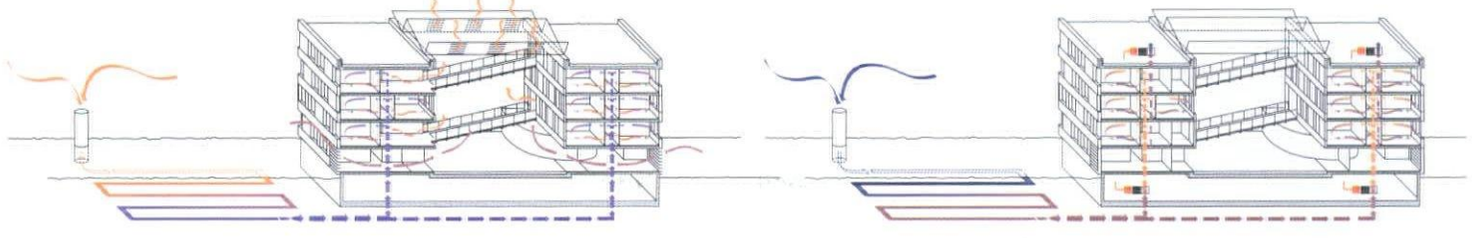


short section



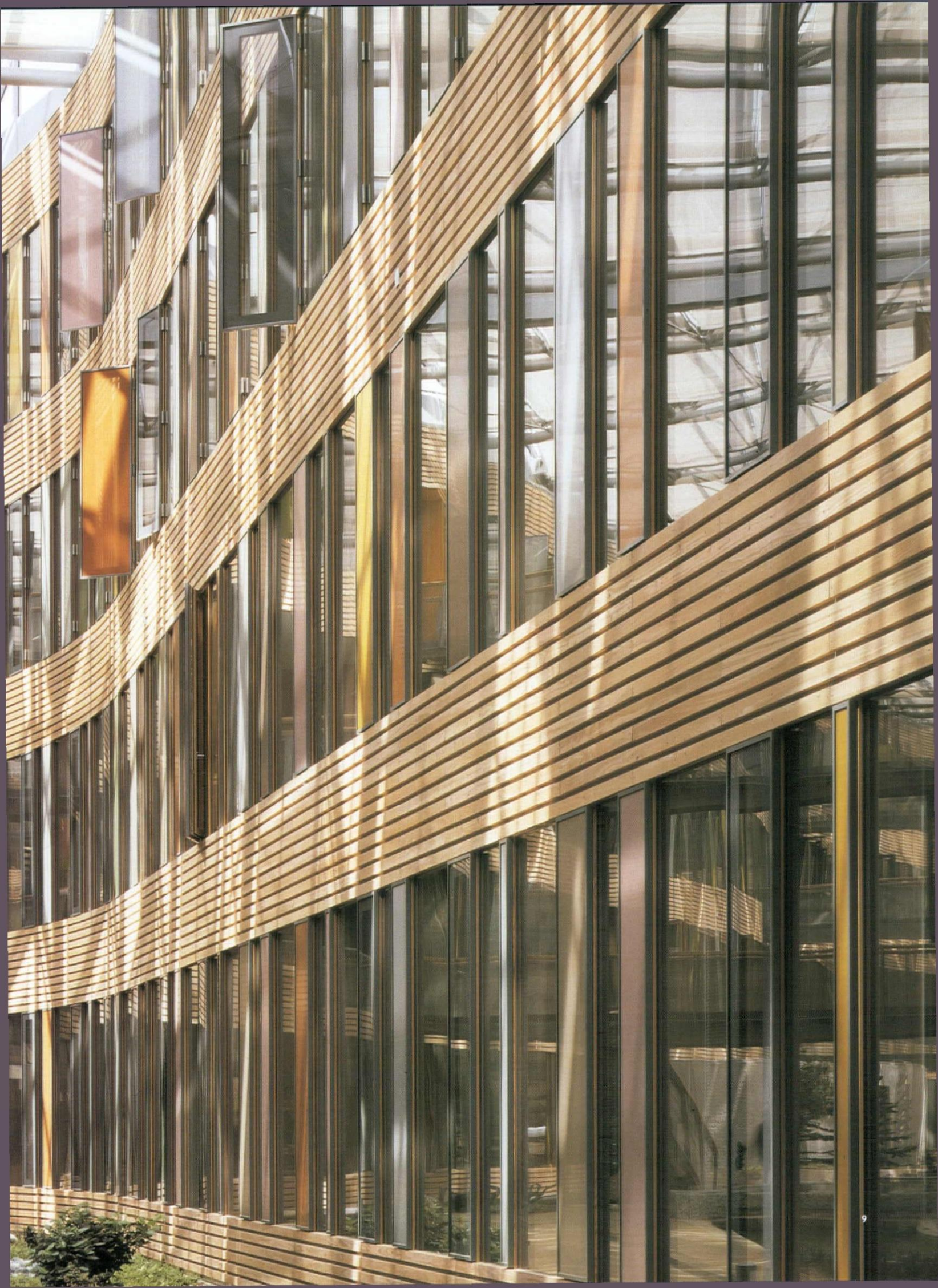
long section

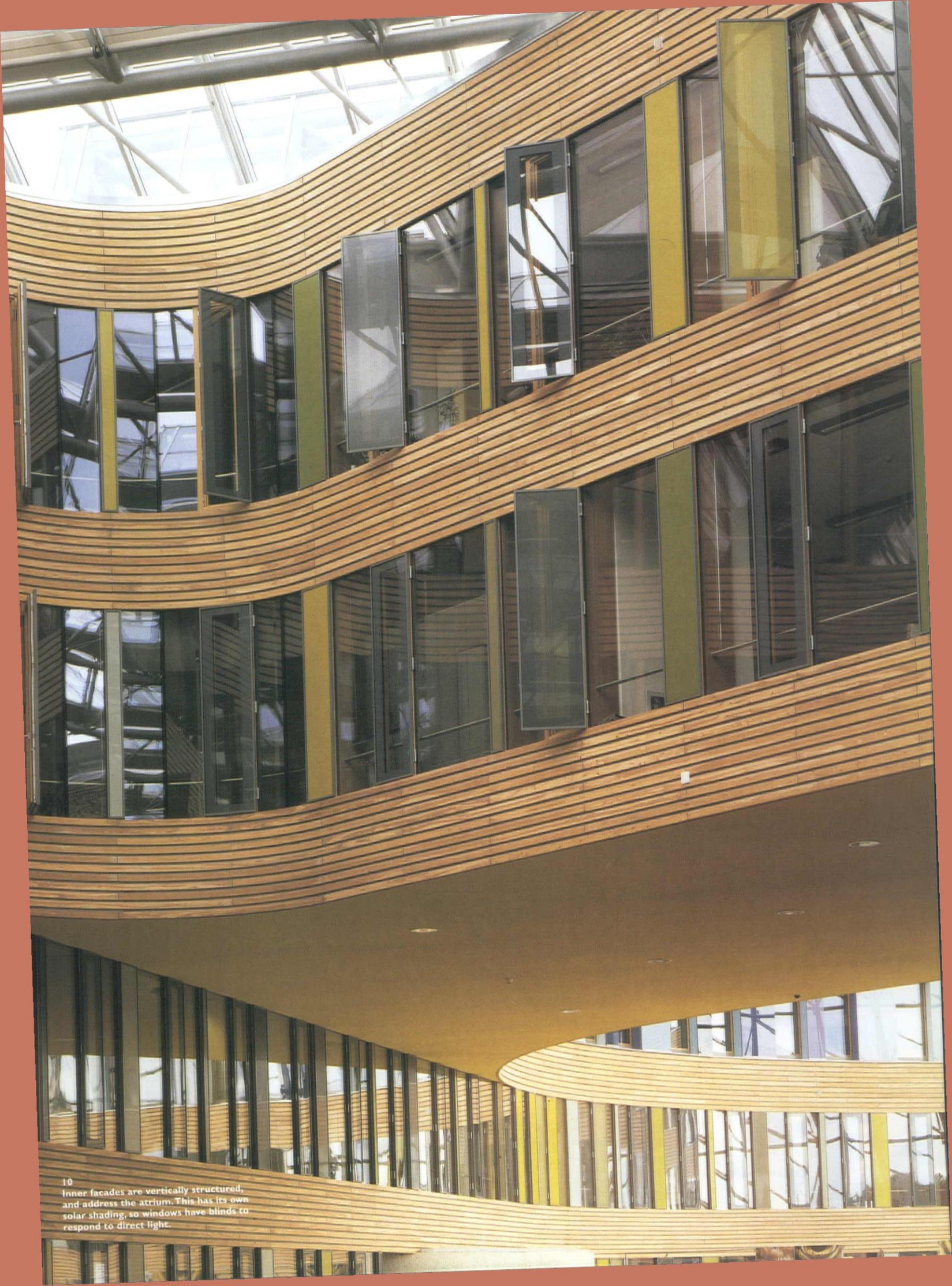
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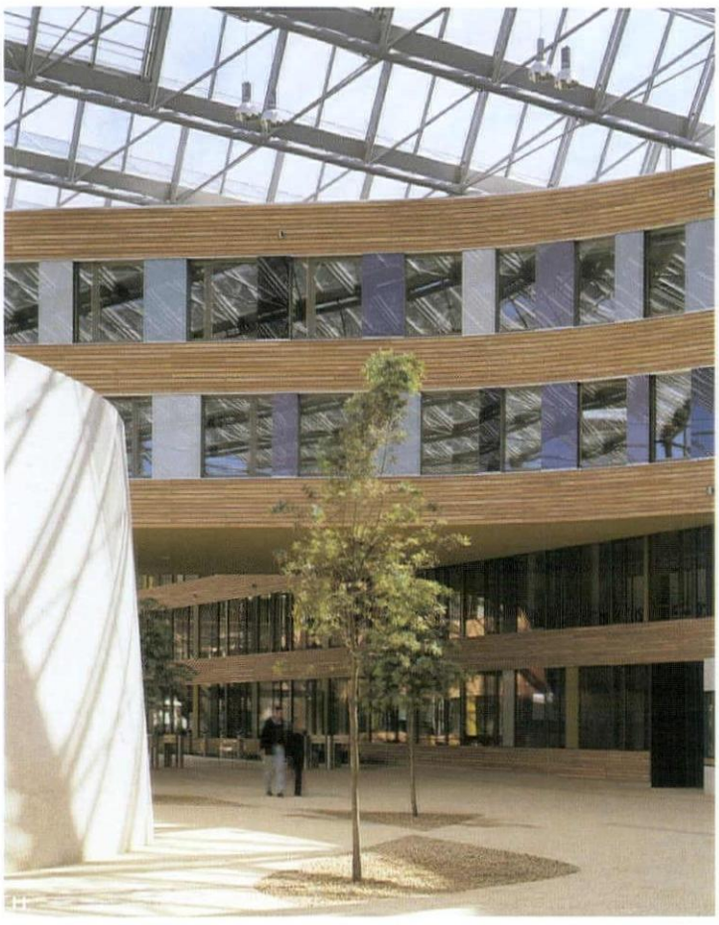
winter ventilation

summer ventilation





10
Inner facades are vertically structured, and address the atrium. This has its own solar shading, so windows have blinds to respond to direct light.



Internally, colour slides in and out of the facades in an entirely rational way, widths varying according to the percentage of glazing. In the 'Forum' entrance foyer, both external and internal facades appear. Complicated to explain, but once you are in the building you begin to understand how all this works, and to appreciate the subtlety both of the colours and the thinking behind each element of the completed design. This is a big building (nearly 40 000sqm) which has been packaged into more comfortable (colour-coded) elements, the whole brought together by the splendid curving atrium with multiple bridge links; it incorporates an auditorium and library (the latter a restored, upgraded and expanded old building), while café, which is open to the public as well as agency workers, is placed separately on the site as two pieces: a brick 'garden-wall' kitchen element, and a glazed pavilion looking across landscape to the offices.

The site plan in part derives from a landscape proposition going beyond the building plot. It also relates to the surviving small Wörlitzer Bahnhof, becoming an information centre, which provides an end stop for the new complex, but originally marked the division between industrial town and countryside beyond, in particular the Wörlitz Garden, created in the English eighteenth-century style. A freeform arc of 'landscape in the city' connects the area in front of the main Dessau station (1hr 20mins to Berlin, where many of the agency staff currently live) to the residential area beyond the new complex, with the new café providing a small plug on one side, the office complex a bigger complement opposite. The implied landscape flows into the Forum of the offices, with a variety of carefully considered planting extending the idea of natural infiltration. It is all a long way removed from the industrial uses of the area on which the agency now stands, which from the late nineteenth century were based round the gas industries. Industrial uses, with concomitant pollution and ground contamination, continued into the 1990s; 1940s bombing resulted in post-war rebuilding. Part of the UBA move has involved a five-year ground water purification programme; no stone left unturned.

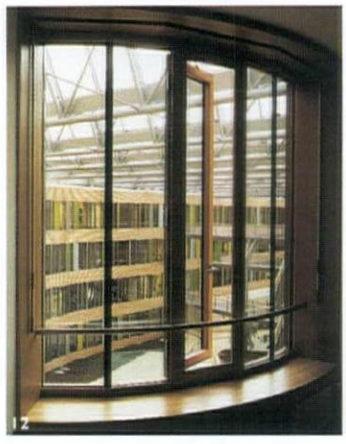
As you would expect, the environmental brief from the client, was about as rigorous as it could get. The task was to produce a building that would perform, in energy terms, 50 per cent better than one which would meet current regulations. Energy consumption was not to exceed 30-kilowatt hours per square metre per year. All materials were to be assessed from an ecological and biological point of view (which resulted in materials from aluminium to zinc being excluded; no plastic is visible in the building). The architects had to specify materials and products which were entirely ecologically correct: Russian larch was excluded on the grounds that the same type could be bought from Bavaria, involving fewer transport miles. Energy-saving measures had to show that they would provide payback, admittedly over a 50-year period. However, no special cost allowance was made for any of this; in fact the building came in under the budget of €68 million, which was based on the standard cost per square metre of a German government building.

The green credentials of the complex are not advertised in a crudely exhibitionistic way. The renewable energy elements are largely hidden, including use of landfill methane for district heating, a geothermal heat exchanger – air inlets are masked by artworks – plus solar-assisted cooling plant and photovoltaic systems. All this produces about 20 per cent of the required energy to run the building, which is largely naturally ventilated. Offices all have opening windows, although on the west facade they cannot provide primary ventilation, while night ventilation is managed via electrically powered panels which can be controlled in respect of timing and temperature. The thermal mass of the reinforced-concrete frame, with exposed ceilings, helps.

What lessons does this complex hold for clients and designers with a less prescriptive agenda? One is that organisations that by definition are obsessive about environmental issues, find it difficult to take risks. Here the architects were not allowed to use recycled concrete, or vegetable oil as fuel, because the UBA has not yet sufficiently tested either to be certain they are appropriate. Another lesson might be that being truly tough on materials and products from a particular viewpoint excludes quite significant materials, whose manufacturers would no doubt be able to mount vigorous arguments as to why they too are ecologically correct. A third is that designing to meet the highest requirements for environmentally correct buildings does not necessarily involve a price premium.

Perhaps most important for Dessau is the growing contribution the building will make to the regeneration not just of this blighted site, but to the city as a whole. With one of the highest unemployment rates in the country, at 40 per cent-plus, the psychological impact of such a significant federal investment will be considerable. And of course there is now an additional reason to visit Dessau. PAUL FINCH

Architect
Sauerbruch Hutton, Berlin
Structural engineer
Krebs und Kiefer
Environmental engineer
Zibell Willner & Partner
Landscape architect
ST raum a
Photographs
Paul Raftery/VIEW



11
A variety of planting inside the offices connects site, landscape and building.
12
Rooms overlooking the atrium tend to be for communal use.
13
Bridge links connect departments, which are colour coded.



OFFICES, LOS ANGELES, CALIFORNIA, USA
ARCHITECT
MORPHOSIS

URBAN POETRY

New offices for Caltrans in LA explore notions of economical energy use and urban monumentality.

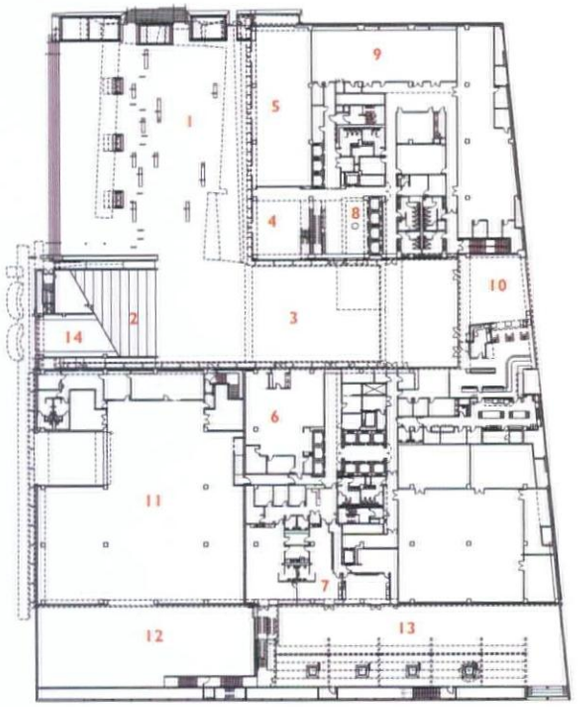
Los Angeles sprawls across a desert and its survival depends on water and transport. The city's Department of Water and Power commissioned a landmark headquarters building from A. C. Martin 40 years ago; now the California Department of Transportation (Caltrans) has moved into an even bolder structure, symbolically located across from City Hall, and a few blocks east of Disney Hall (AR March 2004). Speed, economy of construction, flexible work spaces and energy conservation were the priorities; the architects met all these goals while creating a building and piazza that enrich downtown and its meagre public realm. It's also a breakthrough for Morphosis, the firm Thom Mayne co-founded in 1975, which has finally (like Gehry) won a place at the top table in its home city. Mayne is working with David Childs of SOM, developing plans for vacant lots on Grand Avenue, which links Moneo's Cathedral (AR March 2005) to Disney Hall, Isozaki's MOCA and the public library. With luck and creativity, it could become the major axis of a revitalised downtown.

Caltrans (officially the DoT's District 7 HQ) is the latest of the firm's urban monuments, and it develops ideas of structure and skin previously explored in the Hypo Adria-Alpe complex in Klagenfurt, Austria, and the Toronto University student housing block. Soon to come is the Science Centre School in the inner city, a federal courthouse in Oregon (AR April 2005) and the innovative federal office building in San Francisco. Caltrans comprises a 13-storey slab of offices that arches over a four-storey wing, defining the east and south sides of the piazza. A 9m cantilever carries the upper storeys over First Street to the north, supporting a light bar that serves as a marquee to this piece of urban theatre. The east and west sides of the slab are wrapped in a thermoplastic membrane, and this is concealed by a scrim wall of three different gauges of perforated metal which shades the sun and is set forward to enclose a thermal air

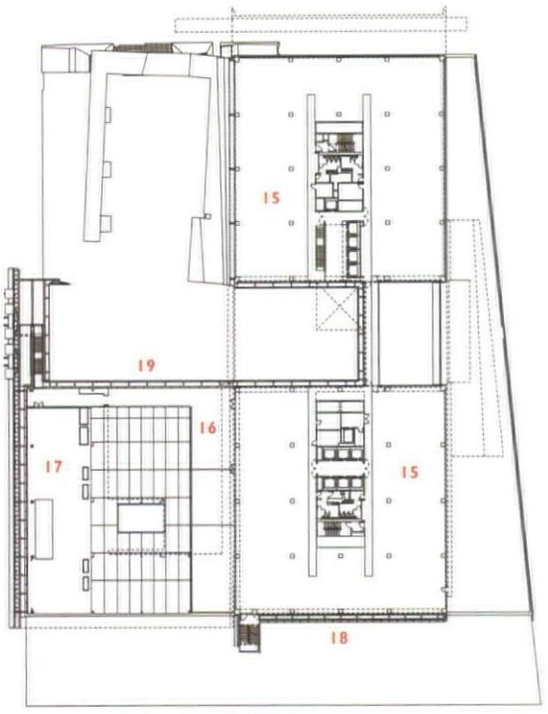
A Caltrans
B City Hall
C police administration building
D Los Angeles Times



location plan

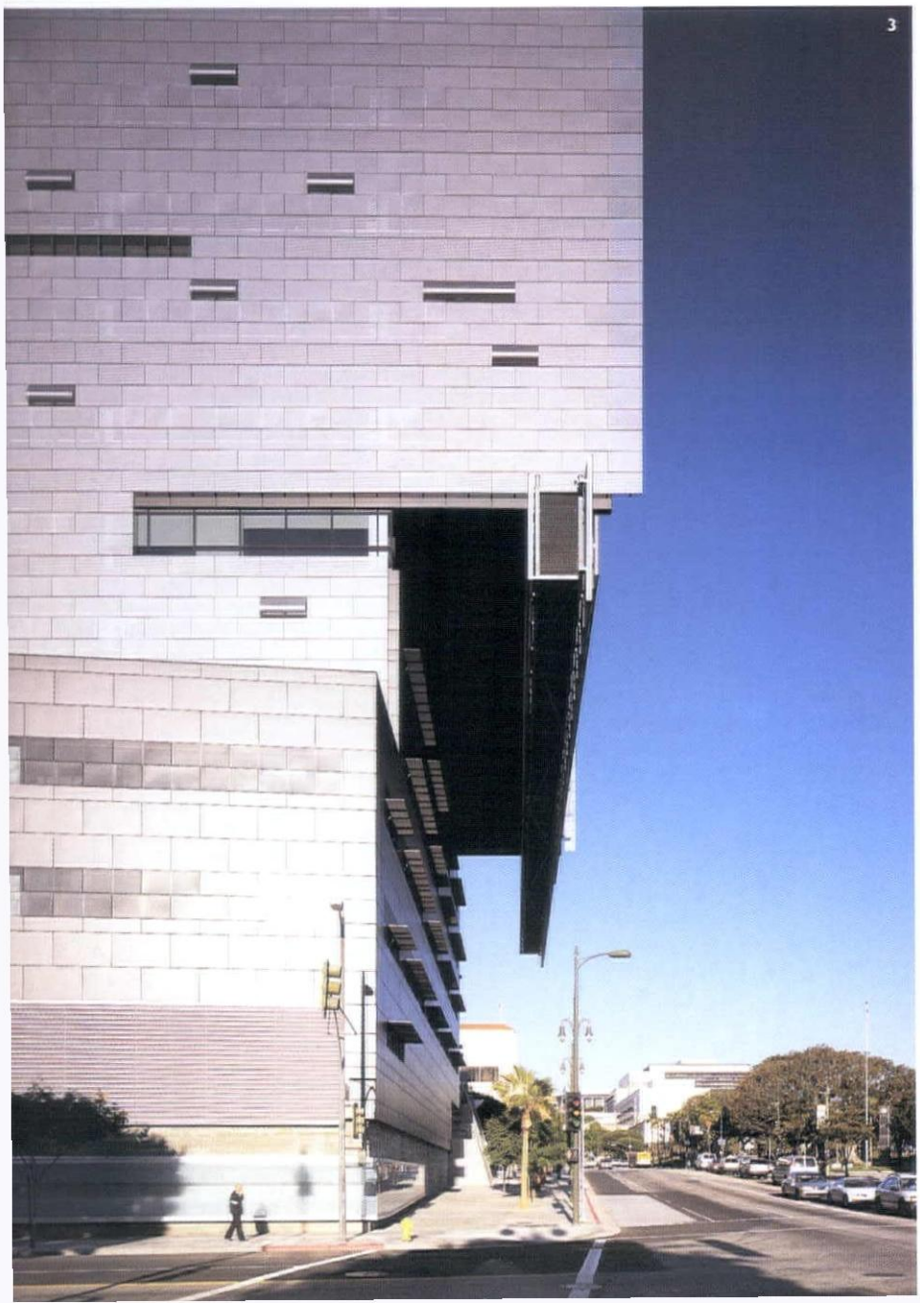


1 public piazza
2 public assembly seating
3 urban lobby
4 exhibition space
5 retail
6 public services
7 daycare
8 entrance lobby
9 conference centre
10 café
11 autoshop
12 autoshop yard
13 daycare playground
14 parking entrance
15 open plan offices
16 public terrace
17 plant
18 photovoltaic wall
19 neon art piece
20 light well

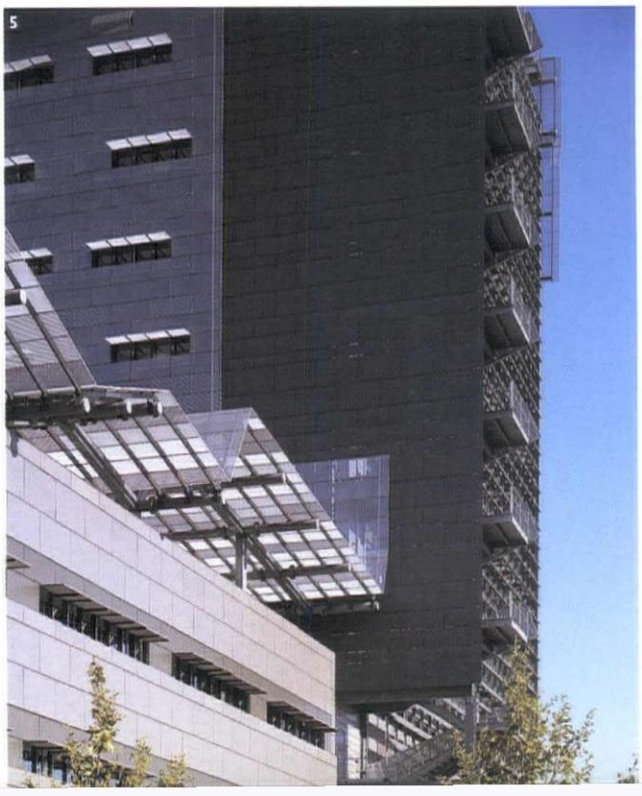


ground floor plan (scale approx 1:1250)

third floor

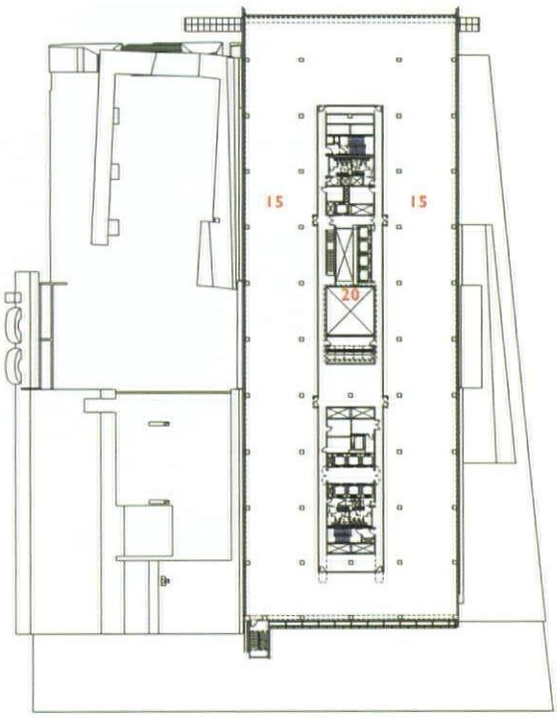




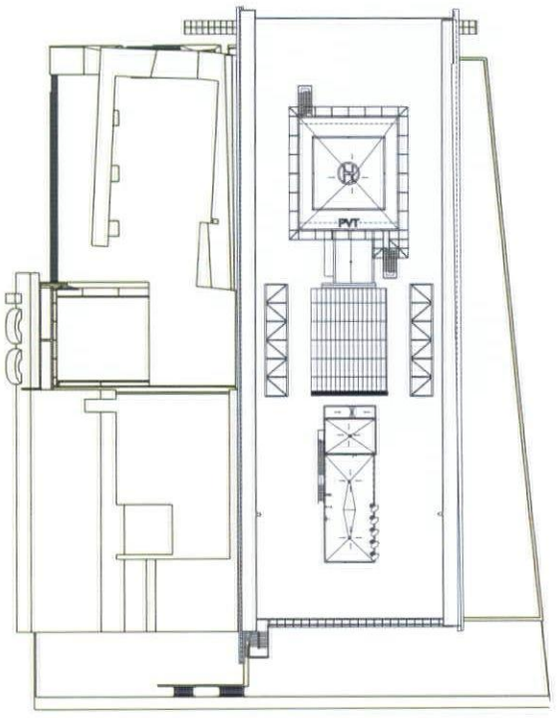




1
Wrapped in a scrim wall of perforated metal, tower and podium extemporise on the relationship between structure and skin.
2
Condition at street level, where the cranked roof meets the external wall.



tenth floor



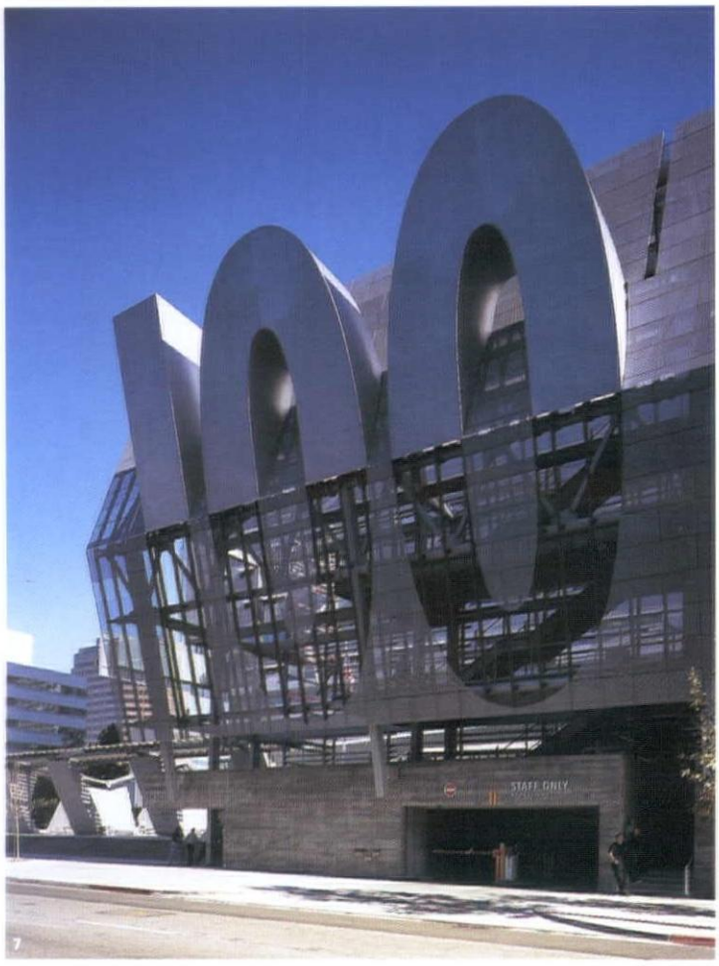
roof plan

3
Tower block cantilevers out over street.
4
Photovoltaic panels on the short south facade supplement the building's energy requirements.
5
Detail of south facade.
6
Hydraulic flaps generate irregular patterns on the long east and west sides of the tower.

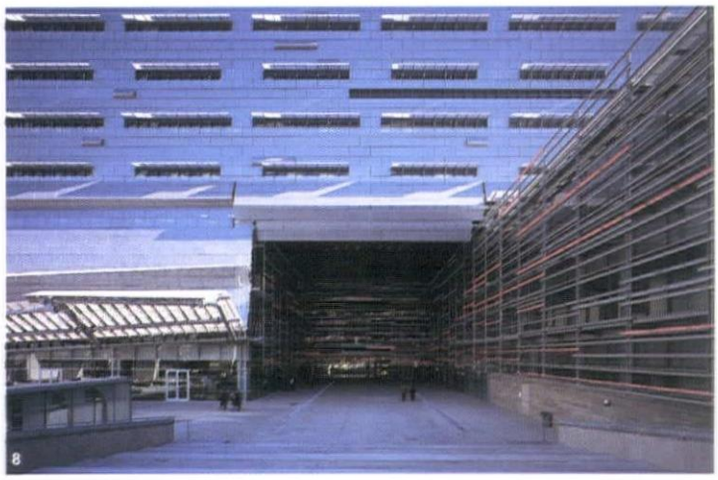
Offices, Los Angeles, California, USA

Architect

Morphosis



7



8



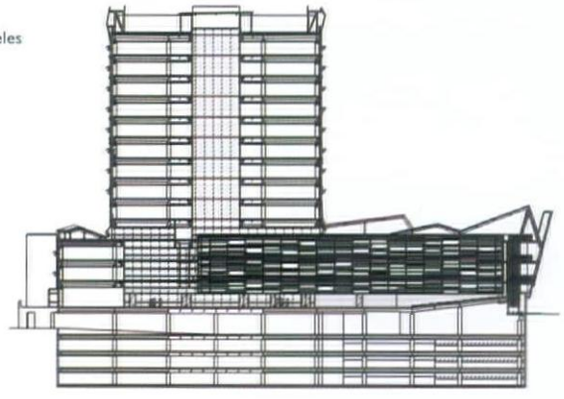
9

curtain. The porous surface, which can be washed down from gantries, is punctuated with hydraulic flaps that pop open when the sun is not shining on that side. The steel frame and the scrim it supports are folded out at the base and extended around the open edges of the piazza as a canopy. To reduce energy consumption at peak hours, photovoltaic panels are set at an angle across the board-marked shotcrete of the south facade, with spaces between each row to open up views for the occupants. Boldly sculpted steel escape stairs jut from the facade and a low wall encloses a play area for the daycare centre.

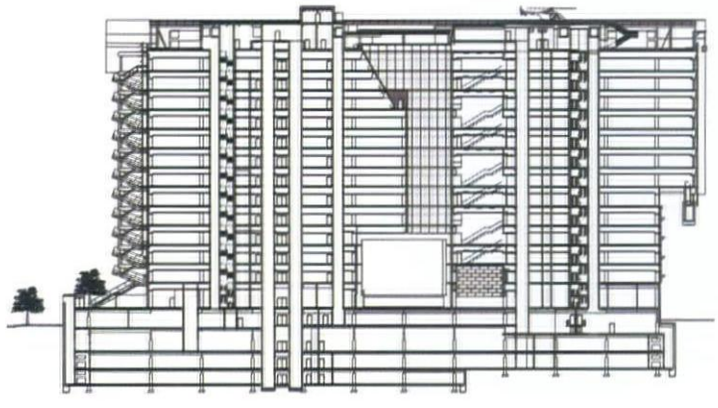
Tough, sharp-edged, and frugal, Caltrans is infused with urban poetry. The scrim shimmers in sunlight and glows from within at night. When the flaps open, they generate an irregular pattern as though these were manually operated shutters on a medieval warehouse, or rocks artfully positioned in a vertical Zen garden. Concrete benches and bent steel posts are scattered across the piazza, doing double duty as seating and security barriers. At the junction of the two wings, bleachers are sunk into the paving, providing additional seating and direct access to the four levels of subterranean parking. Art and signage are integrated with the architecture. A neon mural by Keith Sonnier evoking the lighted streams of traffic on a freeway is wrapped around the glass facades of the lobby and the low wing, with a supergraphic of Caltrans etched on the glazing fronting the piazza and a giant steel '100' to indicate the street address (on First and Main) standing up from the angled end wall.

In the entrance lobby, backlit fibreglass panels wrap round a suspended reception desk. An atrium reaches up four storeys and you glimpse shadows of people moving over the glass floor of a conference room high overhead. Express lifts stop at every other floor, speeding vertical circulation, and encouraging occupants to use the stairs and socialise with their neighbours. The building, constructed in just over two years on a budget of about $170 million, houses 2300 staff in the 105 000sqm interior which is notable for its openness and transparency. The grey hulk of the exterior is dematerialised by light and becomes, from within, a veil that seems to hover over the city. MICHAEL WEBB

Architect
Morphosis, Los Angeles
Photographs
John E. Linden



cross section



long section



CALL CENTRE, GALWAY, IRELAND
ARCHITECT
BUCHOLZ MCEVOY



GOOD CALL

Integrating architecture and environmental control, this new call centre civilises a mundane building type.

Call centres are a scourge of modern commercial life, a twenty-first-century version of the mill or factory to be built as cheaply and expediently as possible. So this new call centre in Galway by Dublin-based Bucholz McEvoy is that rare thing; decent, environmentally conscious architecture, that humanises the workplace. There is a commercial upside to such virtuousness, in reduced running costs and low staff turnover, but it also acts as a powerful retort to lowest common denominator impulses and instincts. We need more good examples of bad building types.

The client, SAP, is a German software company. Its new contact centre deals with technical queries by phone from around the Western hemisphere. To cover different time zones, the 360 staff work in three shifts, so typical building occupancy is around 18 hours, from 7am to 1am. As each staff member toils at an individual workstation rather than hot desking, different parts of the building are occupied at different times of day. The staff age profile is young, between 21 and 30. For some, it is their first experience of office life and the working environment will condition expectations and performance.

Because of the more variable occupancy patterns, heating, cooling and ventilation requirements change with shifts and seasons. So Bucholz McEvoy developed an integrated approach that exploits passive techniques of environmental control and minimises mechanical systems, but



1, 2
Though a generally disregarded building type, the new call centre is a conscious attempt to create a humane, environmentally aware workplace.
3
The edge-of-town condition is characteristically featureless, but a strategy of natural cross ventilation takes advantage of the exposed site and local windy microclimate.
4
Detail of entrance hall with cedar brise-soleil. The architecture manifests an obvious pleasure and skill in how things are made and put together.



7
Superscale graphics signpost the public piazza at the base of the tower.
8
Main entrance.
9, 10
Inside the piazza, a rare instance of civilised public space in downtown LA.

OFFICES, LOS ANGELES, CALIFORNIA, USA
ARCHITECT
MORPHOSIS



is also flexible enough to respond to these changing conditions.

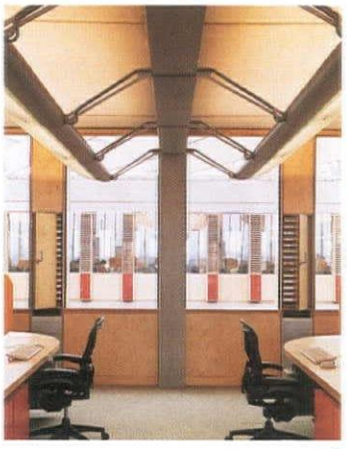
The site is on a business park east of Galway, a typically featureless edge-of-town condition. Two three-storey blocks of offices flank a central glazed atrium. The shallow 13m wide office bars are orientated on a north-south axis to minimise thermal insolation. The atrium acts as a buffer space both socially and environmentally. A soothing internal landscape of birch trees, pebble beds and timber benches gives workers visual and experiential respite. A herringbone grid of thin plywood beams supports the glazed atrium roof.

Offices and public areas are naturally cross ventilated through the external facades, with the atrium acting as a supply and exhaust air volume. Ventilation and heating functions are housed in and controlled by narrow panels set at 1.5m centres between fixed glazing, giving the facades a strong vertical rhythm. Each panel has radiators at low level, manually operated vertical ventilators at mid height (so staff can adjust their own comfort levels), and heat recovery fan units at high level. The fan units, developed specially for the project, help to propel fresh air to the centre of open plan areas, reducing reliance on direct window ventilation. The atrium is ventilated by natural convection with vents at the top and bottom of the space. Under windy conditions (the site is both exposed and elevated, and Galway has a windy microclimate), the atrium functions as an exhaust system, drawing air from offices via high level vents run by the building mananagement system.

Exposed precast concrete slabs maximise thermal mass which evens out the temperature gradient generated by long periods of occupation and heat gains from equipment and lighting. In summer, the slab is cooled by night ventilation and in winter the slab absorbs and retains casual heat gains, reducing the requirement for morning pre-heat. Planning and orientation maximise daylight penetration with solar gain tempered through the use of cedar brise soleils. Uplighters integrated into the concrete structure provide ambient, diffuse light when daylight is insufficient.

Beyond the familiar strategies of passive environmental control, the architecture manifests a sensuous, tectonic pleasure in how things are made and put together, clearly reflecting human thought and skill. To Bucholz McEvoy, this is just as critical to concepts of sustainability. As they perceptively note: 'In our increasingly digital culture, we feel that expressions of human creation must reflect the humanity in their making.'

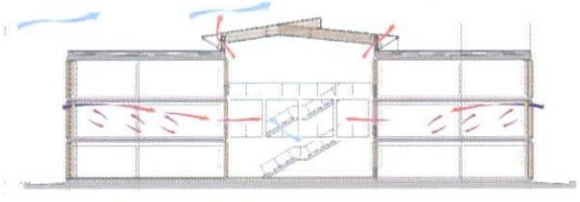
CATHERINE SLESSOR



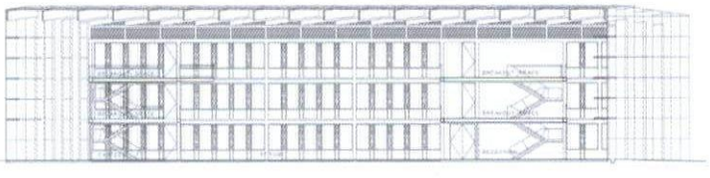
5

Architect
Bucholz McEvoy, Dublin
Photographs
Michael Moran

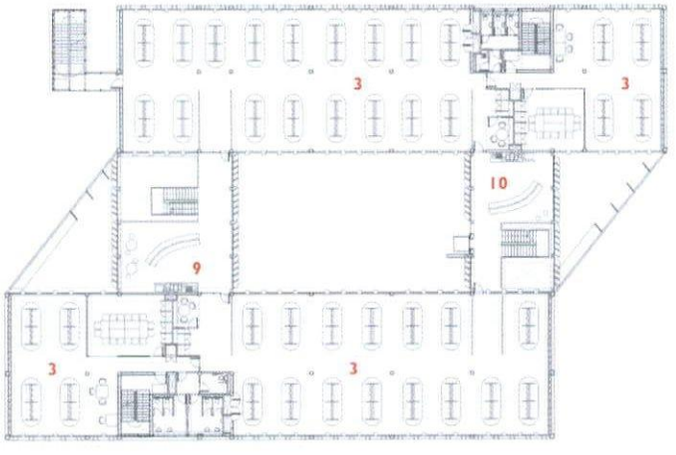
5
Typical open plan office. Uplighters diffuse light off the exposed concrete slab, and ventilation and heating functions are located in vertical panels.
6
The atrium acts as an environmental and social buffer.



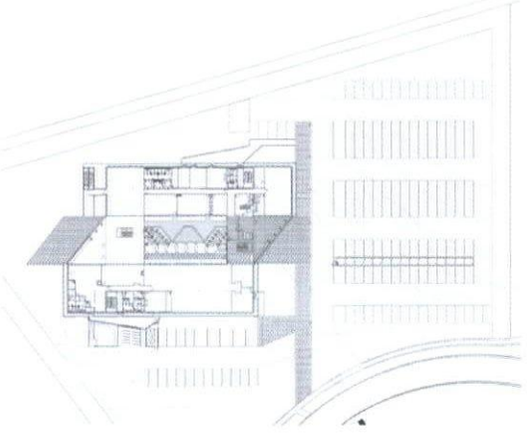
cross section showing cross ventilation strategy



long section

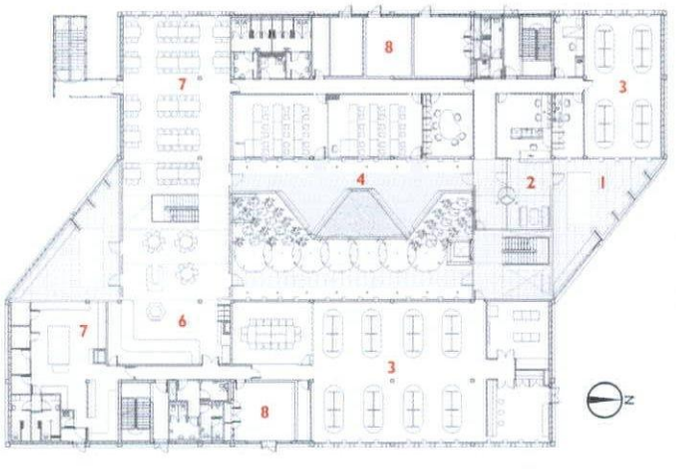


first and second floors



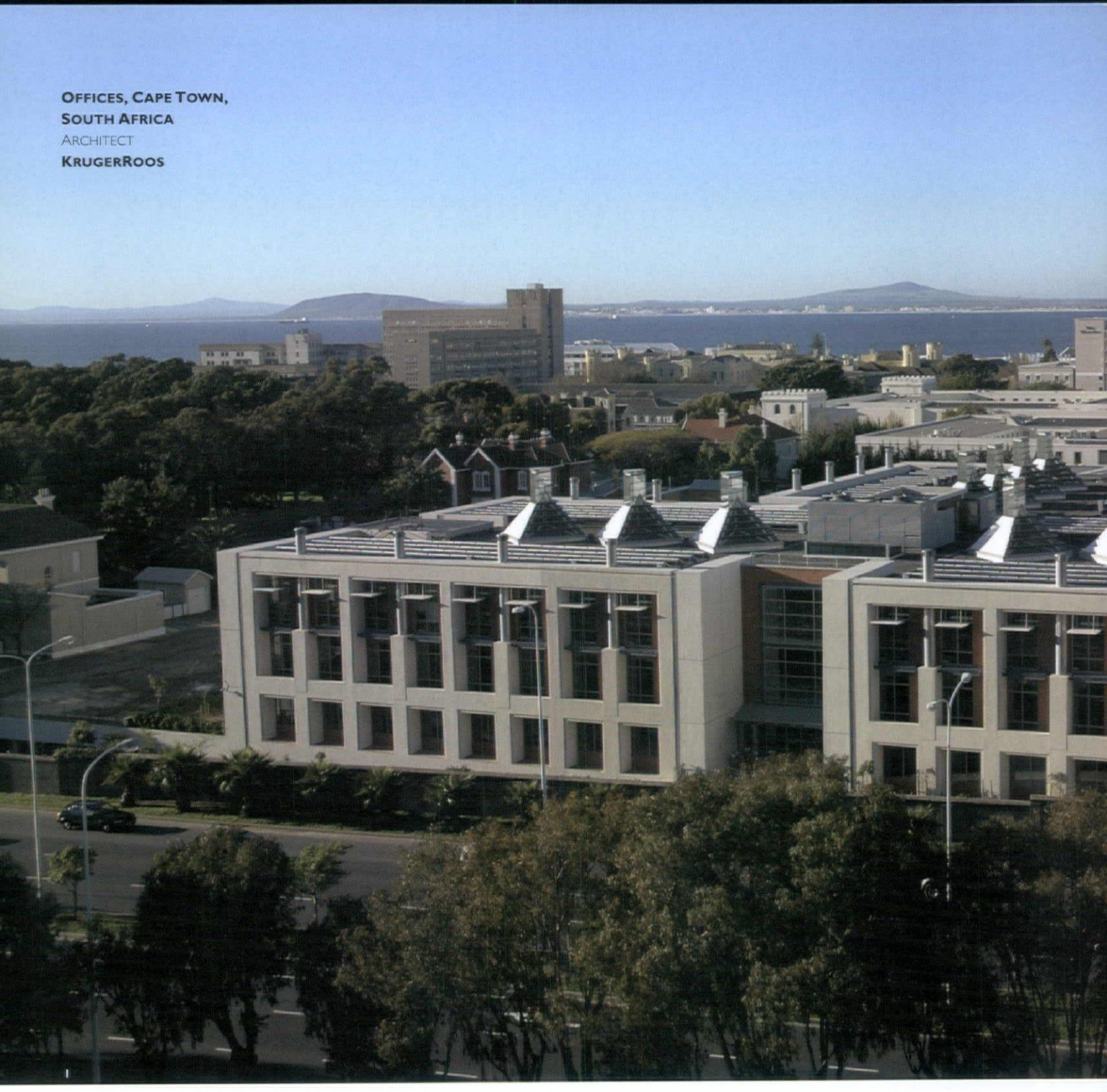
1 entrance
2 reception
3 office
4 atrium
5 canteen
6 servery
7 kitchen
8 plant
9 tea station
10 breakout space

site plan



ground floor plan (scale approx 1:1000)

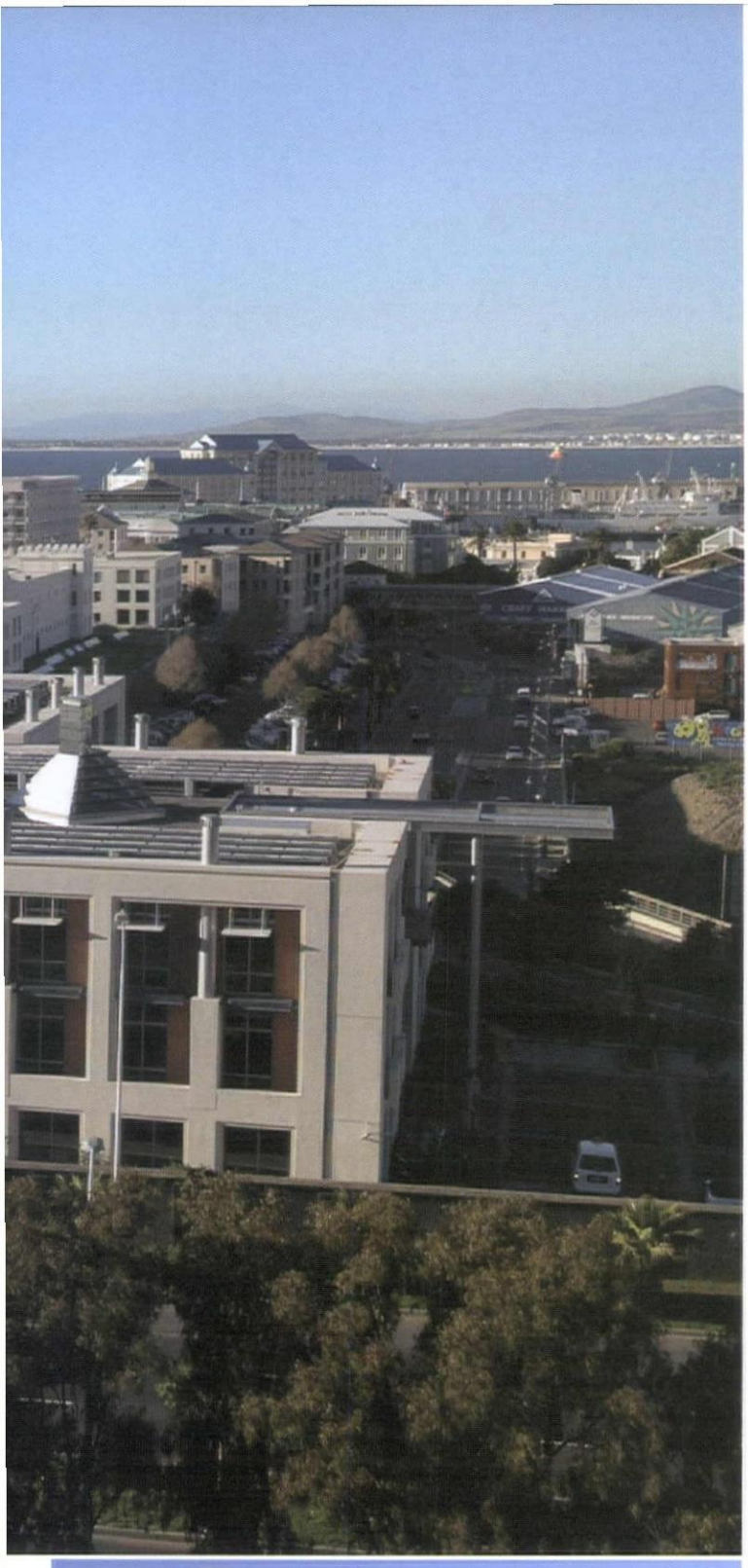




Offices, Cape Town, South Africa
Architect
KrugerRoos

BEYOND PETROLEUM?

This new headquarters for BP in Cape Town explores an agenda of environmental and social responsibility.





The validity of sustainability in the construction industry is often regarded with suspicion as mere lip-service to the greater green debate. When it is propagated by a petroleum company, suspicion turns to incredulity. So the new head office for BP Africa in Cape Town elicited great interest, especially among the architectural fraternity. But BP stated its approach quite simply: their offices have an impact on the environment, so it follows that if they make and use them in a more sustainable way that impact can be minimised.

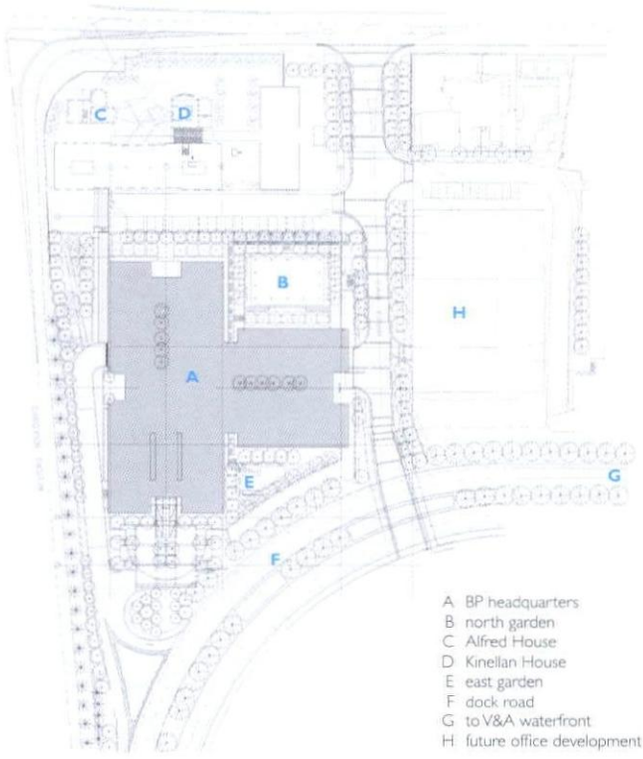
In the South African context, sustainable development means more than tackling environmental issues or the provision of a comfortable working environment by familiar passive means. It means addressing social and economic issues through skills transfer to people who did not have the earlier opportunity to gain experience in a specific field, so creating jobs. BP and the Victoria & Alfred Waterfront (V&A) also specified the use of locally sourced material through which the immediate community could be involved in the construction process. Black economic empowerment (BEE) is a further key target.

The new building lies on the edge of the Waterfront development, bridging the transition from harbour to city, with views to Signal Hill, the city and Table Mountain. KrugerRoos won a limited competition and joined forces with Green by Design Architects as environmental consultants. To comply with BEE targets, KrugerRoos also entered into an association with Joshua Conrad Architects and employed a team of resource consultants.

The competition called for an environmentally sensitive building and in a separate brief by Arup Associates principles and targets were spelt out in detail. Annual energy consumption was set to be 115 kWh/sqm, 10 per cent of overall energy had to come from renewable sources, water consumption must be 20 per cent better than an equivalent conventional building. Local (rather than imported) and recycled materials were to be used, construction waste was to be recycled, and an environmental management plan for the construction period had to be submitted. The T-shaped building is orientated at a 45 degree angle to the north with the main entrance on the south-east corner. The bulk of the building consists of open-plan offices with ancillary spaces such as meeting rooms, a coffee shop, gym, medical suite and travel agent. These functions are arranged around a triple-height circulation volume divided into three distinct zones. Visitors and employees alike arrive in the reception area. Accompanied by BP employees, visitors may access meeting rooms and the coffee shop. Office space remains private.

Strategies were investigated to determine the best solution. Night cooling by way of rock storage was rejected due to the small diurnal temperature range, expense, space required and the need for a conventional back-up system. Taking advantage of the harbourside site, using sea water to cool the structure was considered, but it was found that the marina water temperature was rising and pumping water from a greater depth would require a much larger, financially unviable system.

1
The building in its Cape Town waterfront setting. With its array of lanterns, the roof reads as a fifth elevation.
2
Detail of roof lantern and photovoltaic panels.



site plan



ground floor plan (scale approx 1:1000)

Solar cooling and phase change material technologies were too expensive and relied on imports, despite being technically feasible.

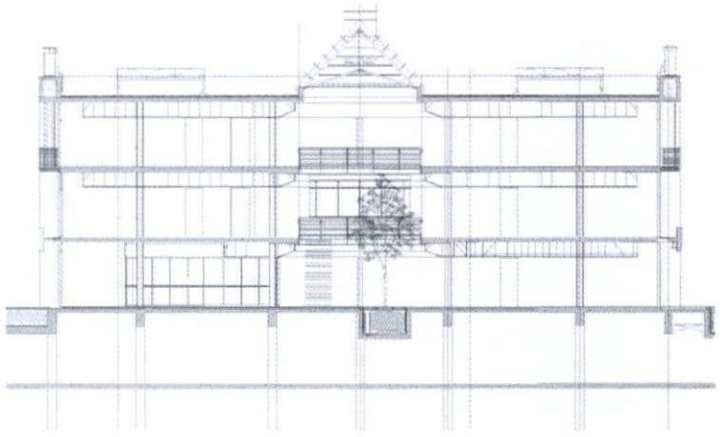
The environmental performance of any building is largely determined by the design of its envelope. The architects developed a kit of parts to articulate each elevation in response to its exposure. Ventilation stacks at the building's outer edge allow the double-glazed windows to be deeply recessed, reducing solar heat gain in summer but allowing sun penetration of office space during winter. Light shelves in the recesses shade windows according to the season and reflect light into the deep plan. Dimmable fluorescent lighting supplements natural light when necessary. Rainwater is collected from the roof and hard landscaping, with air-conditioning condensate and a third of the building's waste water. This grey water is sand filtered and used to flush lavatories and irrigate vegetation. The recycling system should reduce municipal water consumption by as much as 75 per cent compared with a conventional building, a great improvement on the original target of 20 per cent.

Visible from the city and future buildings, the roof was designed as a fifth elevation. A series of lanterns along the circulation route provide natural light to the core in sufficient quantities for the rows of forest mahogany trees to grow, a species carefully selected for the conditions. Direct sunlight is eliminated by orientating glazed sides to the south-east. The lanterns also serve as vents for stale air and smoke outlets in case of fire. Thermal solar panels and photovoltaic cells, which generate 10 per cent of the building's electricity, further articulate the neatly ordered roofscape. The building is modest rather than loud, the palette of materials and details restricted, direct and intelligible. Money saved by eschewing expensive materials and equipment has been used instead to make architecture of simple clarity and meaningful quality.

SCHALK LE ROUX & DEVILLIERS DU TOIT

Architect
KrugerRoos, Cape Town
Associated architect
Joshua Conrad Architects
Environmental consultant
Green by Design Architects
Structural, civil & facade engineer
L. C. Consulting, Orrie Welby-Solomon, P. D. Naidoo
Photographs
Mario Todescini

3
Open-plan offices overlook the luminous atrium. Forest mahogany trees animate the space.
4
Lanterns bring light into the deep plan.



cross section

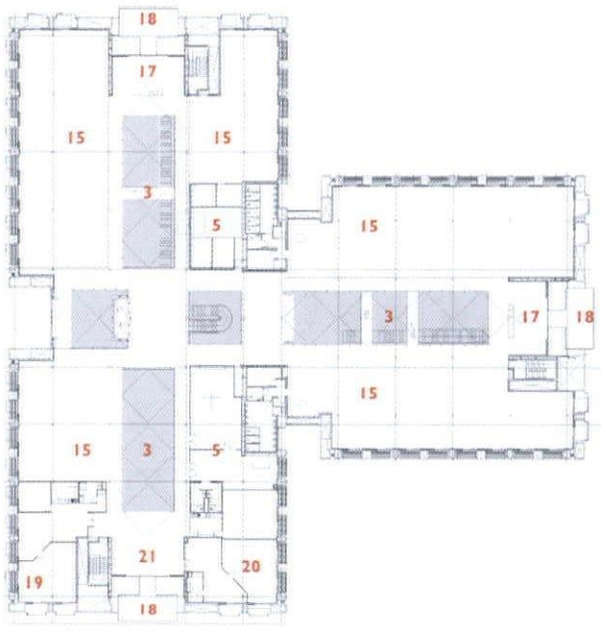
OFFICES, CAPE TOWN, SOUTH AFRICA

ARCHITECT
KRUGERROOS



1 main entrance
2 reception
3 atrium
4 travel office
5 meeting rooms
6 repro and postal services
7 medical suite
8 smokers' deck
9 call centre
10 coffee shop
11 gym
12 meditation room
13 north garden
14 east garden
15 open plan offices
16 crisis centre
17 lounge
18 external deck
19 chairman's suite
20 executive suite
21 boardroom

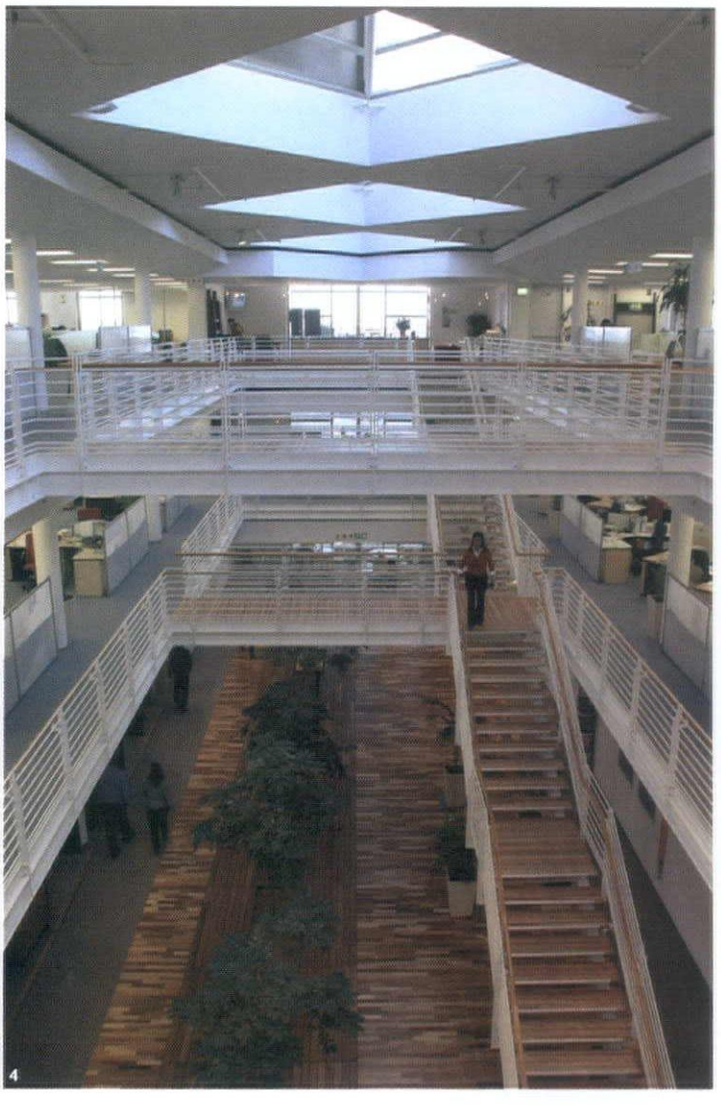
first floor



second floor



3



4

SCIENCE LESSON

Veiled in a polycarbonate skin, this science library exploits site, light and materials in the quiet pursuit of passive environmental control.

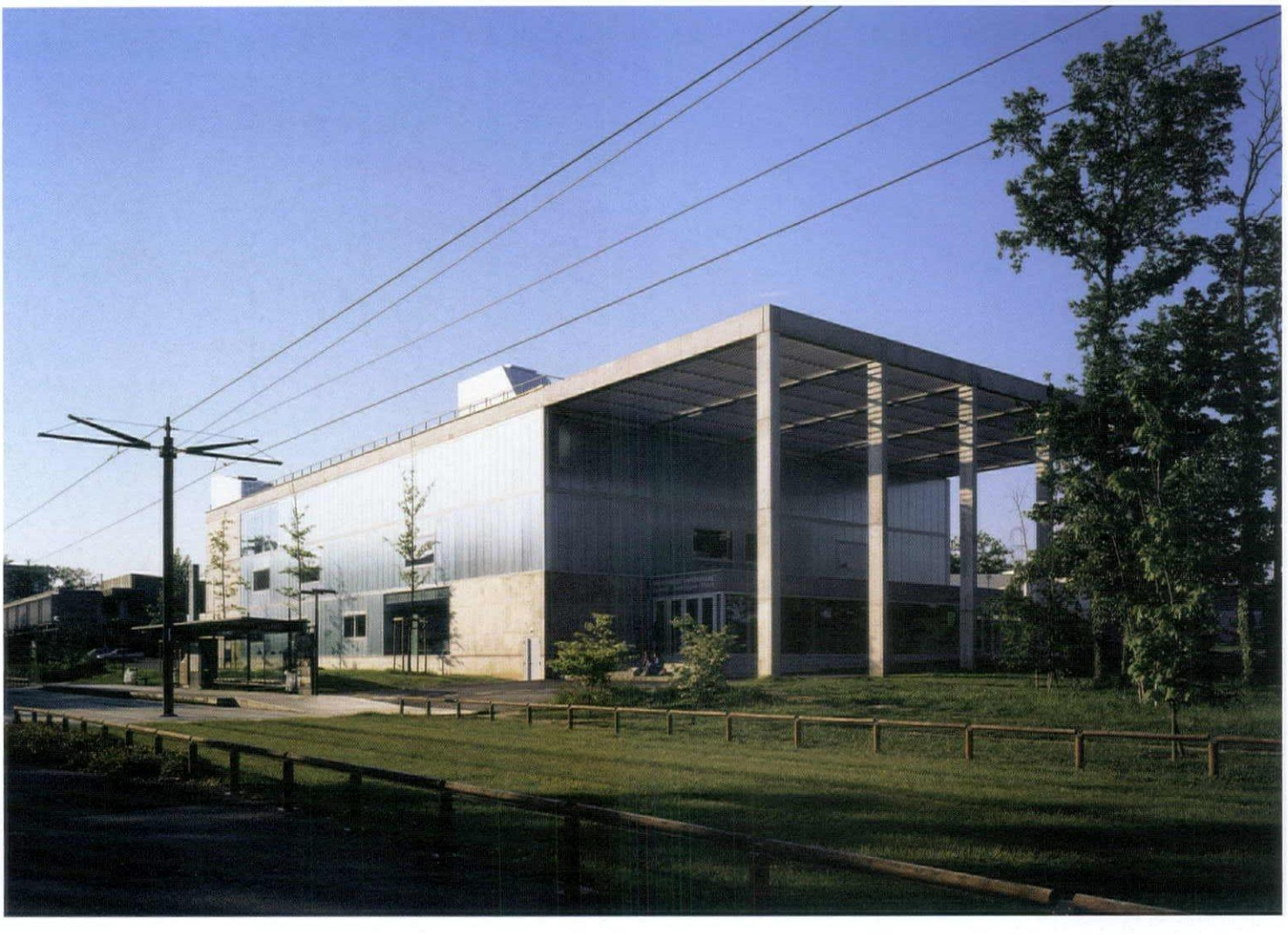
The young French partnership of Florence Lipsky and Pascal Rollet has a reputation for formally sparse but technically and materially inventive buildings that make the most of limited programmes and budgets. Though the pair favour the aesthetic edginess and functional economy of raw or industrial materials, they generally play it straight with modular Miesian structures and disciplined spatial arrangements. Their latest building is a science library for the University of Orleans. Founded in 1961 and now with some 5000 students, the university occupies a peripheral campus sward at some remove from the city centre, linked by a tram line that runs on a north-south axis across town. The site for the library is next to the tram line, in front of one of the four stations that serves the campus.

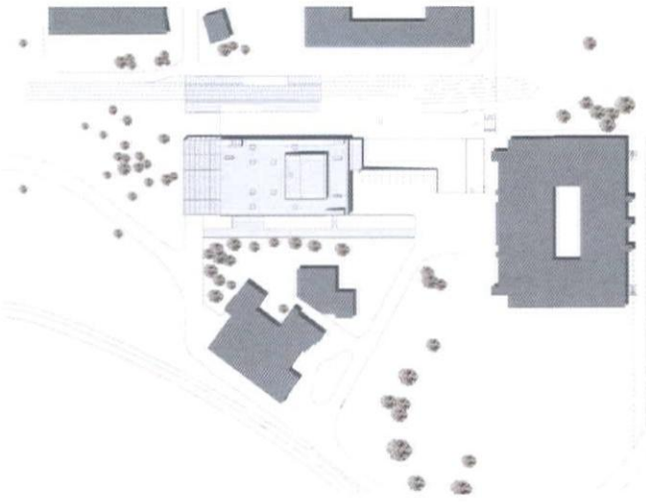
Emerging from a boskily pastoral setting, the building is a strong, almost graphic presence in the landscape. The taut orthogonality of its form, a long, three-storey box terminated by a full-height colonnade, suggests a scientific triumph of the rational over the romantic, but it has a more quixotic side in its appropriation of materials, handling of light and approach to energy use and environmental control.

The tall concrete colonnade, like a scaled down version of Foster's Carré d'Art museum, Nîmes (AR July 1993), is a welcoming gesture that celebrates and civilises arrival, while emphasising a route to the lake. A small glass box, which also acts as an informal exhibition space, forms a decompression zone between the blare of the outside world and the

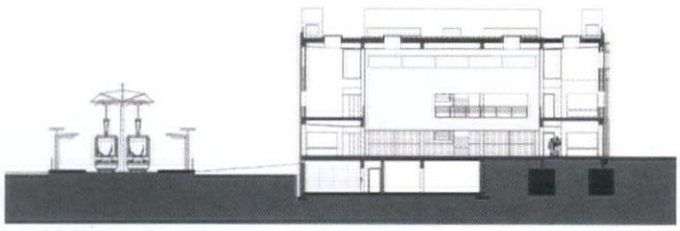
1
The translucent volume of the new library emerges from its wooded campus setting.
2
A tall colonnade creates a space for social interaction.

UNIVERSITY LIBRARY, ORLEANS, FRANCE
ARCHITECT
LIPSKY + ROLLET

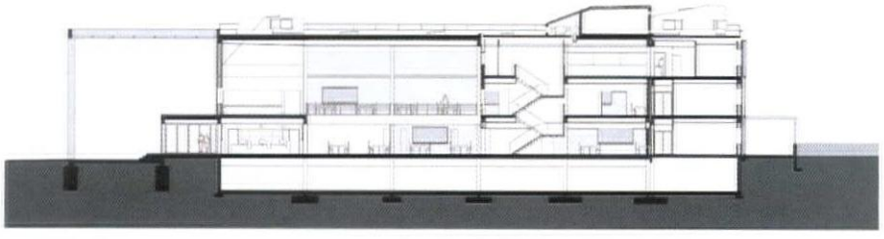




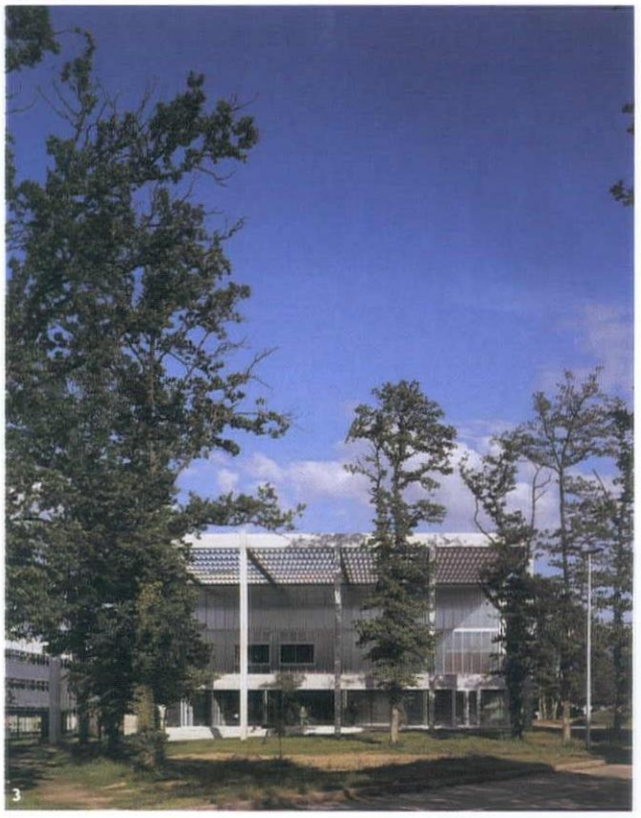
site plan



cross section



long section

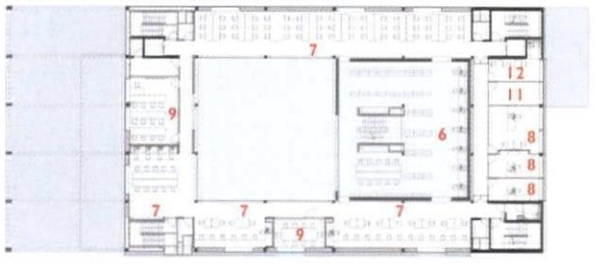


3
The colonnade marks the entrance.
4
The site lies next to a tram line linking the campus with Orleans city centre.
5
Windows puncture the translucent polycarbonate skin; glare control is provided by vertical brise soleil.

UNIVERSITY LIBRARY, ORLEANS, FRANCE

ARCHITECT

LIPSKY + ROLLET



first floor

1 colonnade
2 entrance hall
3 exhibition space
4 reception
5 reading room
6 book box
7 study zones
8 offices
9 group work spaces
10 multimedia workshop
11 computer room
12 kitchen
13 research room



roof plan



ground floor plan (scale approx 1:1000)



second floor



UNIVERSITY LIBRARY,
ORLEANS, FRANCE
ARCHITECT
LIPSKY + ROLLET



6

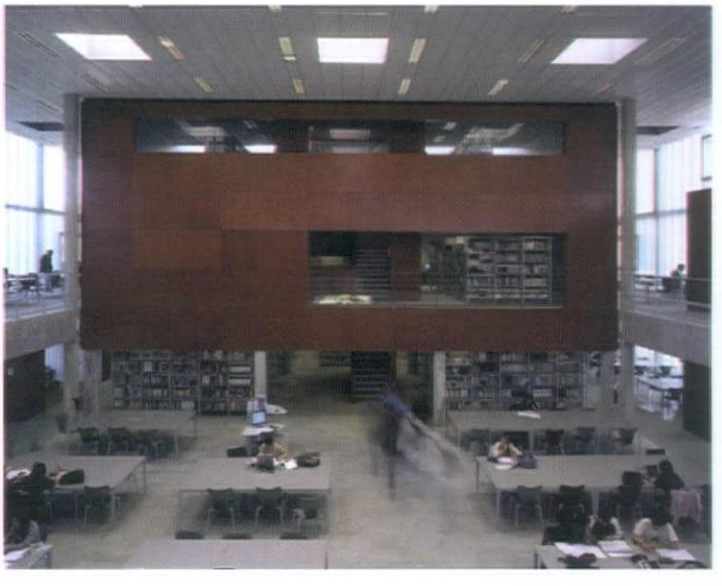
silent inner sanctum of the reading room. Areas of clear glazing are punched apparently at random into the translucent polycarbonate skin frame and define views of the landscape from inside at study table height, so students can drift off in contemplative reveries.

In operational terms, the modern university library is less concerned with the inducement of reverie and more with the efficient storage and retrieval of information, in both paper and digital formats. Yet the process of information withdrawal, consultation and return continues to underpin and structure the library as a building type. Lipksy + Rollet articulate this process through a central 'book box', a dense core of books surrounded by more fluid study zones arranged round the periphery. The main reading room is a dramatic triple-height space, overlooked and surveyed by perimeter study zones on the floor above, so users can inhabit a more intimate enclave, yet be aware of wider goings on.

The monumental book box is clad in Fincof panels (more commonly employed for concrete formwork), a type of Finnish birch plywood stained with dark phenolic resin. The panels evoke the warm leather of traditional bookbinding and study armchairs but this is *faux* luxury. The budget necessitated an imaginatively frugal approach to materials, as manifest by the double skin of polycarbonate used to clad the building which combines good insulation levels with light diffusing qualities, so the reading room seems wrapped in a rice paper screen, with readers silhouetted against its translucent walls. South and east facades have vertical, manually operable white polycarbonate louvres to provide additional glare control. Depending on the sun angle and building users, the vertical brise soleil create a changing pattern on the facades.

Though France is not as advanced as Germany in legislating for efficient energy use, the need to keep capital and running costs down proved an important incentive, giving rise to an integrated system of low key, passive environmental control techniques that minimise mechanical systems. The building is naturally ventilated, with fresh air warming and rising up through the main reading room through the stack effect and expelled through vents in the roof. In winter, the main gas-fired heating system of water pipes in the ground floor slab is supplemented by a network of local radiators for smaller cellular spaces. All this is achieved in an undemonstrative yet thoughtful way that chimes with the wider architectural intentions. Without succumbing entirely to the lure of scientific rationalism, Lipsky + Rollet manage to make complex things look elegantly simple and obvious. This is science with soul. C. S.

7



6
Study zones on the perimeter.
7
The monumental book box at the heart of the library clad in plywood panels stained with phenolic resin.
8
Light diffuses softly through the polycarbonate skin while panels of clear glazing frame external views at study table height.

Architect
Lipksy + Rollet, Paris
Photographs
Paul Raftery/VIEW



4



5





STACK EFFECT

Ken Yeang's ongoing quest for ecological propriety gathers momentum in Singapore.

NATIONAL LIBRARY, SINGAPORE
ARCHITECT
T. R. HAMZAH & YEANG

Every project by Ken Yeang, whether built or not, is part of his singular pursuit of a totally ecological architecture integrated with environment and climate, which reduces consumption of non-renewables and is energy efficient with reduced emissions. This process has been publicly enacted by Yeang over several decades, and is exemplified by both his buildings and research. His latest project is a new National Library for the island state of Singapore. Designed in a competition of 1998, though some seven years in making, it is his most significant project to date.

The site lies on a square urban block next to the famous Raffles Hotel. A basement plinth forms an open piazza at ground level, with two framed blocks above separated by a bridged atrium and covered with a louvred roof canopy, hovering above 16 floor levels. Crossed by the naturally ventilated atrium on the axis of St Joseph's Church, and linking Victoria Street and North Bridge Road, the piazza is a major public space and will be a forum for festivals, book-fairs, concerts and other events.

Public activities, including multi-media, language training and children's reading, community facilities, exhibition space and



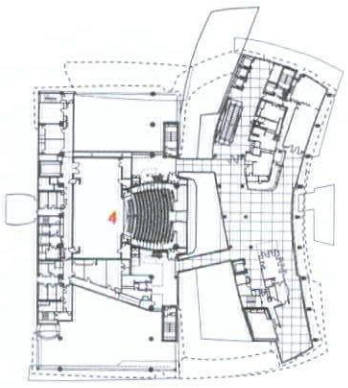


garden terraces are contained in an organic-shaped block together with main entrances and public circulation. The open atrium acoustically separates this curved form from the main rectilinear block that houses the National Library collections in a flexible framework of levels. The public lending library is located in the principal basement, with all deliveries one level beneath, while major book storage is off-site. The libraries incorporate state of the art technology for retrieval and data with a fibre-optic backbone.

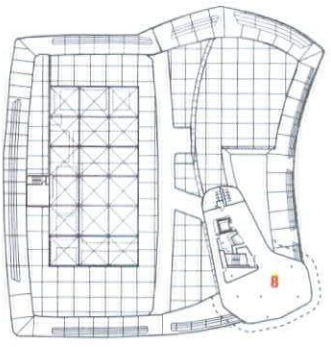
Vertical circulation is on the north-east corner with lifts, escalators and security-control at each floor. Level 3 is the first major event in the vertical arrangement containing access to the public auditorium, below the library, with two upper galleries. Level 7 marks the first bridged entrance to the National Library collection, which can be arranged freely on each upper level within an open colonnaded space on a nine metre square bay grid. A curved book wall defines the linear space with stacks placed centrally and readers' tables at the naturally lit ends. The various collections are housed on the ascending levels, with a digital catalogue at each floor. Level 11 contains the spectacular triple-height space and mezzanine – the big National Library space with its symbolic great wall of books curving across the plan. Level 16 concludes the formal schema with a panoramic viewing port.

On the hot west side, the National Library spaces are flanked by a linear shield-wall of support rooms, with garden sky courts at three levels on each end. These features recall Yeang's Menara Mesiniaga tower in Kuala Lumpur (AR November 1995), but in this case the solar shield-wall is on a much greater scale.

1, 2
Its facade vigorously articulated by a range of shading devices, the National Library is an imposing new presence on Singapore's skyline.
3
The giant louvred roof canopy hovers over the building mass.

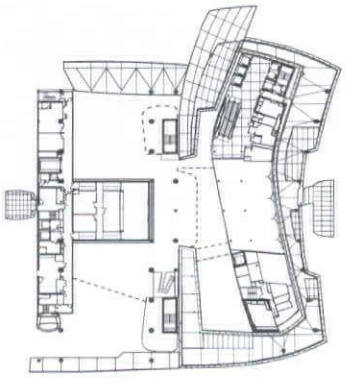


level 3 (second floor)

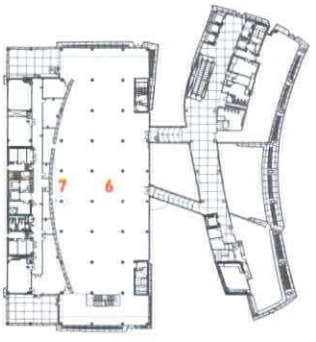


level 16 (top floor)

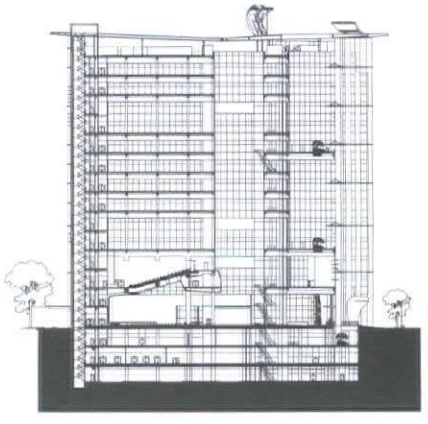
1 public piazza
2 entrance hall
3 open atrium
4 auditorium
5 sky garden
6 National Library
7 book wall
8 viewing deck



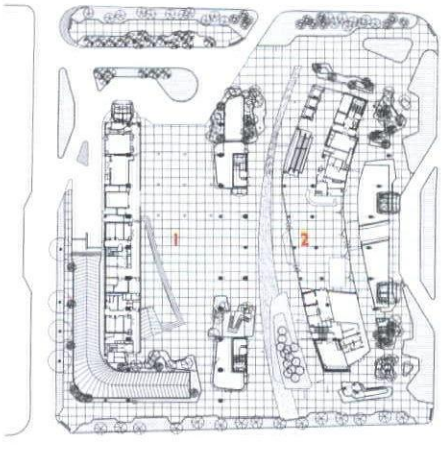
level 2 (first floor)



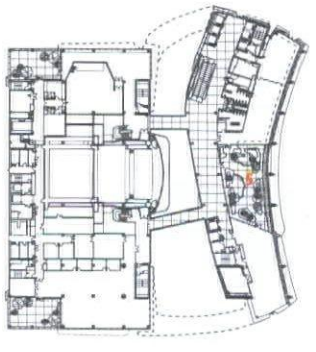
level 7 (sixth floor)



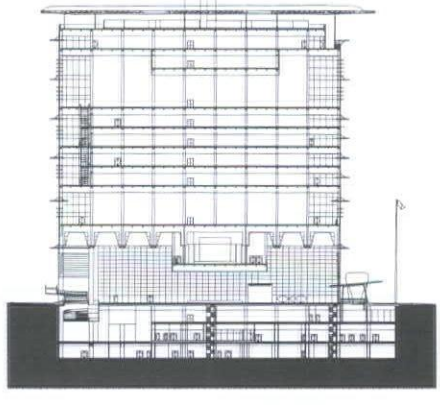
cross section



ground (piazza) level plan (scale approx 1:2500)



level 5 (fourth floor)



cross section

Yeang's signature sunshading is also on a larger scale; here it is an assemblage of huge blades with 6m deep 'biplane' wings on open atrium locations. All provide solar shading and anti-glare performance. Of the many ecologically responsive features, the low energy design has three operational modes – passive, mixed and full. Passive includes optimised daylighting, good solar orientation, sunshading, natural ventilation, responsive facade design, appropriate building colour (off-white throughout) and use of landscaping. The National Library workspaces and collections operate in full mode of air conditioning and artificial light. The third strategy (mixed mode) combines natural and artificial ventilation in transition spaces such as lobbies, foyers and the courtyard. These are supported by airflow and energy simulations, along with predictions of comfort.

In all this architectural endeavour, Yeang remains self critical and in constant evolution, through his rigorous concern for theoretical, technical and aesthetic advances. In contrast to the rectilinear tropical new Modernist work of young Singaporean architects, Yeang has introduced his own organic geometry and a poetic interpretation of a series of ecological ideas into his first major urban masterpiece.

IVOR RICHARDS

Architect
T. R. Hamzah & Yeang, Selangor, Malaysia
Photographs
K. L. Ng

4
Terrace at roof level.
5
'Biplane' wings shade the open atrium.
6
Viewing deck on the top floor.



PARADISE FOUND

This tourist resort in Mozambique aims to minimise its impact on the local ecology.

Tourism is now the world's biggest industry and one of the most rapacious in terms of development, particularly along coastlines. For many of the world's poorer coastal areas, tourism represents a crucial impulse for economic development, but often at immense cost to the environment and local communities. If we really cared about the planet we wouldn't go anywhere, but in our First World hunger for new experiences, few places are off limits.

As one of the world's poorest countries and still recovering from a devastating civil war, Mozambique is not an obvious tourist destination. But its paradisiacal landscape and climate still lure more intrepid travellers. The trick is to make tourism a catalyst for sustainable development and provide models that can be fruitfully emulated as the country slowly recovers its economic and social equilibrium. In the northern province of Cabo Delgado, British architects Hugh Cullum and Richard Nightingale have just completed a new tourist resort which attempts to minimise its impact on the local ecology and have sustainable, long-term benefits for the local community. Cullum and Nightingale have worked in Africa before, but the challenges of designing the British Embassy in Nairobi (AR July 1997) were somewhat different to this latest project.

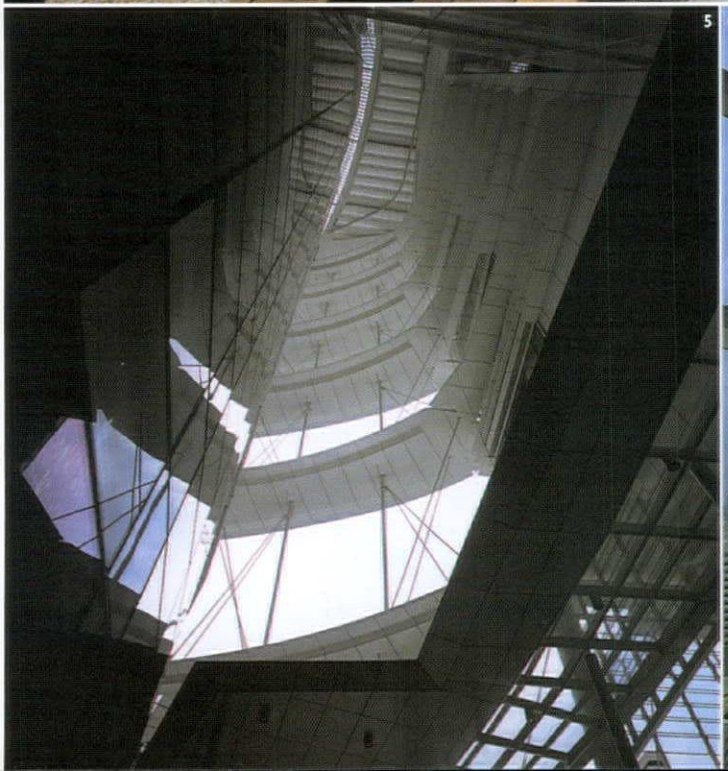
Set on a picture perfect tropical coastline of palm-fringed beaches, Guludo eco-resort lies in the Quirimbas National Park, a maritime and wildlife conservation area run as a collaborative project between the World Wildlife Fund and the Mozambican government. The project aims to promote the area's sustainable development and involved extensive consultations with the community. Development is encouraged in various ways, initially through employing local labour for the construction of the resort buildings and the use of locally sourced materials. Local people will be trained to help run

1, 2
Timber-framed communal buildings touch the ground lightly.
3
Vernacular archetypes are sensitively reinterpreted.
4
Lavatory unit.
5, 6
Construction details.

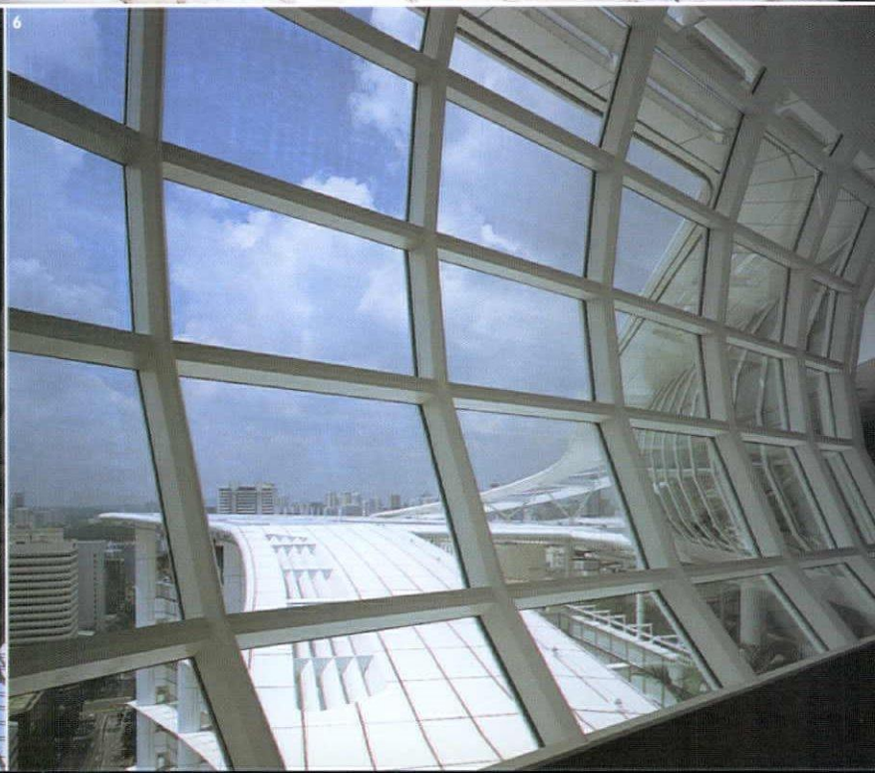
TOURIST RESORT, CABO DELGADO, MOZAMBIQUE
ARCHITECT
CULLUM AND NIGHTINGALE



4



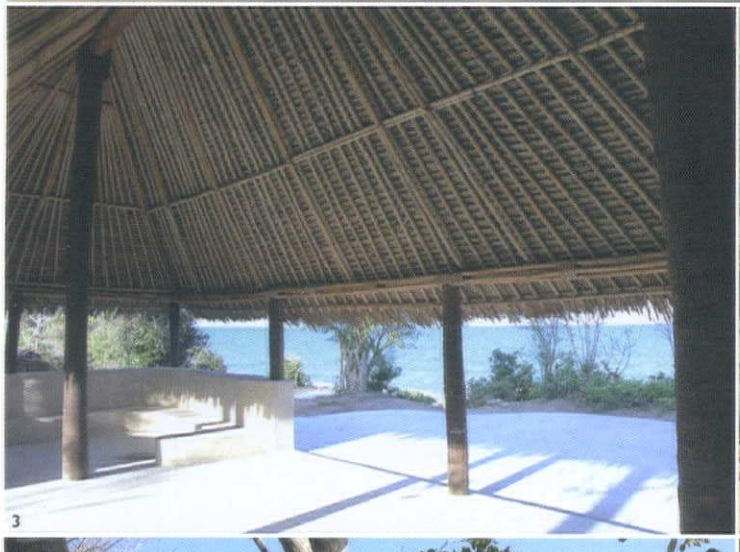
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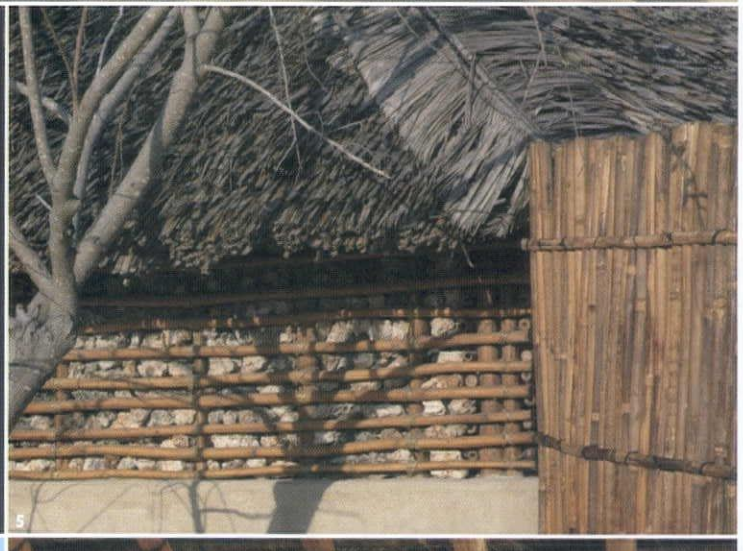
6



2



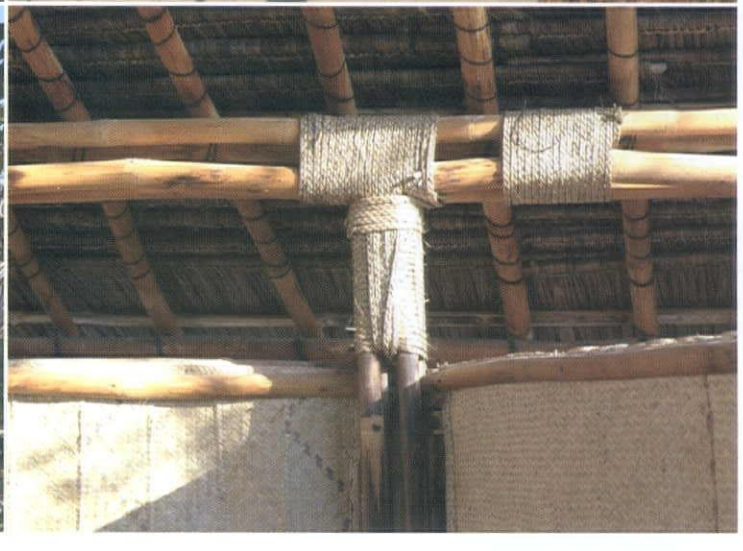
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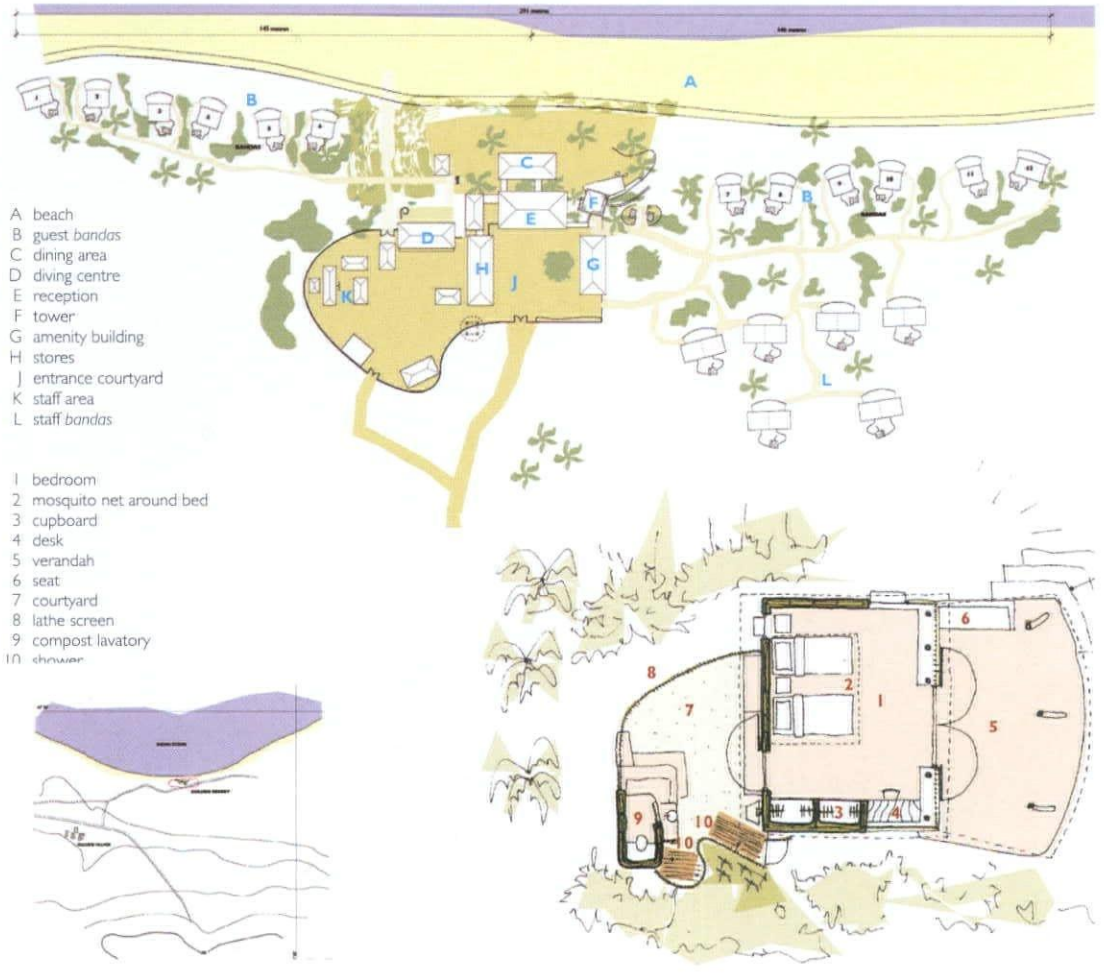


5



4





location and site plan

typical *banda* plan (scale approx 1:200)

the resort and part of its profits will be reinvested in community development projects. The resort has a commitment to buy locally grown produce and promote small-scale craft enterprises.

Cullum and Nightingale reinterpret local vernacular traditions by developing modest, low energy, low maintenance structures that touch the ground lightly. The resort is conceived as small-scale buildings strung out along a path in the manner of a traditional village. At its heart is a central hub with facilities for eating, cooking, lounging and teaching loosely arranged round a courtyard. Guests are housed in 12 independent *bandas* facing the beach. Each *banda* consists of a double room opening onto a shaded verandah overlooking the sea, with washing facilities in an enclosed courtyard to the rear. Staff are housed in a secondary cluster of *bandas* set back from the beachfront.

Drawing extensively on local materials and construction techniques, building structures are generally timber framed with infill panels of mud, masonry or woven matting. Roofs are thatched with grass or *makuti*, coconut palm thatching panels. Non-ferrous jointing methods include simple timber pegs and cord or rope bindings. Imported components are kept to a minimum and wherever possible are long life and locally maintainable. Energy use is carefully considered, with fossil fuels minimised. The form of the architecture exploits passive methods of cooling through shading, thermal mass, stack effect ventilation and prevailing winds. Solar energy is used to generate electricity through photovoltaic arrays, and to heat water by direct radiation. Human waste is recycled in waterless lavatory units to provide dry compost for fertiliser.

With its array of sheltering thatched roofs, the little colony evokes archetypes of the primitive hut or desert island shelter (albeit reinterpreted for the modern tourist), but the buildings have a scale, dignity and materiality appropriate to their setting. If only everything built for tourists could be so physically and culturally tactful. CATHERINE SLESSOR

Architect
Cullum and Nightingale Architects, London
Photographs
Richard Nightingale

TOURIST RESORT,
CABO DELGADO, MOZAMBIQUE
ARCHITECT
CULLUM AND NIGHTINGALE

Offices, Concepción, Chile
Architect
Enrique Browne

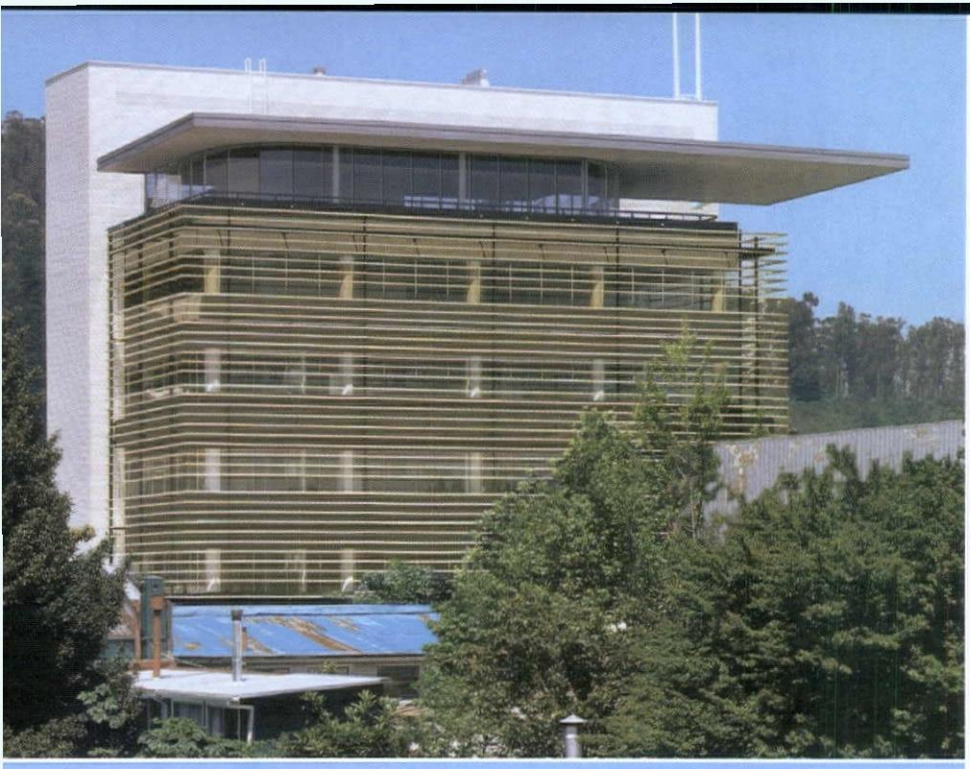


1

GREEN SCREEN

1
How it will look - the north (sunny) side of the offices will eventually be wrapped in a lush screen of greenery to diffuse the sun's heat and glare.

These new offices in Chile incorporate *parrones* or planted pergolas as a simple means of environmental control.



2



3

4



Chile's extreme geography encompasses an enormous diversity of climates, from the arid deserts of the north to the cold, wet south. Most of the population lives in a Mediterranean central belt and the vernacular architecture of this region reflects the archetypal practice of mediating between interior and exterior domains, with buildings traditionally organised around cool patio courtyards and wide, covered verandas. Adding a further layer of lush visual and physical texture, plant-covered pergolas (*parrones*) are also used to diffuse light, temper the climate and create shade.

As well as being ecologically appropriate and environmentally responsive, planted screens are an adaptable and economical means of reducing energy use in buildings. Santiago-based architect Enrique Browne has revived and reinterpreted the tradition of *parrones* in several projects, from his own atelier (AR January 2000) to larger-scale office buildings (AR February 1999).

Here, in the coastal city of Concepción, Browne applies *parrones* principles to a mid-rise office block for an insurance company. The site occupies the corner of a somewhat higgledy-piggledy plaza dominated by a small, historic church. The new building rounds off the composition of the square, its entrance placed directly on axis with the church entrance; God and Mammon in momentary equilibrium.

Two contrasting elements make up a crisp, yin-yang composition. A long, thin box clad in ribbed steel and incised with long, thin window slits rises above a shorter, fatter glass-skinned block wrapped in an external layer of timber louvres. Both steel and timber are produced locally, so the architecture connects with a sense of place. The disparate sibling blocks are united by a great flat roof that hovers protectively out over the street, like a huge hat brim. Inside, open-plan office space is wrapped efficiently and economically around a core of circulation and services. The two lower floors contain public offices, with corporate spaces above. A double-height entrance hall with a striated stone floor adds an honorific touch.

Incorporated within the timber louvres are troughs for planting that will gradually become established on the north (sunny) side, screening and diffusing the sun's glare. The cascading greenery will form an eye-catching addition to the urban skyline, animating the facade of the building as the planting changes colour and intensity with the seasons.

Responding to challenging climatic and urban conditions, Browne's latest project, like his other buildings, shows that decent environmental conditions can be achieved in a modest, unrhetorical way. And, as the greenery takes hold, this is architecture that seems destined to improve with age. C. S.

Architect
Enrique Brown Architects, Santiago, Chile
Photographs
Guy Wemborne

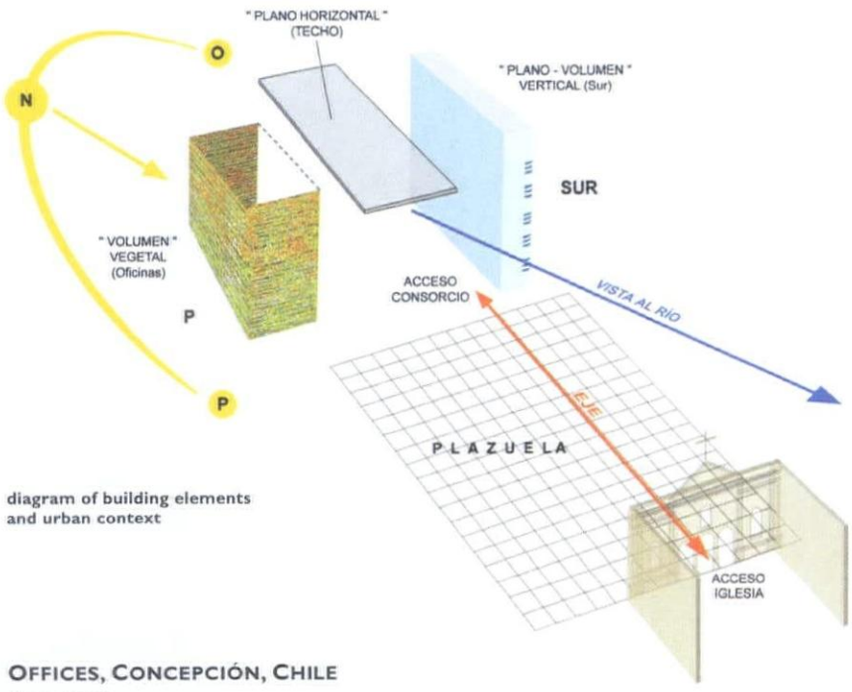


diagram of building elements and urban context



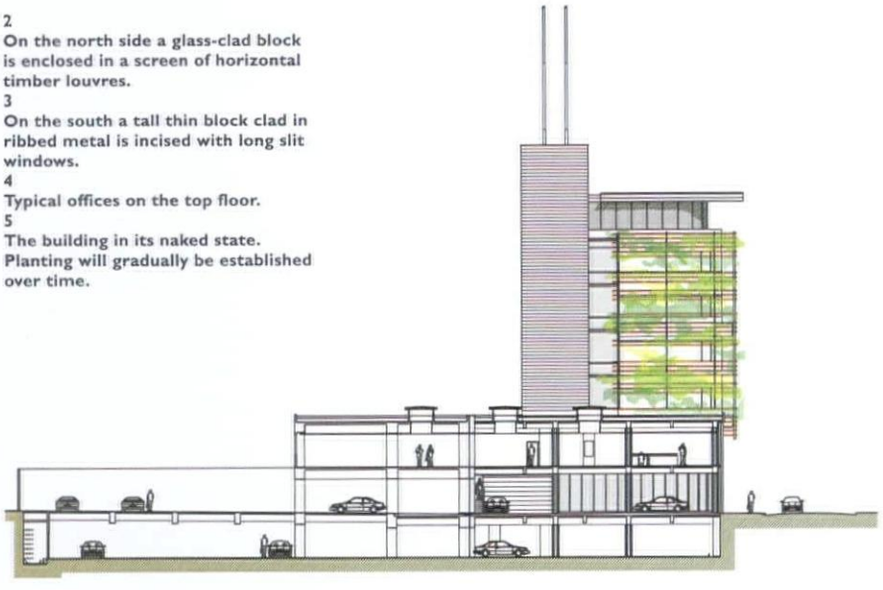
5

Offices, Concepción, Chile

ARCHITECT

Enrique Browne

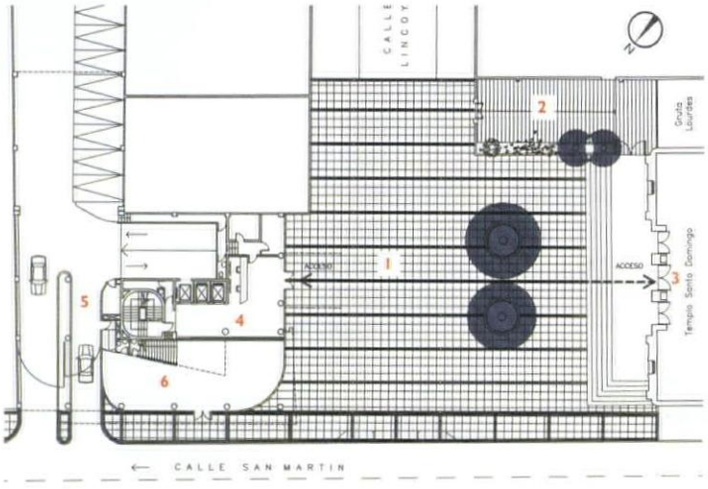
2
On the north side a glass-clad block is enclosed in a screen of horizontal timber louvres.
3
On the south a tall thin block clad in ribbed metal is incised with long slit windows.
4
Typical offices on the top floor.
5
The building in its naked state. Planting will gradually be established over time.



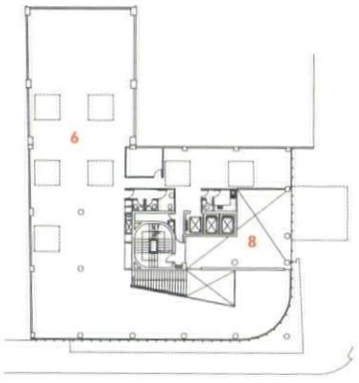
long section



cross section

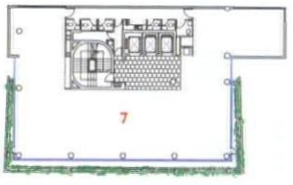


ground floor plan (scale approx 1:1000)



second floor

1 plaza
2 Virgin grotto
3 church
4 entrance hall
5 car access
6 public offices
7 corporate offices
8 void above entrance hall



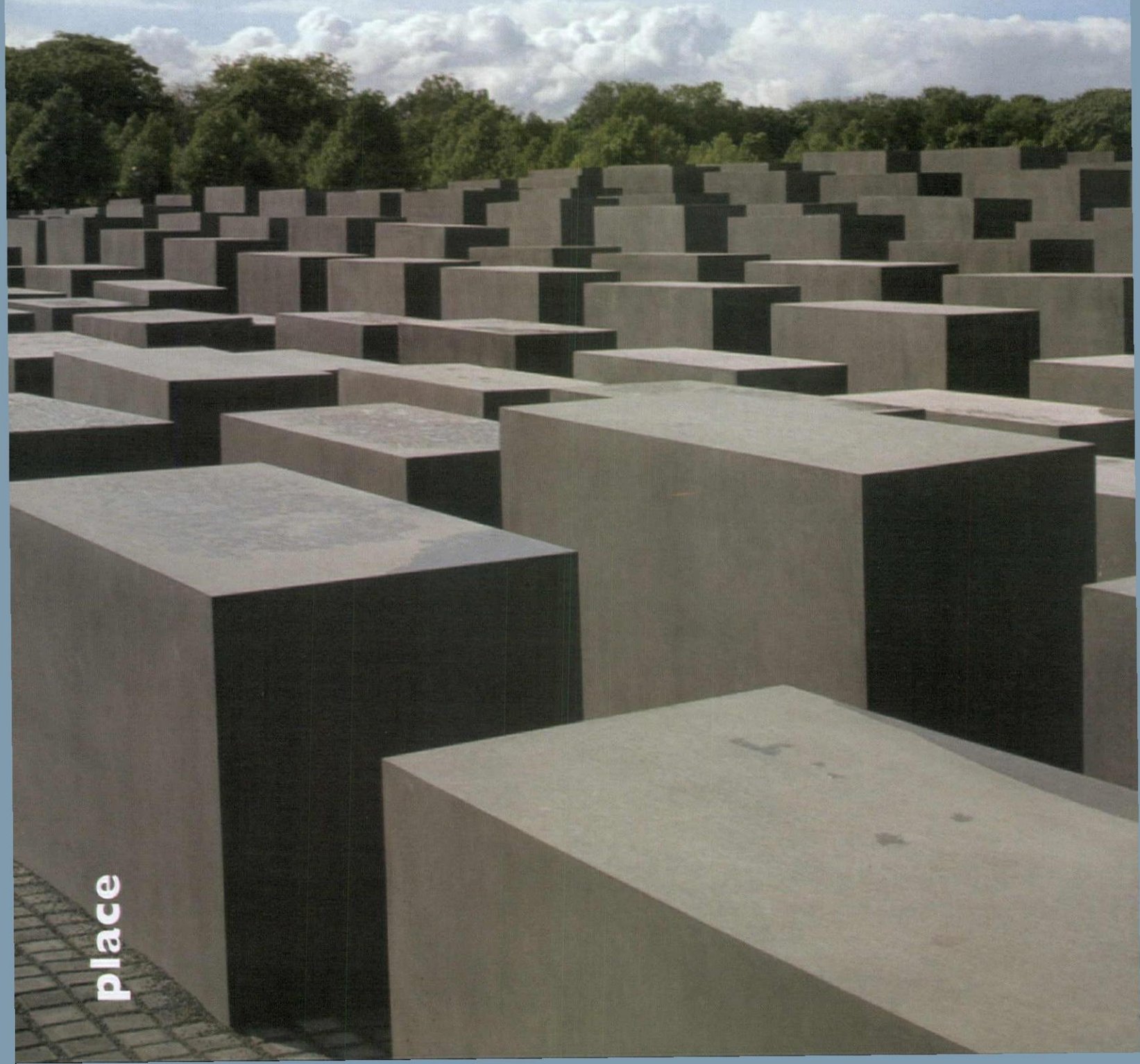
typical upper level plan

FIELD OF MEMORY

The new memorial to European Jews who perished under the Nazis is an unnerving presence in the heart of Berlin.

'I had an idea about silence – I wanted the monument to speak without speaking.' Peter Eisenman's comment on his monument to the European Jews murdered by the Nazis was an unusually modest and reticent reflection on what he called 'a humbling experience'.

Certainly, the task was difficult. Eisenman's silence has been achieved only after years of acrimonious debate. A citizens' movement began campaigning for a monument in the late '80s, and the federal government, then in Bonn, took the idea up. A site in central Berlin made free by the destruction of the Wall was allocated. A decade of discussion followed, and two international architectural competitions were held (Chancellor Kohl rejected the results of the first one). The design by Peter Eisenman and Richard Serra for a 'field of stelae' was chosen in late 1998, but arguments raged on. Serra dropped out. The design was modified. Many asked why the monument should be to Jewish dead only, rather than all the others murdered under Nazi policies, for instance homosexuals, the handicapped, and whole races like the Sinti and Roma (gypsies). Some of these groups have or will have their own monuments, but the arguments have not been completely settled. Against his initial misgivings, Eisenman was persuaded to incorporate an information



centre, but it is underground, rather than being a massive block as some had hoped (and at one point Eisenman designed). Another key issue was whether or not the stelae should carry the names of the dead, or (as Eisenman wanted) be left blank. Greek stelae were vertical memorial stones inscribed with the names of the dead, and many people wanted to continue that tradition, particularly as lists of names are so moving in monuments like Lutyens' Thiepval Arch and the Washington memorial to the fallen in Vietnam. But Eisenman was adamant in his argument that the Field of Stelae is intended to conjure 'the unforgettable', while the underground information centre (the *Ort der Information*) is there to record the 'memorable'; it has for instance direct computer links to the Israeli database on all known murdered Jews.

The shifting cityscape

The long thin north-south strip of central Berlin, which was razed by the War and then the Wall, is now largely covered by a miscellaneous collection of object buildings by famous architects that rub together in uneasy harmony imposed by rigorous planning restrictions. The monument is right in the middle of the strip, just 170 metres south of the Brandenburg Gate. To the west is the edge of the semi-wild Tiergarten, Berlin's huge and magnificent central park. To the north, between memorial and Gate, will be the American embassy on its pre-war site that was extended southwards after 9/11, eating into the memorial plot. Eastwards is a large and heavy lump of prefabricated DDR (East German) housing; south are dull official blocks, the Berlin outposts of some of the Länder.

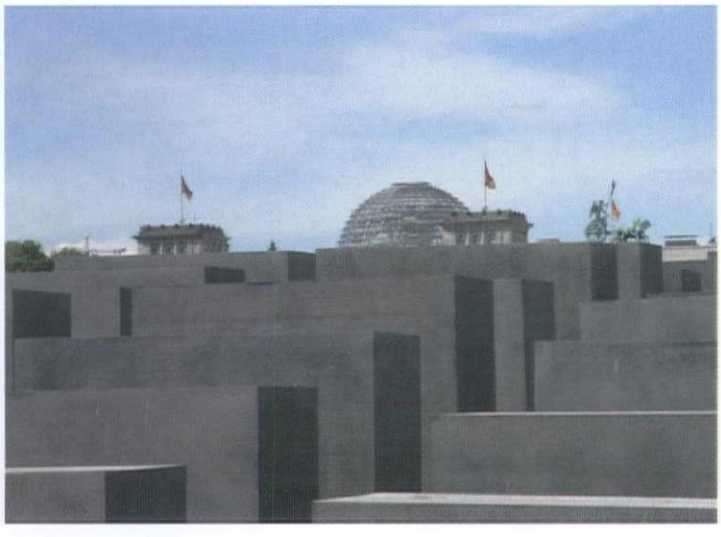
So the grey, austere abstract forms of over 2700 stelae, which rise and fall to form an abstracted undulating landscape, are a respite from the surrounding mixture of mediocrity and fuss. The landscape is formed and dissected by a grid of 950mm wide paths that divide the 950mm wide stelae that have a long plan dimension of 2375mm. They vary greatly in height. At the edges of the field, where the grid is partially eroded, many stelae are raised only just above the surrounding gravel and black paving stones; they seem like large blank tombstones – no more worrying than those in an English



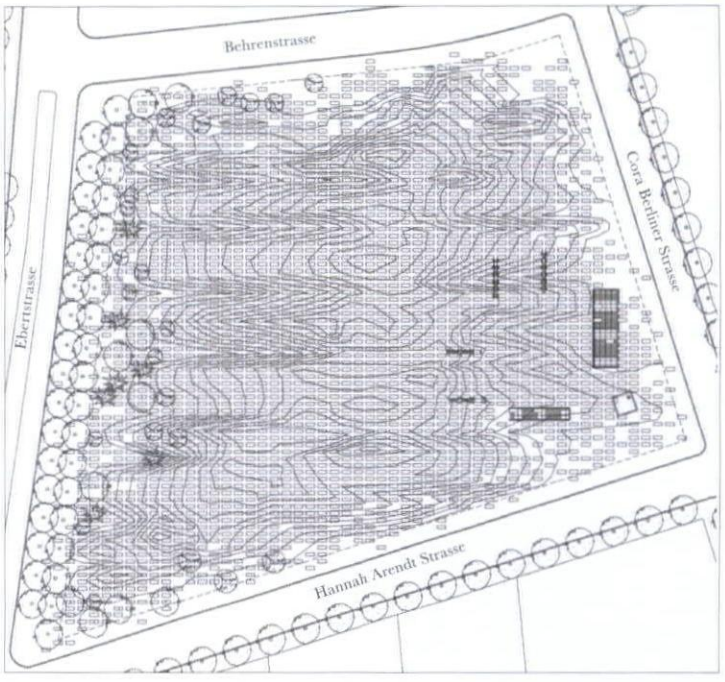
Framed by Berlin's monuments, the new memorial is a dense, unsettling presence in the heart of the city. Photograph: Peter Davey.



Contriving a sense of the 'enormity of the banal'. Photograph: Roland Halbe.



The familiar Reichstag cupola seen from the site. Photograph: Peter Davey.



site plan



east-west section looking north



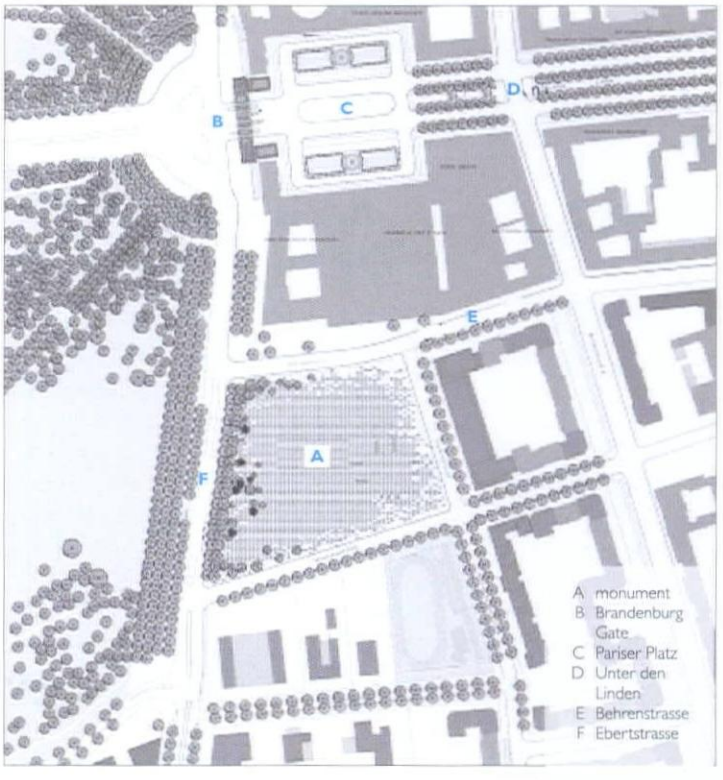
north-south section looking east

country churchyard. But, as you move towards the middle of the field, the ground falls while the stelae rise in height, so that in the middle, they loom three metres above you and the place becomes oppressive. Down the perfectly straight paths, you can see the buildings on the north, south and west sides of the site, but they seem far away; the noise of the surrounding roads is stilled. As you stand there, the stelae begin to take on an unsettling identity for, here, it finally becomes clear that they are not all vertical, but lean slightly this way and that. They are abstract, but they begin to have the anonymous individuality of members of a tightly packed crowd, grey and mute, but Kafkaesquely frightening: Eisenman is trying to conjure what he calls 'the enormity of the banal'.

The subterranean realm

But in the Field, fear is only hinted at. It is intensified down in the Ort. Its entrance is unobtrusive, scarcely disturbing the regularity of the grid. Down the grey stairs are four main galleries under a roof that is a reflection of the grid of the stelae and the artificial undulation of the Field overhead. Eisenman says that the grid of the rooms is 'rotated against the logic of the field, thereby thwarting any paradigmatic understanding of its formal arrangement'.

I have only the vaguest notion of what this might mean: the twist seems merely arbitrary. But the galleries are brilliantly organised by Dagmar von Wilcken to convey something of the horrors of the persecution: humiliations, cattle trucks, the camps, the death marches are set against touching examinations of ordinary family

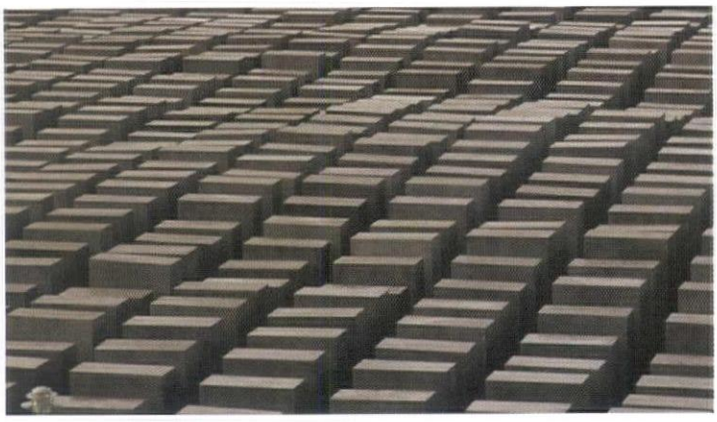


location plan

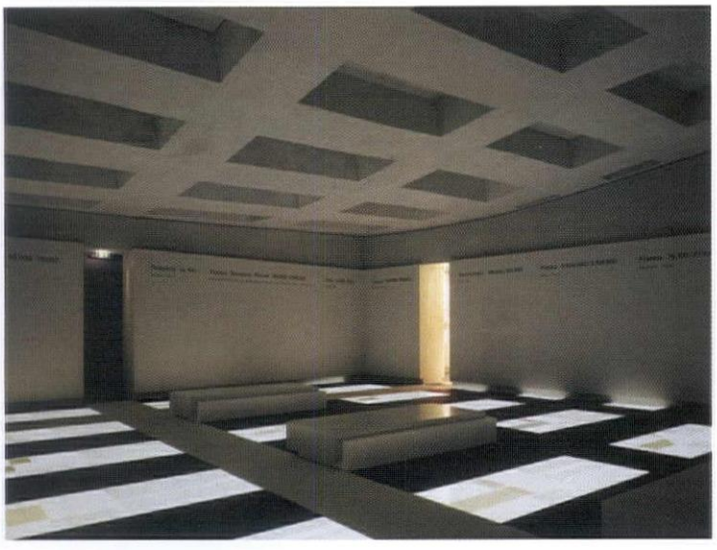
Solar umbrella

Lawrence Scarpa's own family house in Venice Beach is an imaginative and ecologically aware response to the balmy Californian climate.

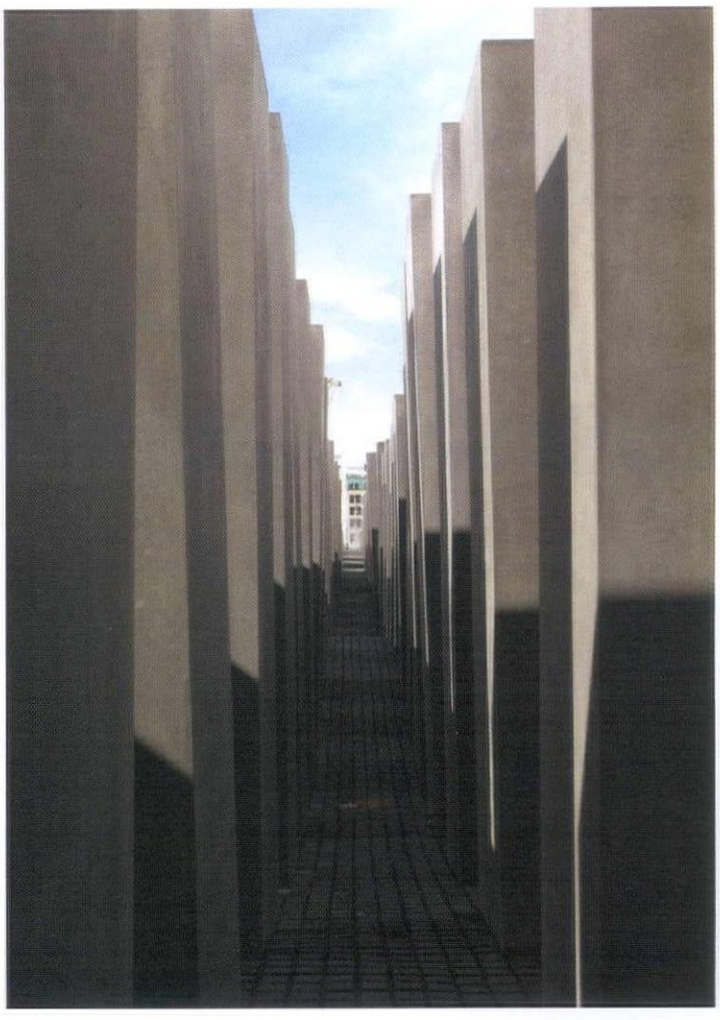




The vast, undulating landscape of the Field of Stelae. Photograph: Peter Davey.



The cavern-like underground information centre. Photograph: Roland Halbe.



The stark concrete monoliths gradually rise and close in. Photograph: Peter Davey.

life and the incomprehensible insane bureaucratic grimness of the murder tallies. Emerging from the caves of memory, the stelae seem even more sinister, their grey reminiscent of the uniform of the Wehrmacht, their disordered order as incomprehensible as the fact that virtually a whole nation could become psychotic.

Technical complexity

Detailed examination shows that the Field is a complicated artefact. Ground undulations are entirely artificial. Left untouched, the site would be a flat sandy waste. The monument's large paved surface needs a complicated but inconspicuous drainage system. It was designed by Buro Happold, who were structural and services engineers for the project. Run-off water is taken to an underground reservoir for irrigating trees planted among the low stelae on the west side of the site, just across the road from the Tiergarten. The other tricky engineering problem was the manufacture and erection of the stelae. They are almost perfectly formed monolithic concrete boxes which lack a bottom surface, and are supported on strip foundations. They had to be shimmed to the exact height and angle (up to two degrees from the vertical) specified by the architects for each one.

Cast in self-compacting concrete, the stelae had to be specially cured before being delivered to the site; weathering trials lasted a year. A waterproof coating is covered by an anti-graffiti layer which was itself a source of controversy, for Degussa, the firm that made it, was the manufacturer of Zyklon B, the gas used in the extermination camps. In the end, the argument that our contemporaries cannot be held responsible for the acts of the Nazis prevailed, with the proviso that dreadful deeds must never be forgotten – in effect the ethos of the whole monument.

It is impossible not to compare the Field of Stelae to Daniel Libeskind's Garden of Exile at the Jewish Museum. There is another close-planted forest of inclined pillars, much smaller in area than the Field but more intense. After a short while there, you actually feel nauseated because the ground is inclined in a slope roughly at right angles to the axes of the pillars so your senses sometimes see them as vertical, sometimes at their real angle. The Garden is surrounded by a wall that prevents you seeing out of it, so the whole effect is isolated, claustrophobic and extremely oppressive.

The Field is very different. It is open to the city on every side and is approached gently through its low and patchy fringes (perhaps symbolic of the beginnings of Nazism – or perhaps not), and intensity builds up slowly as you approach the still centre, where the Field is at its deepest and tallest, darkest and most claustrophobic (symbolic, though maybe not, of the regime's power?). But, even there, glimpses of distant surroundings are framed at the end of each cleft.

The Field is part of the city, and yet different from anything built in cities before. Enigmatic and multivalent, it engenders a range of emotions, unlike the Garden, which is a one-liner, even if it hits you in the stomach. Perhaps in his pursuit of silence, as opposed to the polemics and pyrotechnics of most of his other buildings, Eisenman has at last made a real contribution to the art of architecture.

PETER DAVEY

FAMILY HOUSE, VENICE, CALIFORNIA, USA
ARCHITECT
PUGH + SCARPA

Frugality and sustainability are the hallmarks of Pugh + Scarpa's practice, and Lawrence Scarpa's family house is an imaginative manifestation of those principles. Despite its imposing facade, it is an addition: a spacious living area grafted onto the rear of a vintage 60sqm bungalow, and an upstairs master suite cantilevered back without touching the roof of the old building, so avoiding the need to bring the old structure up to code. A tilt-up concrete shear wall braces a wood-frame structure, and a steel frame supports the cantilever. All the other materials are recycled: rusted cold-rolled steel for the front fence and surface cladding, cherry wood and chipboard, homosote (pulped newsprint) and a translucent screen of plastic pellets used to clean up oil spills.

Ninety solar panels wrap the south side and canopy the bedroom terrace, blocking the sun and generating an energy credit. The house is cooled by cross ventilation, and all rainwater is retained on site. A narrow, wedge-shaped lantern rises above the kitchen, pulling in natural light (warmed by its purple acrylic lining) and doubling as a heat chimney when the skylight is opened. Pocketing glass sliders open the living room to the front, and the master bedroom opens to a terrace, bringing the outdoors in.

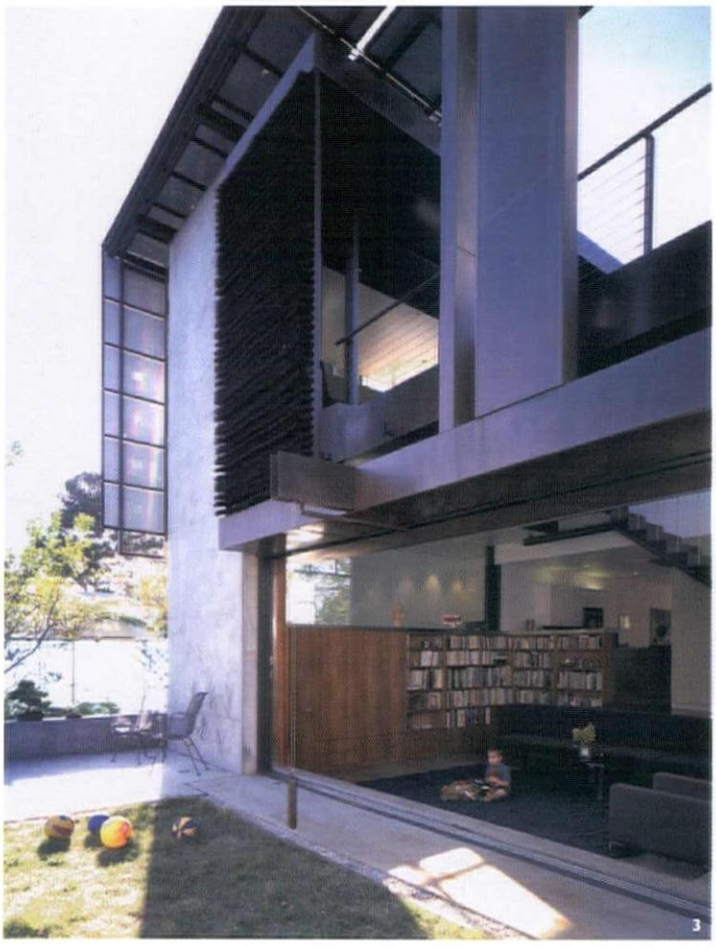


The notion of indoor-outdoor living in southern California was pioneered by immigrants from cold climates, such as the Greene brothers of Cincinnati and Schindler and Neutra from Vienna. Scarpa had the opposite experience: 'I grew up in Florida, where it is miserably hot and humid, and you get sweaty walking from your house to the car. The ocean breezes in Venice make this the best climate on the planet, and it's a crime not to take advantage of it. Green architecture is an easy, commonsense thing to do – we have an in-house electrical/mechanical engineer and typically make our buildings 50 per cent more energy efficient than more conventional solutions.'

Like many architects, Scarpa launched his practice with



site plan



1
Partly wrapped in a skin of photovoltaic panels, the house reads as series of floating planes.
2
The suburban Californian context. The new house is built to the rear of an existing vintage bungalow.
3
Indoor outdoor living is ideally suited to the Californian climate, though it was originally pioneered by immigrants from colder latitudes.



4

FAMILY HOUSE, VENICE, CALIFORNIA, USA

ARCHITECT

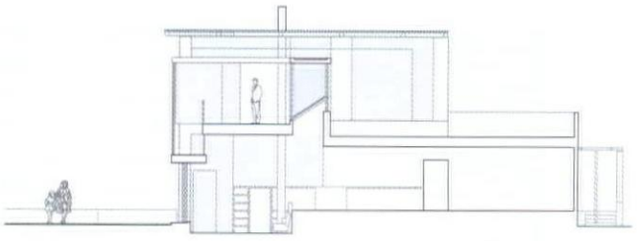
PUGH + SCARPA

kitchen remodels and residential additions and, when he and his wife moved into a run-down 1923 cottage on a through lot, they did an inexpensive remodel for themselves. The long back yard prompted thoughts of expansion and the arrival of their first child, five years ago, made that dream a necessity. The 130sqm addition was done on a tight budget within a restrictive zoning envelope. It was important not to overwhelm the cottages on either side, so the steel fence reduces the impact of the two-storey structure.

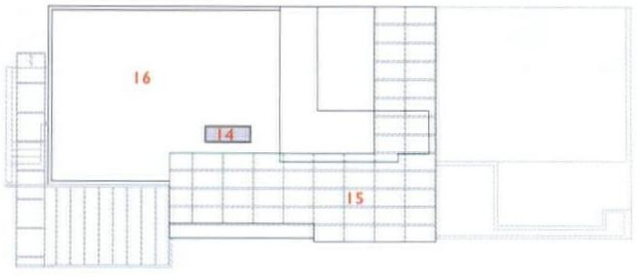
From the front you can look through the house to the street on the far side, and glimpse treetops through the glass in the bedroom. Openness and transparency dematerialise the gritty steel and concrete, and a *brise-soleil* of bristles filters the light. Scarpa calls it the world's largest scrubbing brush. The original facade (now the rear) has been abstracted. A steel-framed glass box pushes forward beneath an open steel canopy, and the same material is employed for the car port and entry door.

Leaves from a eucalyptus, planted by the architect five years before and sacrificed for the addition, were laid in the concrete forms and pattern the surface of the wall beside the entry. A low wall that surrounds the plunge pool serves as a bench for entertaining, as does the edge of the sunken living room. Almost everything in this inventive house does double duty. The entry to a guest bathroom and lavatory is concealed behind a hinged section of the bookcase that lines one wall. Concrete steps with a cantilevered handrail lead to a springy mesh staircase supported on a steel tube of the same rusted steel, which runs up the inner wall, hovering over a massive built-in sofa. The interior is a collage of textures and tones, from the patinated steel panels around the hearth to the soft suede finish of the homosote. A storage wall of grey-green mdf is a backdrop for the parents' bed, which opens onto an unenclosed bathing area. Though very different from its neighbours, the house has a strong sense of place. Venice, conceived a century ago as a picturesque pastiche of La Serenissima, became a tough, blue collar neighbourhood, known more for oil, bikers, and the Beats, than for its few surviving canals. Crime and gentrification co-exist in one of the few districts of West LA that has not succumbed to the suffocating quest for respectability, and vigilante committees intent on imposing a sterile conformity of taste. Venice is getting pricey but it retains its edge, and Scarpa has made an important contribution to its diversity. MICHAEL WEBB

Architect
Pugh + Scarpa, Santa Monica
Photographs
Marvin Rand



cross section



roof plan



first floor plan



ground floor plan (scale approx 1:500)

1 living room
2 dining
3 kitchen
4 bedroom
5 study
6 bathroom
7 closet
8 pond
9 bamboo planter
10 laundry
11 master bedroom
12 master bathroom
13 terrace
14 skylight
15 photovoltaic roof panels
16 roof

4
Master bedroom.
5
Dining area. Interiors are characterised by spatial fluidity and an animated collage of textures and tones.
6
Living room.
7
Vertiginous steel mesh staircase.
8
Roof terrace.

product review



500

500 KVADRAT
Dutch textile designer Jeroen Vinken has created a collection of woven curtains. In subdued colours they comprise practically endless pattern repeats. Jeroen's goal is to develop new images, new visual representations and tactile experiments. His inspiration comes from techniques and materials, trying not to limit himself and making extensive use of the technical capabilities provided by computers. The collection comprises four designs in a satin weave using cut-technique which gives the curtains fascinating light-and-shade effects and a semi-transparent look.

Enquiry 500 www.arplus.com/enq.html

Rob Gregory scratches the surface of interiors.

501 FORMICA
This quirky installation by Formica in an American loft space was recently used to demonstrate Formica's extensive Woodgrains rage – Rattan Cane. Rattan Cane is one of the new additions to The Collection launched in April last year. It includes 65 variations of surface textures and finishes all of which are postformable and suitable for vertical and horizontal applications.

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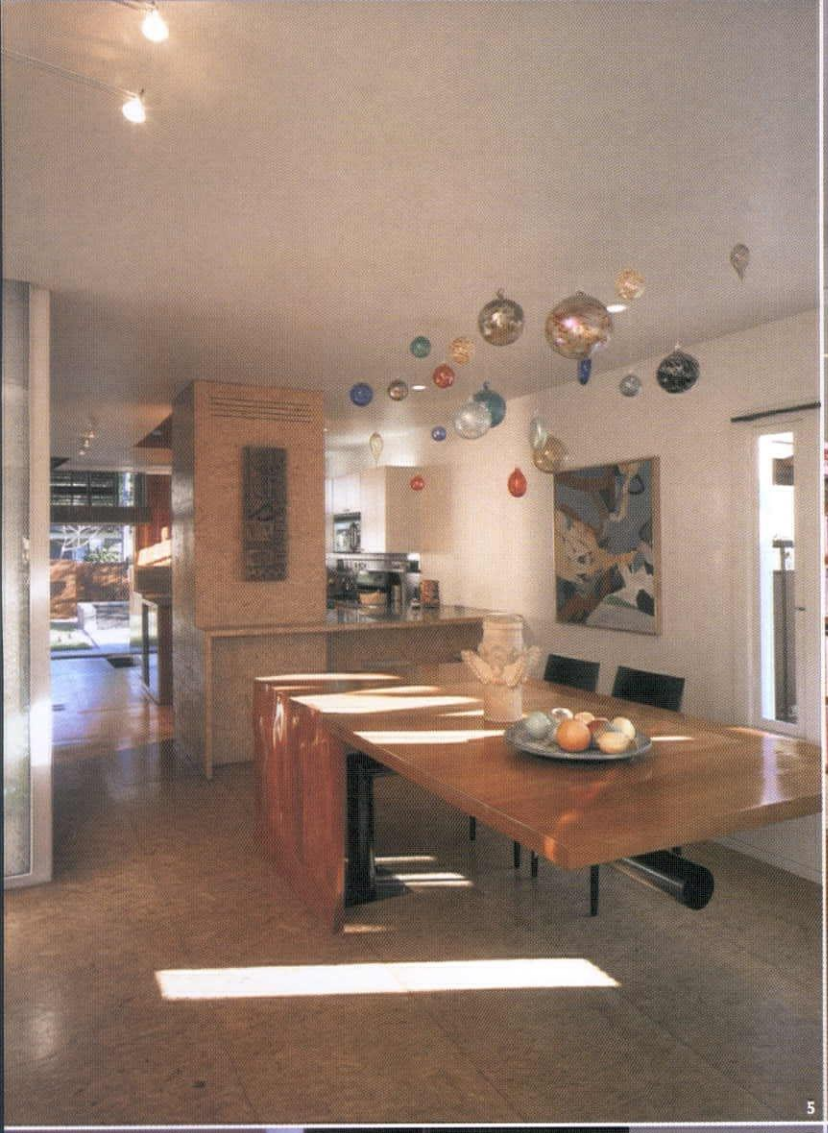
501

502 INTERFACE
Interface, a company at the forefront of manufacturing sustainability with their recently launched Cool Carpet (a climate neutral carpet) continue to produce innovative designs. Inspiration Squared is their next generation of modular flooring that allows architects, designers and specifiers to produce random, yet ordered, and balanced interiors. With the range no two floors will ever be the same. The eight variants within Inspiration Squared are Entropy, Transformation, Modernism, Cubism, Adaptations, Woodland Way, Nature Trails and Fluctuations.

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502



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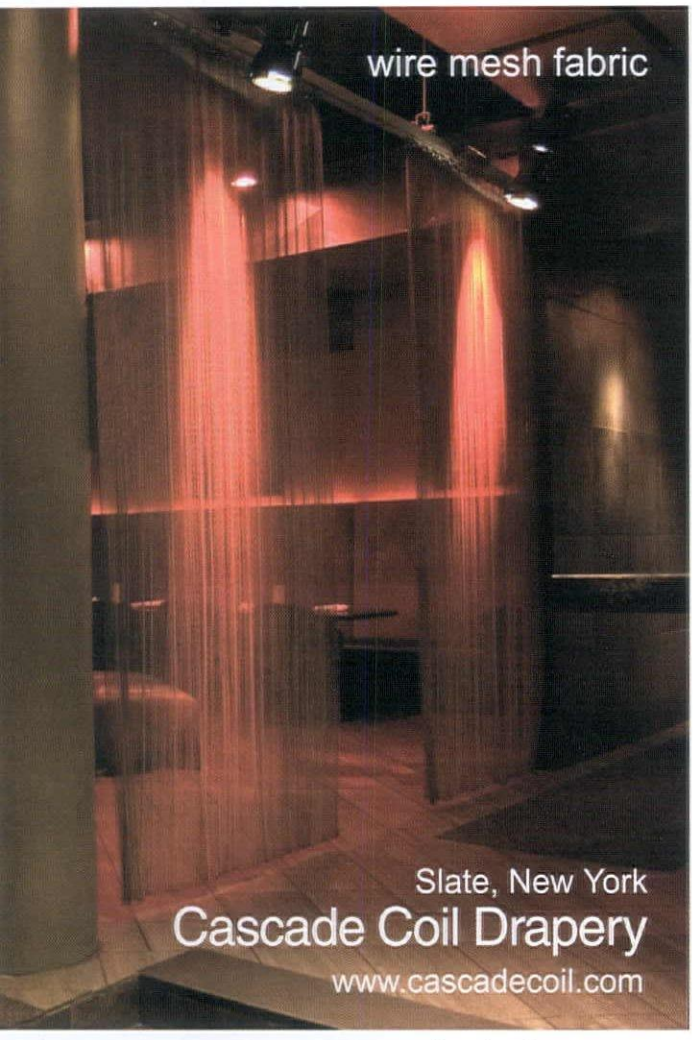
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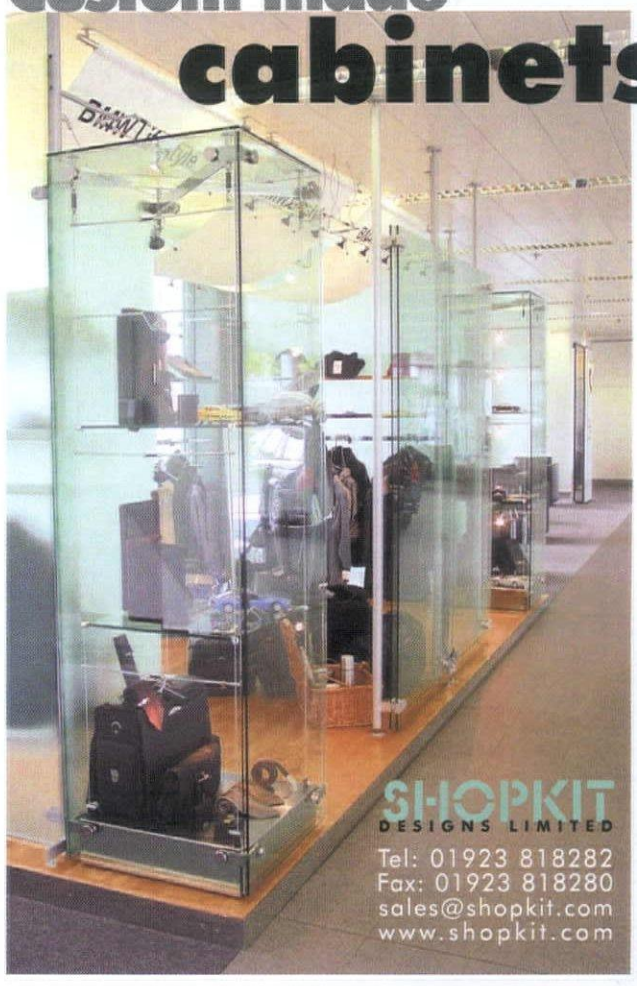


8



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900 www.arplus.com/enq.html

O'Donnell

O'Donnell Design has completed the installation of contemporary oak finish bedroom casegoods at the brand new 193-room Clarion Hotel, Cork. Designed by architects Scott Tallon Walker, The Clarion is a modern, glass-fronted building overlooking the River Lee at Lapps Quay. While O'Donnells has an established international reputation in the hotel sector for supplying casegoods, the Clarion project was one that called for a particular style and finish in keeping with the workmanship of other Irish designers and craftsmen who supplied the hotel.



901 www.arplus.com/enq.html

Nova Cast Wall Surfaces

Nova Metals have introduced the range of Gagecast®, a cast metal wall surfacing available in stainless steel, aluminium, bronze and many other alloys. Suitable for a variety of interior architectural applications, patterns offer high lustre, relief, and durability. Twenty-eight designs are standard, however custom collaboration is encouraged. Gagecast® can be used in many installations such as corporate and hotel receptions, car showrooms, and many other exclusive architectural requirements.



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Association of Interior Specialists

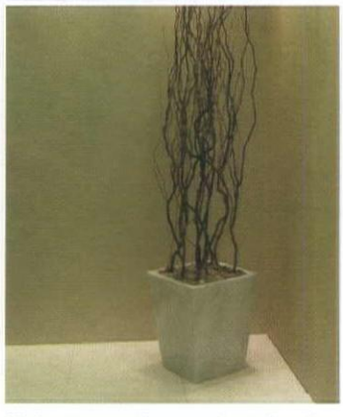
The Association of Interior Specialists' Site Guide for Raised Access Flooring is the 4th in its series of good practice guides for the commercial interiors sector. With single copies free to specifiers, the guides help individuals involved in the building process to understand the requirements of specialist interior contractors. They give guidance on good practice for raised access flooring, suspended ceilings, relocatable partitioning and drylining in relation to installation, health and safety, storage, handling and sequencing.



903 www.arplus.com/enq.html

WE-EF Lighting

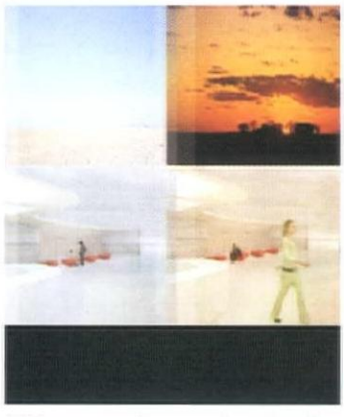
WE-EF was used as one of the main lighting suppliers for the pathways and planting within the biomes at the world-famous Eden Project in Cornwall. A total of 400 WE-EF fittings, with all their accessories such as ground-spikes, lenses, colour filters and connectors, were supplied and installed. Different lighting design strategies were used for the challenges of the Warm Temperate Biome and the Tropical Biome.



904 www.arplus.com/enq.html

Armourcoat

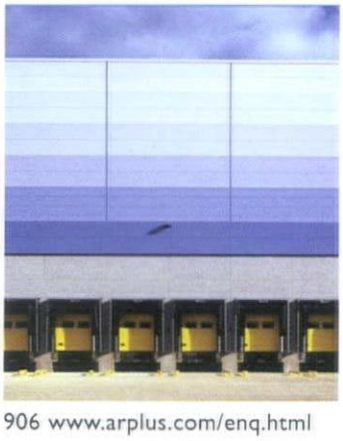
Armourcoat Surface Finishes have launched Perlata, an exciting decorative wall coating. Exquisite and luxurious, Perlata is an elegant finish with a subtle sparkle or shimmer, creating stunning visual texture and directional effect. With a low sheen, the intriguing surface is full of movement and tonal interest. The Perlata finish is dependent on the hand of the applicator, creating a unique and striking wall coating at close quarters, yet subtle when viewed from a distance. It comes in 96 colours.



905 www.arplus.com/enq.html

Philips Lighting

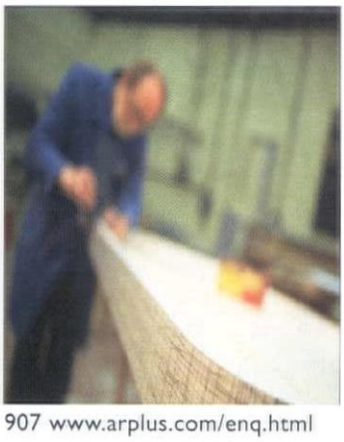
Royal Philips Electronics announce the introduction of Dynamic Lighting, an advanced concept designed to enhance the well-being, motivation and performance of office workers by creating a stimulating lighting ambience that follows the rhythm of daylight, and by giving employees control over their lighting. The lighting for an entire room can either be programmed (time-based), supporting the natural rhythm of activity, or remote-controlled by each individual to suit his or her physical condition, mood or type of work.



906 www.arplus.com/enq.html

Corus Colors

Colorcoat Prisma has made its debut on a 41 000m² distribution centre at Marsh Leys, Bedford. The building, known as Godzilla, is part of a 170 000m² speculative development programme. Due to the high profile location of the centre, Gazeley Properties wanted a colour solution that would make the structure as visually appealing as possible and offer superior durability and performance. Following discussions with Corus, a solution was developed using Colorcoat Prisma. Six bespoke complementary colours were specified for the Godzilla building.



907 www.arplus.com/enq.html

Formica

Formica is delighted to announce the 50th anniversary of its fabrication Support Unit. Opened in 1955, this facility has remained at the forefront of the development of laminate fabrication techniques, and is the only one of its kind in the UK. The unit continues to aid specifiers, architects and designers, helping to push forward the use of laminate, through a series of regular training courses. It also offers advice and prototype development services.

GLOBAL WAKE-UP CALL

MASSIVE CHANGE, THE FUTURE OF GLOBAL DESIGN

Bruce Mau and the Institute without Boundaries. London: Phaidon Press. 2004. £19.95

Most architects will know designer Bruce Mau from his work on *S, M, L, XL*. In fact, *Massive Change* informs us that 'major attention focused on the studio in 1995 with the release of *S, M, L, XL*, a 1300-page compendium of projects and texts designed and conceived by Bruce Mau Design with architect Rem Koolhaas and OMA'. An unfortunate sequence of words perhaps, but Mau's input was undeniably influential on that book's success. Since then he has published *Life Style*, an equally weighty and impressively designed and conceived cultural/design monograph.

Massive Change continues the high standard of graphic design set by its predecessors, but the subject matter has certainly changed. In a back cover tag-line that wouldn't seem out of place on a movie poster, it boldly states that '*Massive Change* is not about the world of design; it's about the design of the world.' Amazingly, it manages to live up to this assertion, with chapters on urban, movement, energy, information, image, market, material, military, manufacturing, and living economies, and a final section on wealth and politics.

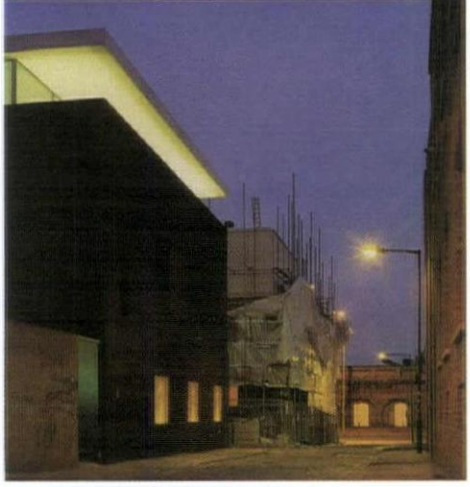
It is essentially a manifesto for global change, each chapter starting with a statement like 'we will create urban shelter for the entire world population', or 'we will design evolution', or 'we will eradicate poverty'. And design is held up to be the key to each of these intentions, whether it's the design of technology, drugs, legal systems or strategies of peace-making. Yes, it's idealistic, but you'll be so engrossed in the texts, images and sheer self-belief that you will forgive it.

The layout also aids in the clarity of the arguments, with single-page factual introductions and spreads of images with concise descriptions interspersed with yellow double-page interviews with prominent members of the extended 'design' community.

Enormous in its scope, *Massive Change* is a wake-up call to everyone concerned with the 'sustainability' of the human race on earth. And it's only 20 quid. Incredible!

BOBBY OPEN

Dirty House, Shoreditch, built for artists Sue Webster and Tim Noble, one of the disconcerting dwellings from *David Adjaye: Houses, edited by Peter Allison: London, Thames & Hudson, 2005, £29.95*. Characterised by formal and material experimentation (and slightly daffy names – Dirty joins Lost, Fog and Elektra), Adjaye's houses are skilful manipulations of domestic space, usually for artists or arty people, on edgy, inner London sites. Wrapped in hermetic skins of dark brick or metal, the houses face down their grotty surroundings, but the tough exteriors conceal a succession of secret, sensual inner realms.



GREENING THE PLANET

CITIES PEOPLE PLANET

By Herbert Girardet. Chichester: John Wiley. 2005. £19.99

In the context of the global urban population explosion Herbert Girardet asks how a sustainable relationship can be established between cities and planet. Through a historical survey of the city, here understood as 'eco-technical system', he identifies in the modern condition a fracture between urban communities and their immediate locale. Cities operate no longer as circular but linear ecosystems – ie, we now produce 'waste'. In the age of the global marketplace an increasingly atomised urban society consumes products and resources with little thought for their origin or future. So far, so familiar. Richard Rogers said the same eight years ago in *Cities for a Small Planet* (Faber & Faber 1997).

Cities People Planet claims to be a 'resource for responding to the challenges of urbanisation'. Accordingly, the second half of the book is devoted to the highlights of global sustainable urban practice. Ninety case studies, sometimes only a couple of sentences long, show cities tweaking the inputs, processes and outputs of the 'eco-technical' system. Girardet is an acknowledged authority in this field, yet the depth of his understanding is obscured by the breadth of material. While the level of critique and analysis offered might suit an A-level Geography class, it could hardly be described as a resource for the professionals who are shaping our urban environments.

In general the text is slowed by frequent resort to lists of statistics that would be conveyed more effectively in a simple graph or diagram. This tendency, along with the anecdotal and repetitive style, gives the strong impression that we are reading a collection of lecture transcripts – rather than new work.

Contemporary London occupies an ecological footprint 293 times its surface area. The urgency of Girardet's plea for creative commitment and energy from designers is clear. A rigorous treatment of a few key case studies would have made *Cities People Planet* a truly useful resource, but as it stands, my recommendation is to save your money and a tree by reading his lecture transcripts online.

SIMON BUSS

SACRED SPACE

ARCHITECTURAL GUIDE TO CHRISTIAN SACRED BUILDINGS IN EUROPE SINCE 1950

By Wolfgang Jean Stock. Prestel. 2005. £22.99

The impact of post-Renaissance secularisation of the Western world has generally been benign. But, in art and architecture, this secularisation has inverted an enriching process in which the secular has been abrogated by the sacred. And in an age of modern, overwhelming commercial secularism, religious buildings continue to present a challenge.

This German-English bilingual publication (a rather irritating format), is objective and systematic. It is, however, perhaps weakened by a rather pointlessly guidebook-ish form; do the publishers and author really expect a significant audience for such a limiting Grand Tour-ism restricted entirely to Europe's modern churches? For those so minded, and others too, however, this is a well-produced, sober and fairly non-doctrinaire overview of post Second World War religious architecture.

Professionals and students will regret the almost total lack of site plans, and the very limited, idiosyncratic inclusion of sectional information. But, in spite of weaknesses, this book offers desirable and timely scepticism against the current vogue for the overproduction and lazy acceptance of every eccentricity as an 'iconic' flourish.

ISI METZSTEIN

SKIN DEEP

MODERN CONSTRUCTION FACADES

By Andrew Watts. Vienna: Springer. 2005. €69

How do you publish construction details that appeal to critical practitioners, inexperienced students, a wide range of anoraks as well as designers who are simply above the tiring practicalities of when is a bridge cold?

There have been a number of books which have achieved this over the past few years – Edward Ford's outstanding two-volume set *The Details of Modern Architecture* (AR March 1991) published by MIT Press immediately comes to

mind; Phaidon's *Architecture in Detail* series has also been particularly successful in setting the detail in the context of the architecture. *Modern Construction Facades*, a technical study of some 40 building facades, can also take its place in this pantheon of technical volumes.

The book's hundreds of crisp line drawings sit on the pages in a clear and effortless way, setting impressive standards for the presentation of complex technical details.

The facades are divided into six sensible groups: glass, metal, masonry, concrete, plastic and timber. This straightforward organisation makes it easy to look things up, cross-reference and navigate one's way through the book. On every page the technical drawings are animated with colour photographs showing the completed building. Yasmin Watts, the graphic designer and herself an architect, must be commended for her clear and poetic layout.

Where on-site construction photographs are published in this work they help to illustrate a process, as in the six-page spread solely devoted to the in-situ concrete construction of Zaha Hadid's remarkable CAC Museum in Cincinnati, USA.

The seemingly straightforward metal sheet facade of Daniel Libeskind's War Museum in Manchester, and the ingenuity of Toyo Ito's clamped glass facade for the Sendai Mediathèque in Japan (AR October 2001), are both revelations. And Renzo Piano's Hermes Building in Tokyo (AR September 2001) constructed entirely of glass blocks appears surprisingly reminiscent of Pierre Chareau's Maison de Verre. My personal favourites are the pared down steel details of Manuel de las Casas' Cultural Centre in Zamora, Spain and the similarly reduced limestone cladding details of Rafael Moneo's City Hall in Murcia, Spain (AR July 1999) – one of the great masterpieces of modern architecture.

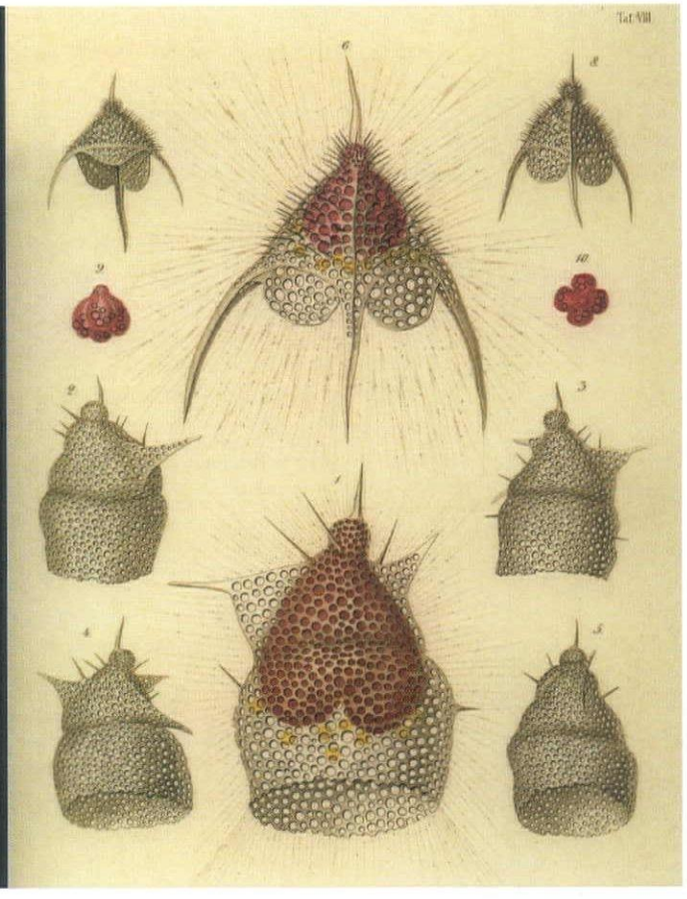
This lovely book is perhaps worth purchasing just for its fascinating insight into the simple but effective construction of Shigeru Ban's 'plastic' house in Kawagoe, Japan (AR October 2001).

Other striking projects include Ove Arup's Hongkong Railway Station and work by the Portuguese architects Joao Alvaro Rocha & Jose Manuel Gigante.

The author Andrew Watts picks up on the annotations to the drawings and delivers a dense and distilled text, packed with solid technical information.

The rigour of the text will no doubt be instructive for students while the more advanced reader can glean enough information from the brilliant technical drawings without referring too much to the text. In its genre, MCF certainly stands out for being an attractive and useful book, and may I say, I highly recommend it.

GABRIELE BRAMANTE



So now we know where Future Systems get their inspiration. These two exquisitely rendered radiolarians (*Dictyocerus Virchowii* and *Dictyopodium trilobum*) are taken from *Art Forms from the Ocean, Ernst Haeckel: Munich, Prestel, 2005, £12.99*, a reprint of Haeckel's celebrated 1862 *Radiolarian Monograph*. Radiolarians, since you ask, are microscopic, single-celled protozoa distinguished by a spherical or helmet-like skeleton. Some 5000 species of radiolarians are now known to inhabit the world's oceans and nineteenth-century German zoologist Ernst Haeckel made them his life's work, producing a classification system and a wealth of anatomical illustrations. Haeckel's meticulously observed drawings give an insight into the humblest manifestation of organic life, which, despite its microscopic size, has immense richness and complexity.

FILLING THE VOID

THE CHARGED VOID: URBANISM

By Peter and Alison Smithson. New York: The Monacelli Press. 2005. £45

An ample self-confidence comes through powerfully in Peter and Alison Smithson's *The Charged Void: Urbanism*, the companion volume in their oeuvre complète to *The Charged Void: Buildings*. Apart from the implicit, electrical reference to Michael Faraday, there's an association with both Michelozzo and Michaelangelo in equating the infill in the colonnade under the Economist building with the reworked corner of the Palazzo Medici, while the book ends with the assumption of Pericles' mantle. The Athenian statesman, they portentously claim, 'would have chosen this [ie, their choice] site for his Acropolis Place'.

Schematically these references cover technology, culture and politics, three fundamental constituents of urbanism. The Smithson's problem was that they never transcended schematic thinking. Their great insight, shared with Aldo van Eyck, Ralph Erskine, Sandy Wilson et al, was that CIAM's urban prescriptions were dangerously naïve, but the only tools they had to develop it were diagrammatic. 'Cluster', 'scatter', 'connection', 'pavilion and route' are recurring terms and all lend themselves to delineation in spidery sketches.

The accompanying texts trope the graphic technique, opening with opinion masquerading as fact: ('The time has come for the lyricism of control, for calm as an ideal, for bringing the Virgilian dream, the peace of the countryside enjoyed with the self-consciousness of the city-dweller, into the notion of the city itself') before describing what they found and what they did. Such overtly rhetorical statements fit ill with their much-vaunted claim to be 'without rhetoric'. They actually meant 'without debate', and their entire oeuvre is shot through with such slippages and misunderstandings.

The great tragedy is not of the Smithsons alone, nor the benighted residents of Robin Hood Gardens, whose central green mound was a 'stress-free zone, an area of quietude' – or so we are told – but of the entire machinery of the post war politico-architectural complex. In that the mental, conceptual and technical voids were even more gaping and glaring than the physical ones in bombed-out cities.

Nature abhors a vacuum and the Smithsons helpfully expanded to fill it. We are still paying the charges.

JEREMY MELVIN

Book reviews from The Architectural Review can now be seen on our website at www.arplus.com and the books can be ordered online, many at a special discount.



The meringue peaks of the German pavilion at the 1967 Montreal Expo, designed by Rolf Gutbrod, engineered by Frei Otto.

OTTO AT 80

'I have built little. But I have built many castles in the air.' Today Frei Otto's vision is as much alive as it was fifty years ago when he began to realise his first tent constructions. Born in 1925 the son of a German stone mason, Otto's astonishing career as an architect-cum-engineer has been dominated by his persistent search for lightweight constructions and the pursuit of biological-ecological studies. Apart from his own architectural designs (for instance, the famous Lightweight Structures Institute in Stuttgart), he also became one of the greatest architectural collaborators of the twentieth century. The roll call is impressive, from the German Expo Pavilion at the 1967 Montreal Expo (Rolf Gutbrod), and the Arena for the 1972 Munich Olympics (Günter Behnisch), to the more recent Stuttgart Highspeed Railway Station (Christoph Ingenhoven) and the Japanese Pavilion for Expo 2000 in Hanover (Shigeru Ban).



Pink Floyd turning it on sometime during the 1970s, backed by Otto's umbrellas.

The Munich Architectural Museum has seized the occasion of Frei Otto's 80th birthday to celebrate his life and work in a major retrospective. Three large consecutive rooms unfold the plethora of Otto's design inventions and many of the delicate models, sketches, plans and photographs have left his Warmbronn studio for the first time. Divided into themes, the displays introduce the main subjects of Otto's work. Six individual animations on tents and membranes, grid shells, cable nets, inflatables, changing roofs and bifurcations provide the visitors with the essential technical knowledge to understand the highly complex but beguilingly simple-looking models. The highlight is a recently rediscovered black steel roof model of the Munich Olympic Sports Hall which was used to simulate the actual roof loads by hanging little weights from the cable net connections. The 1:125 model still exudes some of the passionate dedication that obsessed Otto and

his architect Behnisch at the time, and he has managed to retain this fondness and visionary touch with his ongoing tests for the Stuttgart 21 station.

You come away from this exhibition feeling that over the decades, Otto has become synonymous with the structural freedom which can inspire architecture. Perhaps the best proof of this is Otto's numerous but hitherto unknown sketches and drawings in pencil, ink and watercolour executed during the various phases of his career. In the manner of Russian Constructivism and German Expressionism they reveal the full potential of his architectural vision. A vision that does not stop at the conventional boundaries of architecture, but which deliberately transgresses into biological phenomena and those of the universe – a fascinating spectrum to behold.

CHRISTIAN BRENSING

Frei Otto: Lightweight Construction, Natural Design, Complete Works, Architectural Museum, Pinakothek der Moderne, Munich, until 28 August 2005. *www.pinakothek.de*

WATER WORLD

Next to Aaron Betsky's house on a polder 18 feet below sea level is a small grey box with a red light. It contains an emergency switch for the pumps that keep the surrounding grid of picturesque ponds and canals at bay. If the red light comes on, he's probably going to get wet. There is a Dutch saying that 'God made the world, but the Dutch made the Netherlands', clawing back land from the watery grasp of the North Sea and the Rhine. There are 3500 polders (areas of reclaimed land) in the Netherlands, so the Dutch clearly enjoyed playing God.

Currently director of the Netherlands Architecture Institute (NAI), Betsky, like his Rotterdam Biennale compatriots George Brugmans and Adriaan Geuze (of West 8), are acutely aware of the precarious truce brokered between the Dutch and nature by centuries of ingenious water engineering. *The Flood*, the theme of Rotterdam's second architecture Biennale, thus had a clear local and global agenda, from the meticulous mapping of polders, to the wider and more corrosive effects of global tourism on coastlines around the world, given hideous momentum by last year's tsunami in the Indian Ocean.

Biennale goings on were split over two main sites, the NAI itself and the decaying Las Palmas warehouse, an atmospheric industrial relic on a nearby quayside. The trio of shows at the NAI focused on a diversity of water-related aspects, such as the historical development of the polder, which so rationalises and defines the Duch landscape, and a comparative study of three geologically similar bays (Tokyo, Venice and Amsterdam) that spawned thriving but very different water cities following initial land reclamation in the sixteenth century. The third exhibition, *Flow*, curated by artist Saskia van Stein, took a more abstract approach, presenting a series of landscape projects inspired and determined by water's dynamism, rather than fighting and containing it. Yusuke Obushi, for instance, proposed a giant 'Wave Garden', a membrane made up of 1700 elements, floating off the Californian coast that could generate electricity through the undulating motion between individual parts.

Provocative speculations on the Netherlands' future relationship with water continued with *New Dutch Water Cities* staged on the top floor of the Las Palmas warehouse, accessed by a monumental and precipitous scaffolding staircase shrouded in blue plastic to resemble a giant waterfall. Here, among other projects, was MVRDV's stilt housing, that could be periodically jacked up in case of flooding, and an investigation into the rites and rituals of funerals over water ('21st Century Styx') by students at the Amsterdam Academy of Architecture and Design.

Mare Nostrum, the large international section of the Biennale, also in Las Palmas, surveyed the effects of tourism, now the world's largest industry, on coastline development and communities from the Lebanon to Scotland. Curated by Morag Bain, the Scots presented proposals for five 'coastal machines' (Scotland has an astonishing 6000 miles of coastline) which mixed the practical with the polemic, from GROSS.MAX's notion that the effects of global warming could be countered by using an existing power station to create a giant nuclear iceberg, to Block Architecture's 'Seacrofts', man-made archipelagos of containers on platforms that re-establish the relationship between the Isle of Skye and the Scottish mainland.

Curating Australia's contribution ('32 000 Beaches'), Leon van Schaik also commissioned five architects to consider different aspects of Australia's coastline. Eighty per cent cent of the Australian population lives within 100km of the coast in cities that make an immense demand on the continent's water resources. Donovan Hill's visceral montage 'brisbanemustburn' showed flames of aboriginal land burning apocalyptically lapping the Brisbane beachfront as nature finally takes revenge for historic abuses of ecology. In the plethora of slightly self-regarding Biennale awards, best entry went to 'Al Caribe' from Supersudaca that forensically examined the



Scotch on the rocks at the Rotterdam Biennale – GROSS.MAX's iceberg at Torness on Scotland's east coast. Heat used to cool the iceberg creates hot water lagoons.

reviews

social and economic consequences of mass tourism on the Caribbean in general and the north coast of the impoverished Dominican Republic in particular.

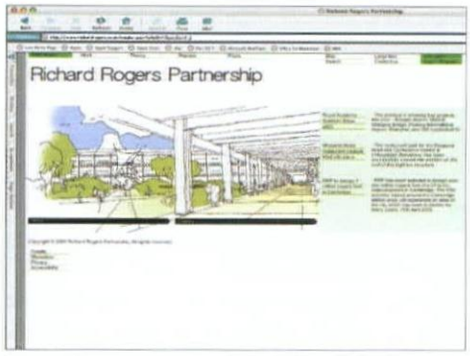
If the ponderous juggernaut of Venice is anything to go by, Biennales have a sacred duty to be irritatingly diffuse, both physically and intellectually, but Rotterdam was decidedly more focused (to the point of only lasting a month) and had a sense of coherence, even though the Dutch obsession with polders is perhaps not shared outside the Low Countries. In the astute choice of a theme that had both local and global resonance it imaginatively connected history with speculation and offered new insights into humankind's immemorial and often troubled relationship with water and the wider planet. CATHERINE SLESSOR *www.biennalerotterdam.nl*

browser

Sutherland Lyall energetically strides to the crease, bat in hand to whack the cyber universe for six. Howzat!

Architectural gravitas

The big beasts have irrevocably shouldered the burden of architectural eminence. But their attitude to sites seems to veer between the non-existent (probably Glenn Murcutt), through the laconic (Gehry Partners at *www.foga.com* has the function of merely publishing job openings), to the friendly (Renzo Piano Workshop) to the new Richard Rogers Partnership site at *www.richardrogers.co.uk*. It follows the fashion of the last couple of months for animations. I have an average, two Gig broadband connection so they work fairly smoothly. The difficulty is that you are not sure why you are looking at them – especially when they are panning shots of some unnamed building under construction, or maybe two buildings, plus a general sketch of another. You click on the Theory button and up come a series of running text quotes from such nice people as partner Mike Davis and even my lord himself. Aphorisms, declarations, maybe but not exactly what you might call a theory. Back to the interesting stuff, the images, and you have a choice from a six by three grid. Click on one and up comes a big image. You can log in, but since there seemed no obvious reason to do so, I didn't. It's all a bit sprawling and vague. But if you are such a titan you probably couldn't care less.



Richard Rogers Partnership.

Yadda yadda yadda

There it was in the PushPullBar Forum Statistics: 'welcome to our newest member SutherlandLyll'. Pink with embarrassment at this public exposure of seriously inept typing I attempted to change the entry. It turns out you can change anything except your name. Wisely, everybody else on this architectural chat room has opted for names like Assassin, Acanthus and, erm, Woody. Regular readers will know that this column is not a great fan of registration on non-commercial sites but registration is necessary if you want to take a look at the inner working of what promised to be an intriguing site – formally titled PushPullBar: architecture and design forum which is at *www.pushpullbar.com*. My experience of architectural forums is that they are pretty uninteresting, the standard message being about how architects really need to pull their socks up and be creative. Still this forum seems to have lots and lots of members and if you like this kind of thing it is probably worth registering. You won't find SutherlandLyll though. There's a clause in the rules banning 'obscene, vulgar, sexually-orientated, hateful,



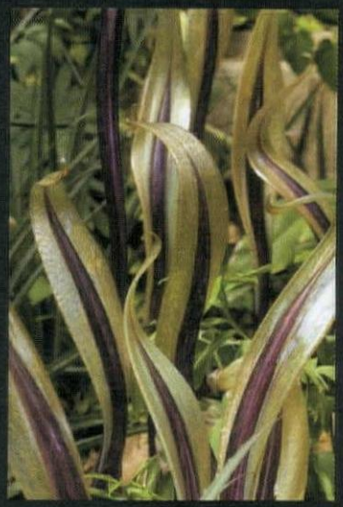
Famous in France (second only to Corb), Robert Mallet-Stevens was one of the most influential figures of the inter-war era, designing a series of imposing villas for rich clients, together with shops, casinos, hotels, furniture, film sets and pavilions for the 1937 Paris Expo. Now the subject of a scholarly and revealing retrospective at the Centre Pompidou, the world of Mallet-Stevens is brought vividly to life, through an array of drawings, photographs, maquettes, furniture and film extracts. His masterpiece is the Paris street that still bears his name in the upmarket 16th arrondissement, an ensemble of streamlined mansions with reinforced-concrete frames and mod cons, built between 1926 and 1934. Shown here is the *hôtel particulier* for the Martel brothers, now restored to its original glory. C. S.

***Robert Mallet-Stevens Architect, 1886-1945*, Centre Pompidou, Paris, until 29 August**
www.cnac-gp.fr

Photographs: Andrew McRobb















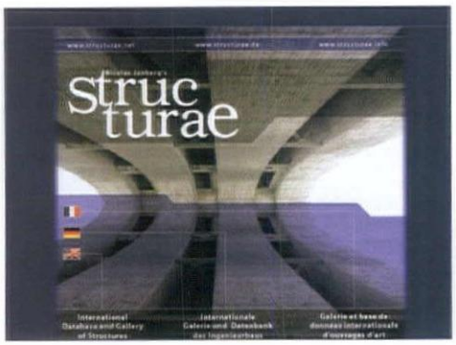
THE LANDSCAPE AND GLASSHOUSES OF KEW GARDENS ARE TRANSFORMED BY DALE CHIHULY'S SITE-SPECIFIC SCULPTURES.

For the next few months, the exotic flora in Kew Gardens, west London, has some very stiff competition in the form of American artist Dale Chihuly's installation of 25 vividly-coloured, spectacular glass sculptures. Nestling among the palms in the Temperate House, a small group of lime green trumpets stretches up towards the sunlight, ready to catch any raindrops from the overhead foliage. Close by, a bunch of bright yellow leaves looks totally at home floating on the surface of a small pool, offering landing pads for passing insects. Luscious clumps of fantastic green grass have sprouted as if after a storm in the desert. And among giant waterlily pads, the tall blue and white necks of some strange water creatures gently arc and swirl above the pink blooms. Brightly coloured floats bob on the surface of the Palm House lake, although resident ducks seem unperturbed by the invasion.

But not all of Chihuly's pieces look quite so passive and comfortable among their neighbours at Kew: a giant Sun comprising 1000 spiralling tentacles towers over you like a huge Medusa's head, writhing chandeliers hang from the ceilings of the hot houses, a string of huge balloons tumbles towards you in the Temperate House, and a small boat explodes with baubles and streamers.

LYNNE JACKSON

Gardens of Glass: Chihuly at Kew until 15 January 2006: *www.kew.org/chihuly*



Structurae on the web.

threatening' messages. Which is exactly what I'm working on now.

A solemn trust

It's not that Browser is institutionally opposed to reactionary sites, well it is a bit, it is just that having whinged for all those years about people who hated modern architecture you discover the boot is on the other foot and it's dear old Quinlan Terry and the younger Robert Adam (no not a ghostly visitation but the unrelated bloke down at Winchester) who are whingeing about everybody being unappreciative of their essays in classical styling. So for balance may I direct you to INTBAU at *www.intbau.org*, the International Network for Traditional Building, Architecture & Urbanism (Patron HRH Prince Charles). Ignoring the content for a moment, this is a nicely simple and easily navigated site with all the major headings down the conventional and easily read left side and lots of hyperlinks – though you might wish for a lot less text and even more such links. Whatever, there is this Californian, Charles Segal, with an essay (Essay 9) which reads, at first, quite reasonably and then the boot starts its arc: 'Modernist housing projects ... vertical slums ... blighted neighborhoods, and revolts by local citizens.' I so liked that bit about revolting local citizens that I read on – only to be disappointed to find that, among the yadda yadda, Segal is under the quaint impression that PoMo is still in the ascendancy. Still being behind the times is, sort-of, on message. His The Preservation Institute site is at *www.preservenet.com*. It asks readers for additions to its bibliography: I was going to offer *Mein Kampf* but, although I argued passionately that Neo-vernacular was National Socialism's favourite housing style, my editor told me not to be so silly.

Veni, Vidi, got in a muddle

Incidentally, the ICA&CA, which I mentioned in the May issue as being based at the Catholic University of Notre Dame, is actually based in New York and the hundred thousand bucks given to Quinlan Terry had nothing to do with the ICA&CA but possibly the university and a big donor. I asked for further and better particulars but no elucidation was forthcoming. I won't ruin Bob Adam's chances by suggesting he should get the big prize next year. The Institute of Classical Architecture & Classical America, my source for garbling, is at *www.classicist.org*

Structural challenge

Back in 2000 we took a look at Structurae at *www.structurae.de*. This is Nicholas Janberg's English, German, French database and gallery of international structures. Back then we thought the coverage was a bit mixed with some glaring omissions such as Tony Hunt, one of Britain's great engineers. That gap has been filled although not very satisfactorily. It is true that the Millau Viaduct is there but, having carelessly clicked out of it, it took me half an hour to find it again – via another site – the German side of *www.archinform.net*. Quite a lot of photos are not yet installed and descriptions are either vestigial or non-existent which makes the absence of visual material doubly confusing. So although it has enlarged vastly since 2000, we can only repeat our hope that what is basically an excellent site will grow in size and scope. And become a bit more informative. And faster. And get more pictures. Or maybe it could call a temporary halt while the promoters decide what its function really is. Or at least catch up.

Fluttering and dancing in the breeze

I'm not entirely sure that gridswarms are something which family architects should be looking at. But they simply have to have some architectural relevance. Strictly speaking a gridswarm is 'a large group of small unmanned autonomous aerial vehicles ... their onboard [Linux] computers [linked] together across a short-range, high-bandwidth wireless network and configured to form an enormous distributed parallel computer'. Rather like a render farm. A gridswarm can report data about topography, temperature and so on back to you. Take a look at the primary Ultraswarm site at Essex University's *http://gridswarms.essex.ac.uk/index.html* and an excellent general site with lots of links and a little movie at *www.linuxdevices.com/news/NS2142584362.html*. Naturally there is a military dimension but for architects what you could do is take a suitcase full of these tiny flyers to your new site, tip them out into the wind, perch on an orange crate, read everything about the site into your laptop and then head straight off for a day or so's research in the nearest pub. Obviously not the office where they thought you had taken out some of those theodolite things and measuring tapes.

Sutherland Lyall is at sutherland.lyall@btinternet.com

diary

AR'S CHOICE OF INTERNATIONAL EXHIBITIONS AND EVENTS

DENMARK
JEAN NOUVEL
Until 18 September
Louisiana Museum of Modern Art, Humlebaek
Former *enfant terrible* of France's *nouvelle vague* gets his own grown-up show, tracing a trajectory from early projects such as Nemausus experimental housing in Nîmes to a new national museum of anthropology in Paris.
www.louisiana.dk

SWITZERLAND
THE SURREALIST PICASSO
Until 12 September
Fondation Beyeler, Basel
Picasso's crucial and creative Surrealist moment, illustrated by work from the Musée Picasso in Paris and Fondation Beyeler.
www.beyeler.com

UNITED KINGDOM
HERZOG & DE MEURON
Until 29 August
Tate Modern, London
Jacques & Pierre colonise the Turbine Hall with their colourful activity tables (see pp24-25).
www.tate.org.uk/modern

REBECCA HORN: BODYLANDSCAPES
Until 29 August
Hayward Gallery, London
A spectacular assemblage of Horn's sculptures, films and installations made over thirty years inspired by allusions to the body, sensory awareness, physical frailty and desire.
www.hayward.org.uk

UNITED STATES
FIVE ARCHITECTS
Until 20 November
Chicago Architecture Foundation, Chicago
Drawing on the famous 1972 book of the same name in which a quintet of young New York architects (Eisenman, Graves, Meier et al) defined themselves as a unified school, this show looks at five new Midwest buildings by firms with women principals. With work by Zaha Hadid, Julie Snow, Kazuyo Sejima and Studio Gang.
www.architecture.org

STEVEN HOLL ARCHITECTS: POROSITY
Until 17 July
SCI-Arc, Los Angeles
Investigates concepts of porosity through the fusion of architecture with urbanism and landscape, or light with form, and shade with shadow. Holl's firm invented a material for the exhibition (a digitally perforated porous skin of walnut and composite laminate) that explores the possibilities of design, construction and perception presented by new digital techniques.
www.sciarc.edu

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www.arplus.com