

THE ARCHITECTURAL REVIEW

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INSIDE: AR'S FOSTER CD-ROM
Meier's Magic Mountain
Pei in Japan



Discover the uses of nature



CWT Y BUGAIL

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GREAVES

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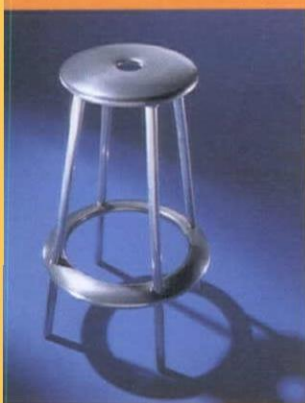
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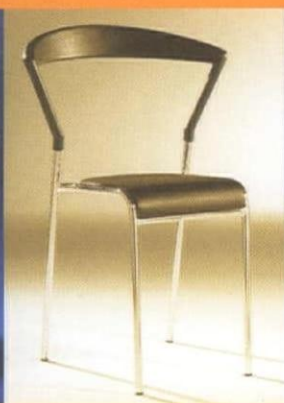
zupo

designed by john coleman

John Coleman's sensuous curvilinear Zupo chair design is the second wooden chair to be produced by Allermuir. With elegant tapering curved beech legs and rails, a generous low profile upholstered seat pad, and a single curvature polished beech veneer backrest, which can also be upholstered, Zupo is available with or without armrests, offering the best in contemporary luxury and comfort as has been proven in both corporate and restaurant applications.



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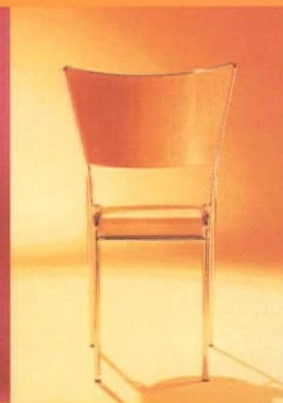
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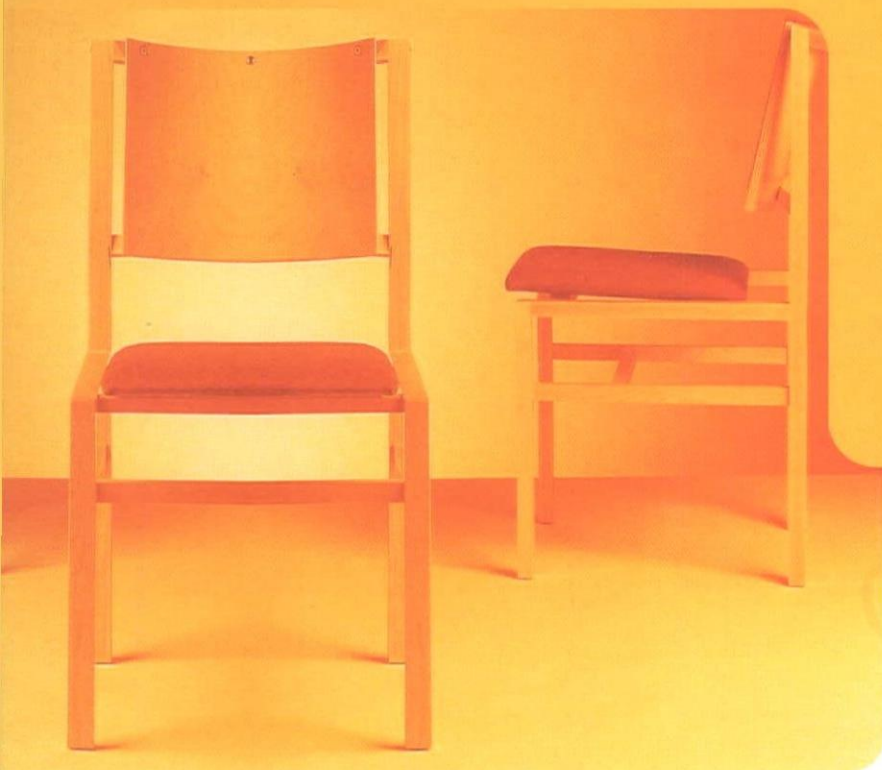
nico



pharaoh



wafer



3°

3° Side chair designed by J Mark Gabbertas

3°, in clear lacquered maple, by J. Mark Gabbertas, represents Allermuir's first all wooden frame chair. An elegant structure, strong, beautiful, restrained and above all, extremely comfortable. Traditional wood engineering embraced by contemporary styling. Slender sections and flush joints are mirrored in the stools. Seats are upholstered, and frames are also available in stained beech. Single and double pedestal, tubular seated framed, cruciform base tables compliment this range to enrich any interior.

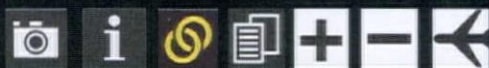
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Thirty years FOSTER AND PARTNERS

Foster and Partners have produced this CD-ROM which shows more than 90 projects that illustrate the progress and diversity of the vastly innovative practice's work over the three decades of its existence. The AR is delighted to be associated with the enterprise, which is a remarkable breakthrough in publishing contemporary architectural work. It offers new ways of examining buildings and projects that are complementary to ones given by magazines and books, and it allows you to make your own preliminary exploration of a huge amount of information far more easily than is possible with large masses of paper. The symbiotic nature of paper and electronic publishing can be seen by looking at the coverage of the Duxford American Air Museum on the disk and p52 of this issue.



System requirements

Before playing this CD-ROM please note that the minimum computer and CD-ROM specification required to run the CD satisfactorily is:

PowerMacs PPC 601 processor, 60MHZ, 8MB RAM free, System 7.1, 640x480 16 bit colour monitor, Double-speed CD-ROM drive. The CD is optimized for Windows 95/NT.

PCs 486SX66, 8MB RAM free, Windows 95 or NT, 640x480 High colour (16 bit) monitor, sound card, Double-speed CD-ROM drive and Quicktime VR. (Qt32 can be loaded from the disk.) For best performance, copy the contents of the disk on to a local hard drive. If you do not have the minimum system requirements the CD is unlikely to function properly.

For Windows 95, go to Start and Run, type in D:\Foster.exe (or the correct letter of your CD drive), then press OK. Macs should boot up automatically. Double click on the Foster icon.

Searching

The screen offers different ways of approaching the practice's work. You can choose the list of projects and look at it either alphabetically or chronologically; clicking the cursor on any name will bring up the relevant material. Also, under the simple 'search' rubric the system will find what you want (or the nearest to what you have entered it can deduce). **Location:** clicking the cursor on the relevant flag causes a map to appear, showing the location of Foster work in each country; click again to call up the project shown by a yellow dot. You can search out the issues of the AR in which particular works were published and find more information on each than is possible to publish on the disk.

Looking: Example DUXFORD

Click on projects, then click on search and type 'ameri'. Click on either the text American Air

Museum or the photograph. This takes you to the introduction page for Duxford. To find information, animations, photographs or text click on any thumbnail photograph.

The top bar on the screen indicates the material available. In all cases, a menu of images is offered: drawings, usually supplemented by photographs of the model or finished building. Click the cursor on the image you want to see in detail and it will be magnified. Continue clicking to see all the photographs in the larger format. Brief information is given about the nature of each work, and in the case of public buildings, on how to get to the site. A text of more detailed explanation of ideas and making can be called up at the same time as the images.

In particular cases, animations are available. There are sometimes videos showing the building in use. These are revealing in themselves, but the big technical innovation is IPIX 360 degree immersive imaging technology (see more at www.ipix.co.uk). These images give the impression that you are actually in the building controlling your navigation round it. From the plan choose a blue dot on which to stand, turn round, look up and down and use binoculars to examine the space (the aeroplane icon shows where you are moving; the + and - icons allow you to zoom in and out of the image).

The two linked circles icon connects to all other animations. The yellow circle icon will close any window or close the disk.

Other copies

The disk is free with subscriber copies of The Architectural Review. Additional copies of the disk can be obtained (priced at £30 postage inclusive) from CRC. Tel: +44 171 505 6622. Fax: +44 171 505 6606. E-mail: crc@construct.emap.co.uk. Credit cards accepted.

The Architectural Review and Foster and Partners have checked the CD-ROM for known viruses at all stages of production, but cannot accept liability for damage caused to your data or your computer system which may occur while using either the disk or any software contained on it. If you do not agree with these conditions, you should not use the disk.

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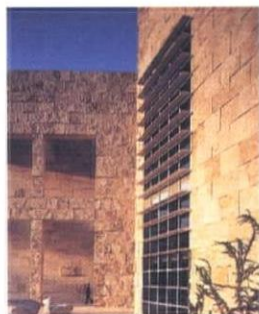
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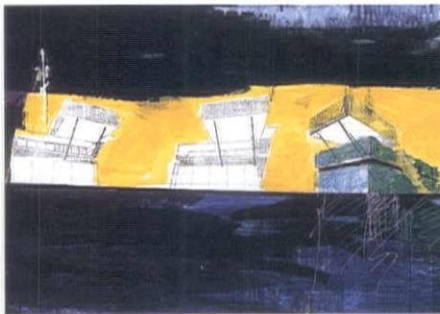


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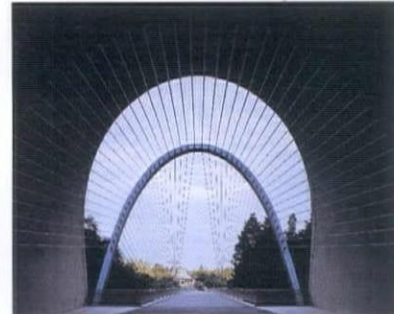
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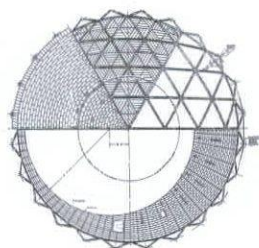
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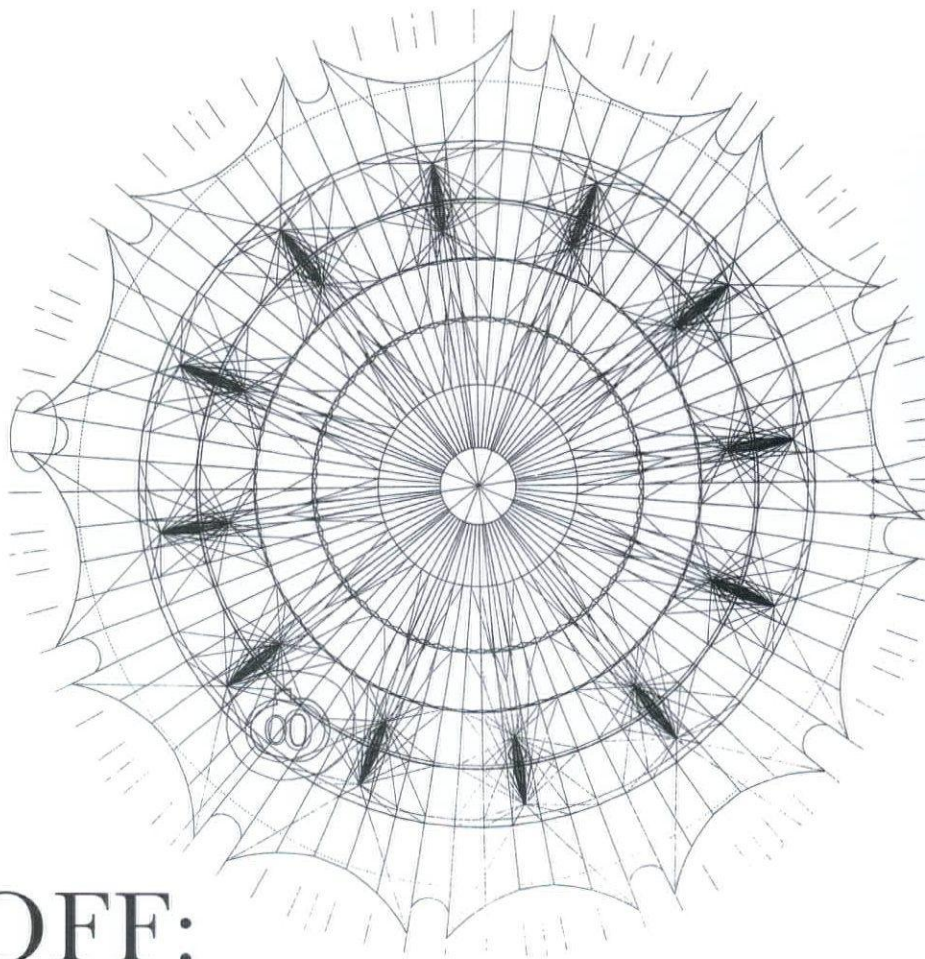
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Plans of the 1951 Dome of Discovery by Ralph Tubbs and Ralph Freeman (above) compared to the Greenwich dome by the Richard Rogers Partnership and Buro Happold (right): approximately to scale – the tensile structure is nearly four times bigger than the compressive one.



SHOWING OFF: FORM NOT SUBSTANCE

Since the Labour Government took power in Britain some nine months ago, urbanism, architecture and design have clearly been regarded with greater respect in official circles than during the philistine and socially destructive 18-year night of Conservative rule. Enthusiasm is (at least partly) clear, but Labour's judgement is strange, to say the least. When the Government wanted to entertain the President and Prime Minister of France last year, instead of using one of the many excellent (but old) reception suites in central London, it chose the upper floors of the Canary Wharf Tower, the centrepiece of the worst urban redevelopment in Europe (and the largest, until Renzo Piano's infinitely better Potsdamer Platz started to emerge in Berlin – see last month's AR p34-43). Cesar Pelli's tower is a tired, if technically competent example of American run-of-the-mill commercial architecture. Its top floors, which enjoy views of some of the most dreary recent buildings in the world, were done over for the great Franco-British meeting by a team directed by Terence Conran, Purveyor of Modern Gentility to the British middle classes. The only virtues the naff place and bland interiors seemed to have were that they were (relatively) new, and perhaps that the overall design was American, for possibly because the British are so notoriously bad at foreign languages, the US seems to offer the only patterns of the future understood in Whitehall: we are apparently old-fashioned and unselfconfident even in our choice of role models.

As we go to press, the Greenwich Dome, the Government's celebration of the Millennium, appears to be suffering from similar confusions of aim and imagination. The artistic director Stephen Bayley, and his political supremo Peter Mandelson,¹ seem to have fallen out over what to put into the place. The building itself, by the Richard Rogers Partnership and Buro Happold, promises to be a decent (if not revolutionary) example of modern architectural

and engineering design, decorously and appropriately taking its cue from the much smaller but more innovative Dome of Discovery, the focus of the 1951 Festival of Britain (AR January 1995).

But the contents of the Greenwich Dome remain extremely nebulous. Of the people given responsibility to fill it, neither Bayley nor the teams of designers he chose (with one or two very distinguished exceptions) give hope of originality, excellence, perception or powerful imagination. And Mandelson's visit to Disneyland, in which he was apparently vouchsafed a Road-to-Damascus revelation at the well of huge profits based on dumbing-down as many people as possible, bodes extremely ill for the project.

Both the Great Exhibition and its 1951 successor tapped a sense of wonder. The 1851 event, though it was condemned by *The Times* as exhibiting 'universal infidelity in principles of design',² showed the vigour and variety of the first stage of the Industrial Revolution and its exploration of the natural world. Its centennial event illustrated the great courage of a people who had been locked in a near fatal combat with the most evil regime the civilized world has ever seen, and it celebrated visions of turning swords into ploughshares. The Greenwich exhibition shows little hope of achieving the power of its predecessors. Humanity has a huge amount of material and spiritual achievement to celebrate at the turn of the millennium, but where is the nobility of the Greenwich project? Where the wonder? Good design, innovative ideas, imagination and delight do not flourish in a climate of focus groups, trend surveys, PR agencies and media masseurs. P. D.

¹ Ironically, Mandelson is the grandson of Herbert Morrison who oversaw the Festival of Britain (Bayley has left the project).

² *The Times*, reprinted in *The Journal of Design*, 1851, quoted by Naylor, Gillian in *The Arts and Crafts Movement*, Studio Vista, London, 1971, p200.

ELECTRONIC ADVENTURE

In this issue (just inside the front cover), you will find a new adventure in architectural publishing. The CD ROM¹ on the work of Foster and Partners offers new dimensions in the analysis of buildings – notably in the video sequences (find the Hongkong Bank for instance, and you will see people moving around in the building, and get some notion of what it is like for them to be there).

Even more dramatic are the dynamic viewpoints. Look for example at the Duxford Air Museum as represented on the disk. You can choose several different places on plan in which you can, in effect, stand and turn round, glance upward and sideways, and have a much more direct appreciation of the space than can be offered by the photographs and drawings on the pages of the magazine – though, of course, they offer a different experience.

With sufficient thought, architects can always create three-dimensional spaces in their heads from flat images seen on paper, and the resulting understanding of the nature of volume, light and other sensory modalities like sound is more profound and comprehensive in many ways than what can be offered by the electronic media. Yet, particularly in the case of the museum at Duxford (p52), where there are large objects suspended in a big space, the CD gives a feeling of the building which is difficult to grasp from the page. Even were we to devote much more paper to the project, with many more plans and sections showing the different levels of aeroplanes (and far more photographs), you would scarcely feel it worth the time needed for their study to get a full three-dimensional understanding of the place. Carefully used (if you do not use it cautiously, the effect may make you feel slightly seasick), the CD gives a perception of objects in space impossible to gain from any other medium.

Electronic publishing is increasing in importance by leaps and bounds. For instance our selection of last year's best publications included for the first time two CD ROMs: *The Works of John Ruskin*, and *Le Corbusier: architecte/artiste* (see AR December 1997, pp90-92). The first translates the 39 volumes of the great Victorian sage's complete writings on to one disk with a remarkable search system that allows the huge mass of words to be approached in many different ways. The Corbusier CD offers a cornucopia of visual and verbal information on painting, urbanism, buildings, writings and chronology with a plot you make up for yourself. With its dynamic

elements and a simpler method of interrogation, this Foster disk adds to the potential shown in the Corb one.

But we do not believe that paper publishing will ever die out – this is not a Luddite² argument. Looking and comparing on paper is very much more easy than trying to do the same on screens, which must be sequential, while pages can be seen virtually simultaneously. Clearly, electronic media are at the moment visually very much more coarse than what we can achieve at our best on paper in terms of clarity of drawings and photographs. And formal structures of images and ideas provided by publication on pages are necessary as a counterpoint to ephemeral individual interpretations explored on screens.

In paper publishing, there is always an implied order from front to back of a magazine. Of course, few of us follow the structure the editors suggest: for instance, many people riffle through a publication from the back; others turn to favourite sections; sometimes to start with, we even turn to the main articles signalled on the cover. The variety of approach offered by the electronic medium is far greater: you literally make up the story you want to pursue as you work your way through it. This post-modern facility gives you, the user, a vastly enhanced degree of freedom, and allows us, the providers of the information, to give far more than we can offer on paper.

In a few years, this disk will seem very old fashioned.³ Doubtless, given the astonishing rate of change in software and hardware, many new and unexplored techniques will be offered to electronic publishers, and experience will be gained by us in offering more and more information in increasingly sophisticated ways. The new media offer very exciting opportunities. We will explore them in different ways in future issues.⁴ As a start, we hope that this Foster disk is the first of a series on the best architects of our time. P.D.

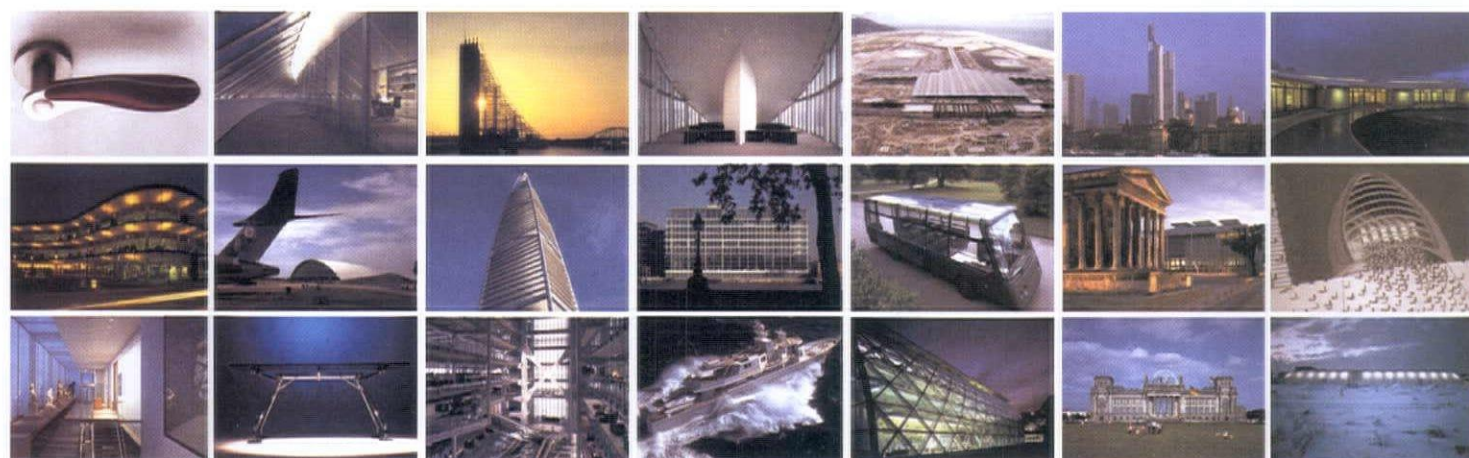
1 The device works on both Mac and PC systems, but you may find that you have to install a small piece of software (from the disk) so that your PC computer will interpret the information.

2 The Luddites were workers who broke up the machinery of the Industrial Revolution at the turn of the eighteenth century; they were led by General Ludd, named after legendary King Lud of a proverbially happy ancient Britain.

3 But it will be a collectors' item, as the best example of its genre at the end of this decade, as a mine of information and our present-day interpretations of it.

4 Our web site is being thoroughly redesigned and will shortly offer up-to-date information on the magazine, its contents and other architectural news.

Foster flavour: images which show the range of the CD-ROM published in this issue.



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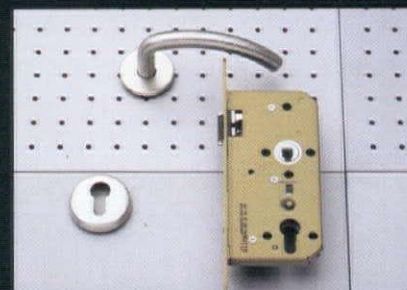
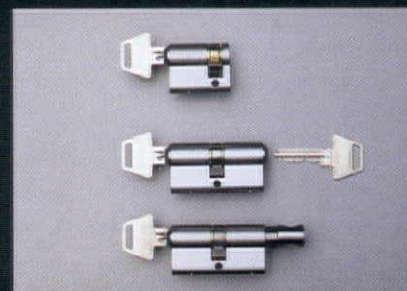
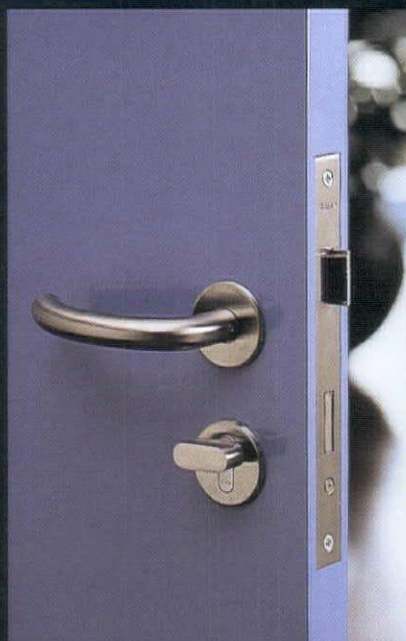
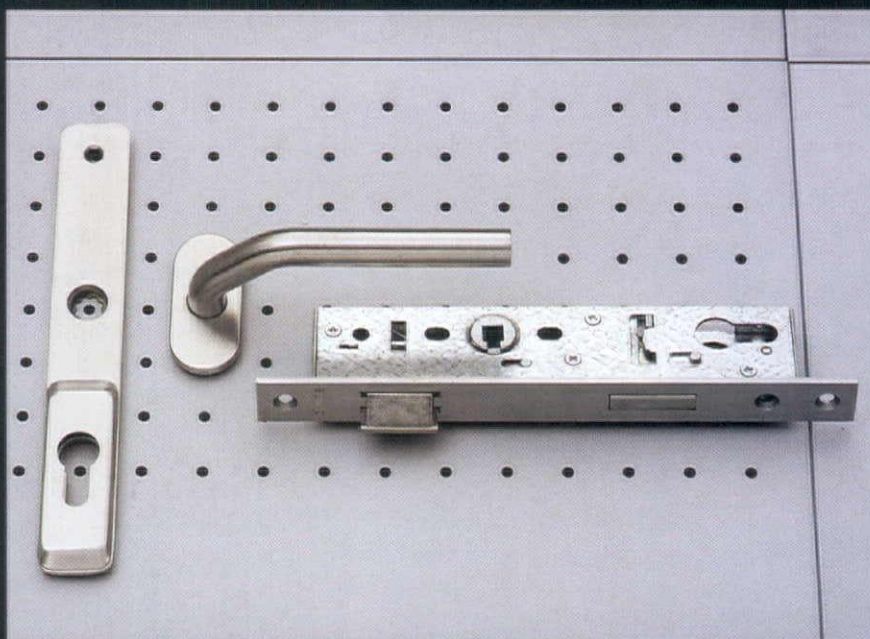
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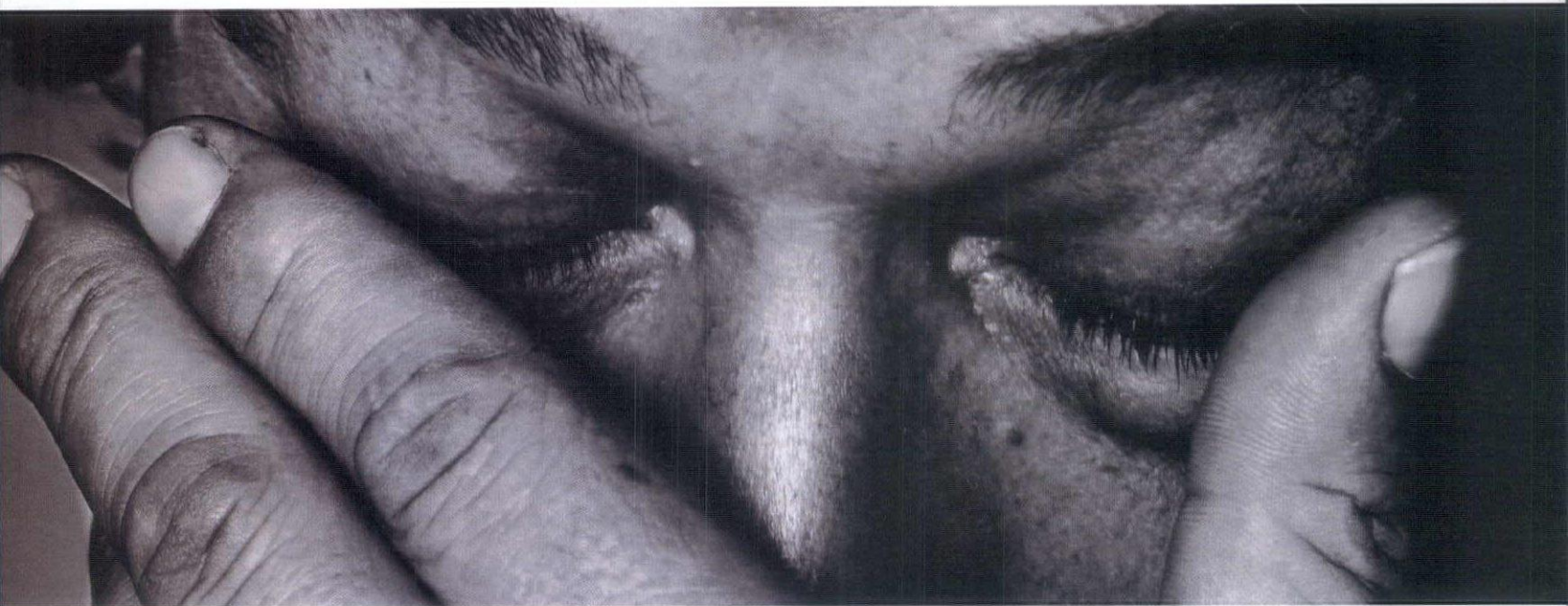
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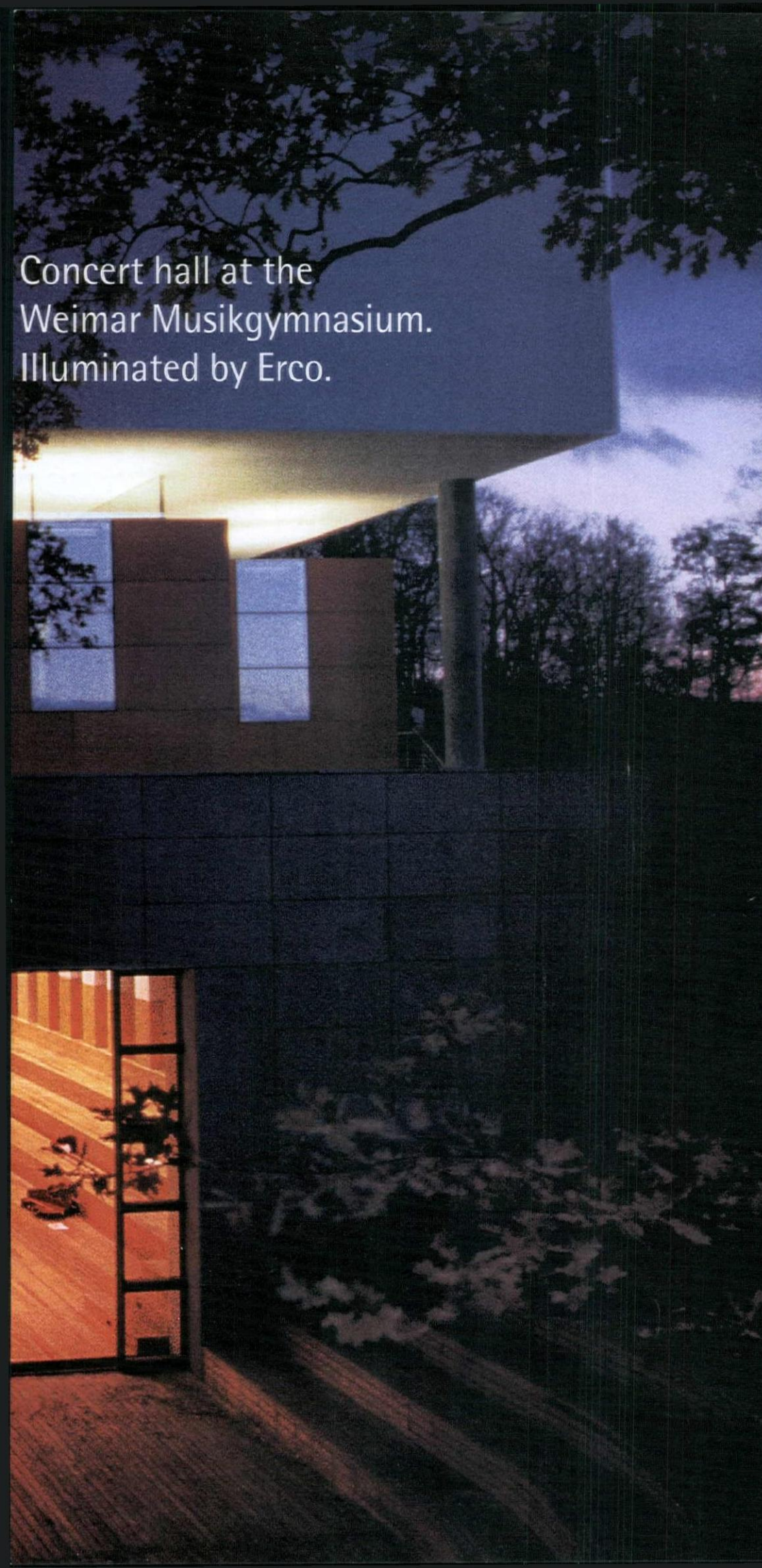
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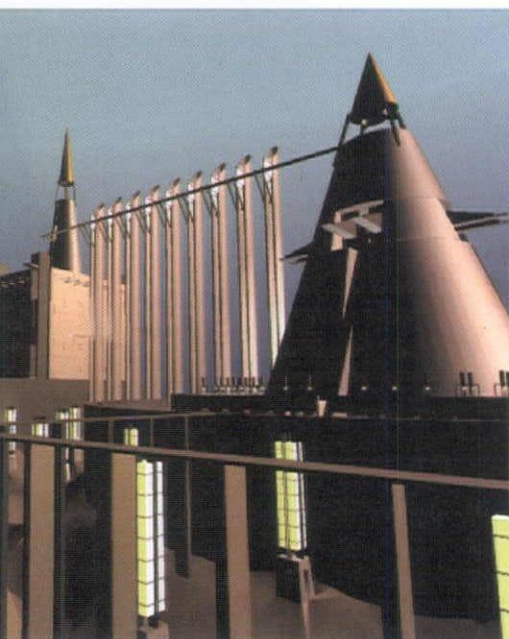
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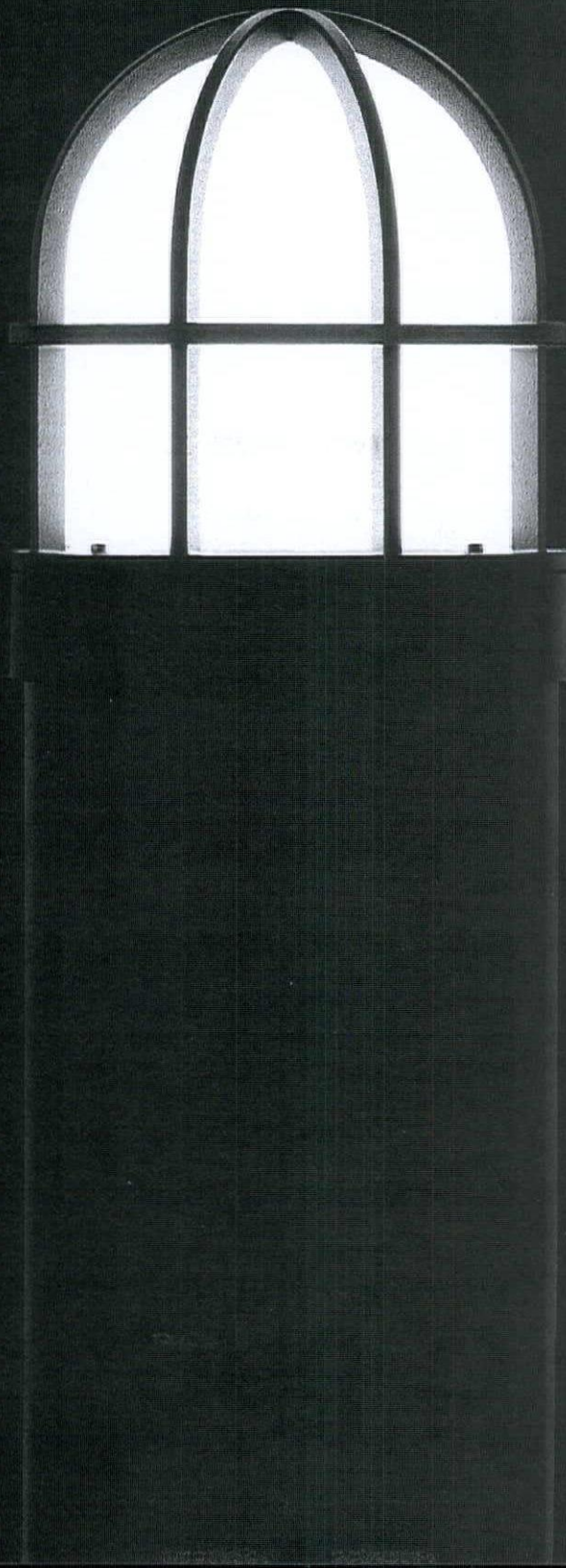
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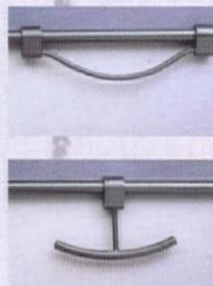
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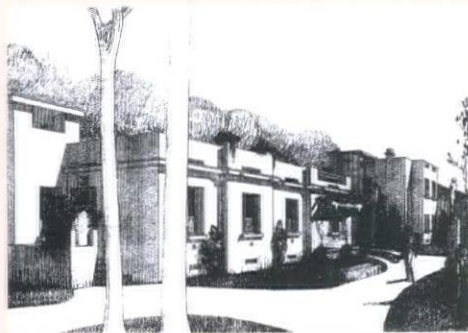
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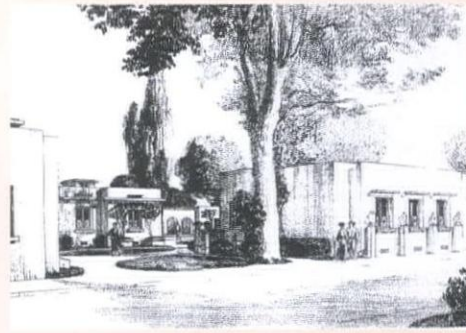
Mastering the city



Garnier's Cité Industrielle: the hospital ...



... and residential quarter ...



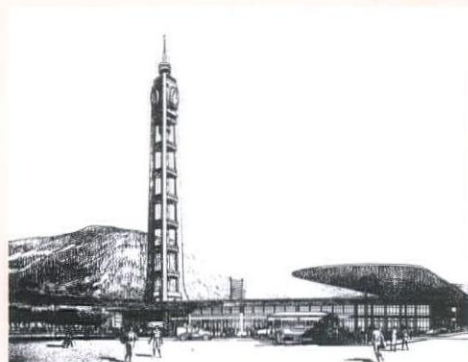
... to be built in reinforced concrete ...

The important task of directing the growth of modern cities is almost impossible to represent in a coherent and visually attractive exhibition. There is so much data to process, so broad a spectrum of interests and opinions, and so often the daft imposition of stylistic criteria, that planners might almost be forgiven for ignoring contemporary discussion and their own professional history. But not quite.

Currently at the Netherlands Architecture Institute (NAi), 'Mastering The City' presents an interestingly chosen history of North European urban planning in the twentieth century. It's essentially a survey, and as such does not affect the inclusiveness of a blockbuster. It presents themes, artefacts and nuggets of information in order to understand a greater whole. Curated by Koos Bosma and funded at least in part by the Van Eesteren-Fluck & Van Lohuizen Foundation, the exhibition tells the story of 24 specific urban plans from Letchworth (1903) and Garnier's Cité Industrielle (1904) to Milton Keynes (1970) and Almere (1977) in the former Zuider Zee. It then turns to prospects for Berlin, the Paris Basin, the Ruhr and Holland's own Randstad. These latter examples are, of course, less traditional cities than urban conglomerations.

The curatorial strategy succeeds because of its catholicity. Included are city plans from the Beaux Arts (World Centre of Communication, 1912) to International Style Modernism (La Ville Radieuse), from totalitarian Classicism (pre- and post-war Berlin) to the would-be Structuralist freedoms of Yona Friedman's Ville Spatiale of 1959. You don't feel lectured or forced to follow some ideological line. Rather, you can go back and forth from one distinctive proposal to another. 'Mastering the City' is particularly innovative in finding proposals, some implemented, from behind the former Iron Curtain (Kracow, Kiev, Moscow, Warsaw). With original drawings recovered or restored for this event, the organizational effort must in part have resembled a detective story.

The installation is designed by the Viennese architect Boris Podrecca and is a reminder that



... as was the station.

planning is directly connected to the physical plan. There are three primary constituents: a large opaque globe, an array of vertical screens for each of the 24 plans (Podrecca calls these the Trojan Horses), and a long raised horizontal surface for the contemporary condition. The globe contains a tiered cinema like a small theatre and introduces the history and purpose of planners. On axis with its exit, Podrecca has placed a tiny early drawing of van Eesteren (1997 was his centenary year) which connects to a small detour of a table with mementoes of CIAM, 12 of van Eesteren's own drawings, and a wonderful photograph of the Amsterdam planner pointing back into the NAi hall.

The Trojan Horses are set out like market stalls. To one side are contemporary videos and ahead some very large works, including a rescued drawing of Perret's for Le Havre. The long dais has an enormous model of Berlin circa 2005 and a contiguous glass floor into which satellite photographs, models and some statistical information on the immediate future have been set. On the wall behind are images and more videos of the real situation (children playing, jets, traffic jams). The visitor can then ascend Podrecca's globe to find the extremely weighty catalogue and survey the entire scene.

'Mastering The City' affirms the profession of planning and allows the lay visitor to understand many often inaccessible issues. Being Dutch, it's aware of new problems of scale and landscape. Under the glass floor, Schiphol

looks as big as Rotterdam. There perhaps is the great theme of the immediate future.

RAYMUND RYAN

Mastering The City - North European City Planning 1900-2000 is at the Netherlands Architecture Institute, Rotterdam, from 18 December 1997 until 5 April 1998. An accompanying catalogue (published by NAi/EFL Publishers, 484pp, Dfl 165) is available in both Dutch and English editions.

Middle Eastern promise

The Architectural Review is organizing a conference on Sustainable Architecture and Construction in the Middle East, to be held in Abu Dhabi on 30 and 31 March. A new spirit in architecture is alive in the region, and the conference will examine architecture that is culturally, climatically and economically relevant to this dramatically developing area, which is blessed with abundant ambient energy.

Speakers will discuss the most important buildings and projects in the area, and exciting new ideas which will have impact on work in future. Speakers include Suha Özkan (Secretary General, Aga Khan Award for Architecture), Ali Shuaibi (designer of the most important recent intervention in Riyadh), Kenneth Yeang (architect and theoretician of ambient energy use in contemporary buildings), Richard Bödeker (designer of some of the most ecologically appropriate landscapes in Saudi Arabia) and Abbad Al-Radi (who has built key works in Abu Dhabi).

The conference is open to practitioners and others from all over the area and elsewhere. Further details can be obtained from the form on p90, or from Rowan Crowley Publishing Director, The Architectural Review, 151 Rosebery Avenue, London EC1R 4QX, tel +44 (0)171 505 6618; fax +44 (0) 171 505 6610; e-mail rowanc@construct.emap.co.uk

AR Ed honoured

AR Editor Peter Davey was awarded the OBE for Services to Architecture in the Queen's New Year Honours List.

AR Dep Ed celebrated

At the annual International Building Press awards in December, AR Deputy Editor Catherine Slessor won 'Architectural Journalist of the Year'. This is the second time that Slessor has won the award. 'She shows she can handle a range of different subjects with equal skill and has the ability to take a subject of technical complexity and put it across in an eminently readable form', said the judges. The award was presented by Michael Latham and sponsored by Sheperd Design & Build.



Slessor triumphs: Latham looks on.

Index available

The July to December 1997 index is now available. To receive it please enter 801 on the reader enquiry card. Readers who have previously requested an AR index will automatically be sent the new one and all new enquirers will be put on our mailing list.

letters

Energetic debate

SIR: I would like to compliment you on assembling another fine issue of *The Architectural Review*. The July 1997 'Energetics' issue is of much interest to myself, fellow academics and designers. We look to the AR for information about recent projects and buildings which address issues of energy efficiency and occupant comfort. The AR is unique in how it presents such projects in the larger context of architectural design.

In past years, your and other architectural journals have published articles about energy

efficient buildings when they are in their schematic stages and when ready to be photographed after or very near completion. Many articles, yours being no exception, that discuss the building systems and how energy efficient they were designed to be, end in questions and speculations about the future success of these concepts, systems and technologies. These questions and curiosities, however, usually go un-revisited. Do the authors and editors forget that they posed these questions? Or is it merely 'not in the interest' of the journal's audience? I know personally dozens and am sure that hundreds of your readers would appreciate and expect this type of follow-up information.

A few months ago, at a talk sponsored by Pacific Gas & Electric's Energy Center, an institution which promotes energy efficiency and comfort in building design, an architect from Norman Foster's office presented several recent projects, many of which incorporated energy efficiency strategies. An audience member asked him, 'Do these buildings and their systems actually work and deliver what they have been designed to deliver?' His response, 'Well, people are really not interested in that type of information'. I was astounded at his reply, not only because he worked for Foster Associates but more because he was presenting to an audience which obviously was interested in 'that type of information'!

About 45 years ago, in his review of Lever House, Lewis Mumford, then architecture critic for the *New Yorker*, wrote that 'It will be a little while before one can make a final appraisal of this building; that will depend partly upon how comfortable the quarters have been in the summer and how expensive it has been to keep them comfortable, likewise on how satisfactory this building will be in very cold weather'. I am sure that many complaints have been filed to Lever House's various building managers and that Park Avenue has experienced very cold weather at least a few times in the past half-century. Where is this information towards which Mr Mumford expressed a genuine curiosity? I'm still waiting.

In your detailed description of Norman Foster's Commerzbank tower, you describe the building's systems and technologies which have been integrated to create a building to meet the client's requests that 'the building ... use ambient energy as much as possible to reduce the amount of fossil-fuel derived power, [that] users ... be exposed to the beneficial effects of contacts with plants, and [that] individuals ... have the possibility of opening their own office windows'. In your conclusion, similar to Mumford in his, you confessed that 'although extensive computer studies have been carried out, no one knows quite how the whole thing will work.

The whole building will be extensively monitored in use; like any prototype, it will probably have problems, but it should also have many lessons to give to future buildings'. I hope to be alive and in good health 45 years from now, though not continuing to wait for this information.

You have presented your own questions and curiosities to your readers. In a few years, once the buildings presented in 'Energetics' have had time to be broken in, I hope that you will find it your responsibility to follow up on your questions and curiosities, just as in a few years I will find it my responsibility to follow-up on this letter. I will be in touch.

Yours etc

ROBERT A. MARCIAL
University of California at Berkeley

Ripples in the pond

SIR: So the people that aren't in photographs raise their heads again among the letters. I thought your adjunct to the Voelckers' November one quite fair, although the technical story is both more complicated and simpler than you made it. Simpler in that the whole sorry business can be summed up in one word – colour. I could take up much too much of your space describing the destruction of an entire genre of architectural photography by the technical limitations of colour photography and reproduction. But it would not be of much interest except to other architectural photographers, and they know it already.

However the December letter from Ken Worple asks for 'a more considered, less tech-



No people: Martin Charles at Baillie Scott's Blackwell.

Salone Internazionale del Mobile Euro luce-Lighting Exhibition Furnishing Accessories Exhibition 16/21 April 1998 in Milan



nocratic, debate', and he has a point. So could I start a few ripples by dropping into the pond one particular stone that has bothered me for years?

Why is it that when I am photographing old buildings, however public, no one could care less about the absence of people? And is there any link between that and the desire of some architects to banish all forms and evidence of human occupation from the pictures they commission of their works (and then lend to you to publish)?

It is too glib to say that if working at, for example, Lincoln Cathedral I am photographing the eternal (or as near as makes no difference), while an equally public but new building, (especially if of a Modernist persuasion?), has yet to earn its permanence. The contemporary architect may be hoping to rub off a bit of the eternal onto his oeuvre by asking me to photograph it, but the more fool he ...

There is, though, a sense of disappointment when something very obviously of a specific and more recent date intrudes on the history. A particular model of car parked outside, the length of a lady's skirt inside, would tie down the Lincoln pictures to a definite period. I would be saying 'this is how it is not, (or was then)', rather than simply 'this is it'. There is something intrusive in that 'how'.

'How' implies explanation, and we do not need explanatory photographs to convey Lincoln to us. We know the language already. One can show a small part of the structure and yet convey the whole. We have at least a sense, if not the detail, of the rest in our minds. But with something new, we need to go back to the original ABC and have it explained.

There is an obvious need, not by any means always satisfied, for the photographs in the architectural journals to be explanatory, (as well as good to look at, of course) – to say 'how'. And the injection of the specific, even if the architect in his wisdom condemns it as extraneous, is a useful part of this. It does not have to be people, but they are what is normally first thought of, being helpful in defining a building's function as well as being 'of our time'.

Corb's own car outside the new Villa Savoye is an additional dimension, both functional and chronological. A Renault Clio outside the historic Villa Savoye would be meaningless, even with Nicole and Papa.

Yours etc

MARTIN CHARLES
Middlesex, UK

The China syndrome

SIR: Too late I'm afraid – the monstrous confections illustrated in your 'Outrage' section in December are *already* gracing the streets of old

Beijing. The Neo-Classical Fu Hua Mansion illustrated, however, owes more to Nicholas and Alexandra than to their successors, with an entry lobby of mustard yellow and white marble, soaring Corinthian columns and as many stick-on motifs as they could squeeze in. The building provides a home for Coopers and Lybrand, Global One and many other multinational companies who were probably pretty outraged themselves to find that asbestos insulation and ceiling tiles had been widely used in its construction.

Sadly, in Beijing, pastiche and cheap construction methods prevail and the local Design Institutes – largely government controlled – are unaware or unwilling to acknowledge that there is an alternative to mirrored glass and several Italian mountainsides of marble strewn across the cityscape. Would that some of the more enlightened architects of America, Europe, Australia or Japan could reach the Institutes directly and persuade them that there are alternatives to the Developers' Dream.

Yours etc

JOHN BOWDEN
Beijing and Hong Kong

Unoutraged in Battersea

SIR: On the 'Outrage' page of the January AR you feature an unremarkable addition to the Battersea Dogs' Home. Surely there are many more deserving examples to be found between London and Bilbao.

Yours etc

PETER MORO
London SE3

Uninspired by Battersea

SIR: Mr Gilbert's description of the neighbourhood of the Battersea Dogs' Home as 'inspiring' strikes no chord with those, like me, who spent their boyhood there and were educated, not in the smart Edwardian private schools to which he refers, but in the LCC Raywood Street school immediately alongside the railway – just opposite the dogs' home.

It was smelly, dirty, noisy, depressing. A place to escape from as soon as possible – just like his honking commuters.

Mr Gilbert's effete, superficial criticism is exactly the kind of rubbish which earns architects the contempt of ordinary people.

I suspect Dennis Gilbert would have suffered many a bloody nose in the tarmac playground of Raywood Street.

Yours etc

FRANK CLEVELAND
London W1



At the end of this March, the AR is presenting a conference on Sustainable Architecture and Construction in the Middle East which will examine architecture that is culturally, climatically and economically relevant to the dramatically developing area (see Survey, p17). In conjunction with the event, the March issue will look at new architecture in the region, both built and in prospect.

A very wide range of building types over a broad geographical spectrum will be shown, ranging from the Amman City Hall by Jafar Tukan & Partners to the Yapi Kredi Bank's Operational Headquarters by John McAslan & Partners near the sea of Marmara in Turkey. Designs specifically intended to use the area's abundant ambient energy range from the headquarters of the Arab Petroleum Investments Corporation Headquarters at Al Khobar in Saudi Arabia to housing studies for hot and dry climates by Abdelmohsen Farahat; other residential buildings include the massive Jumeirah Beach Hotel, Dubai by W. S. Atkins & Partners and delicate little villas in the Lebanon by Simone Kosremelli and in Kuwait by Torsten Thorup.

We discuss the radical ecologically aware approach to landscaping in Saudi Arabia by Richard Bödeker and Jim Antoniou examines the predicament of old Cairo and suggests how it might once more be made into a lively city by drawing on lessons from the past, while looking to the potential of tomorrow.

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- 1 The curved boardwalk with its tensile membrane roof enlivens the courtyard.
- 2 At one end of the boardwalk is a space for various communal activities, enclosed by a cluster of inverted parasol structures.
- 3 Detail of boardwalk handrail.
- 4 The graceful lightweight structure recalls nomadic tent constructions.

Recalling the lightweight constructions of nomadic civilizations, this elegant and economic tented structure rejuvenates a dour Parisian courtyard.

URBAN NOMADS

In Paris' 13th *arrondissement*, the Vincent Auriol Centre provides social and residential facilities for African migrant workers. The building is arranged round a courtyard, formerly grim and under-used, but now revitalized by Jean-Luc Chassais. Chassais' solution links the two parts of the centre with a curved boardwalk, protected from the elements by a lightweight tensile membrane roof. At one end of the boardwalk a large communal space is created, similarly

enclosed by a tensile roof that resembles a cluster of large inverted parasols.

In traditional African societies, the social boundaries between private and collective spaces are intimately connected. Chassais sees his tensile intervention as an attempt to reinterpret the informality of African village life and create flexible, dignified communal spaces that can be used by the building's inhabitants for a range of functions. Based on the structural principle of the

double curve, the roof is formed from a post-tensioned PVC-coated polyester membrane. The membrane is held in position by a series of tensile cables and steel masts, painted bright red. On the boardwalk, the modular structure is supported laterally by cross-braced cables.

The membrane provides a supple, graceful enclosure, reminiscent of nomadic tent construction; it furnishes shelter, but does not remove

man's contact with the elements. New landscaping completed the revitalization, which was enthusiastically received by the centre's inhabitants. In both its functional and social aims, the scheme is a modest affirmation of the transformatory potential of architectural imagination. C. S.

Architect

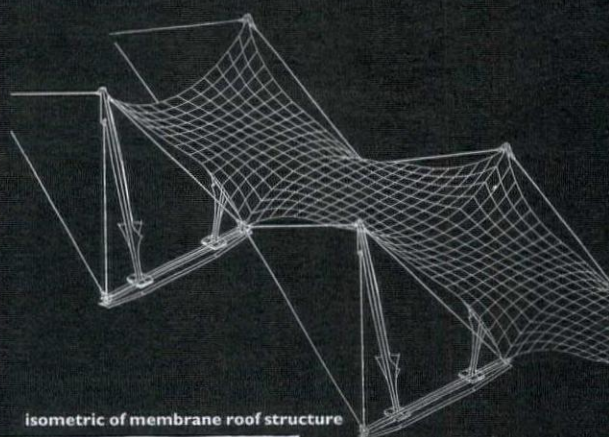
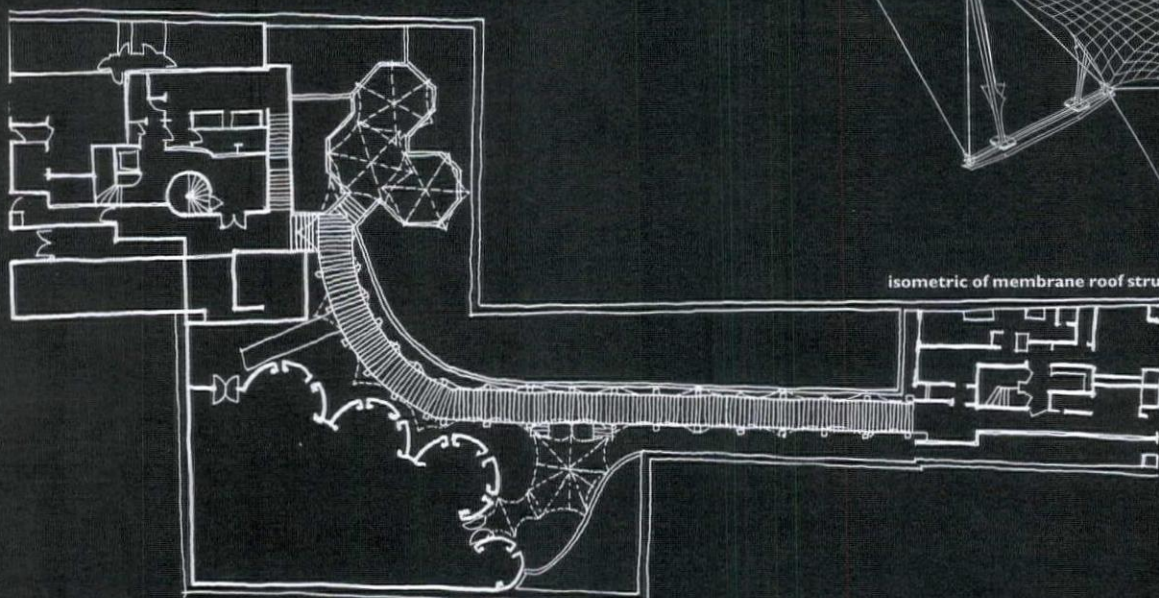
Jean-Luc Chassais

Project team

Jean-Luc Chassais, Marta de Cidrac, Françoise Gonzales, Ralph Lenhardt

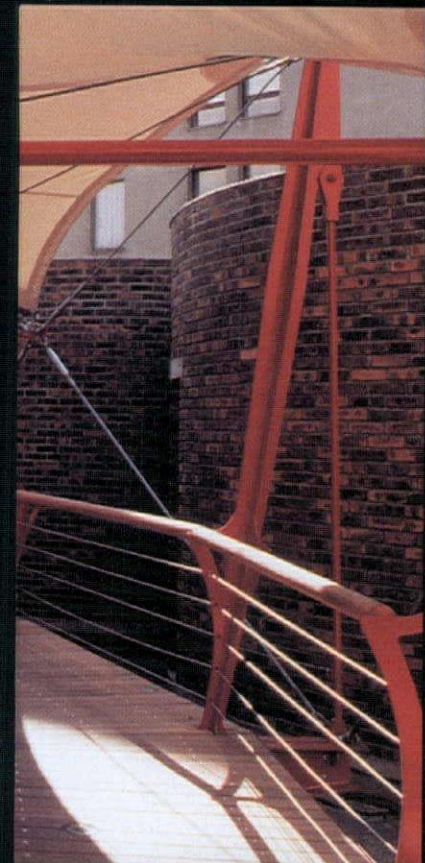
Photographs

Valérie Wingerter

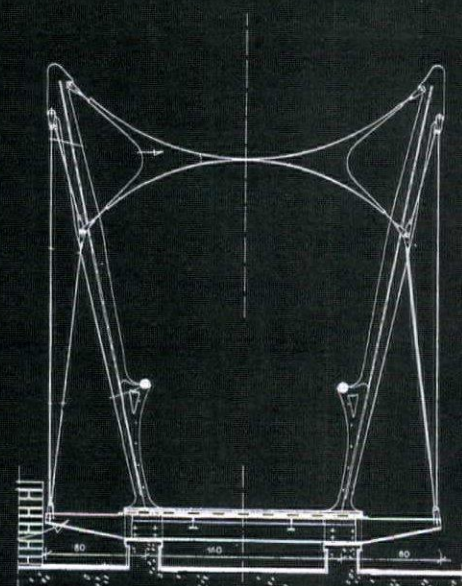


isometric of membrane roof structure

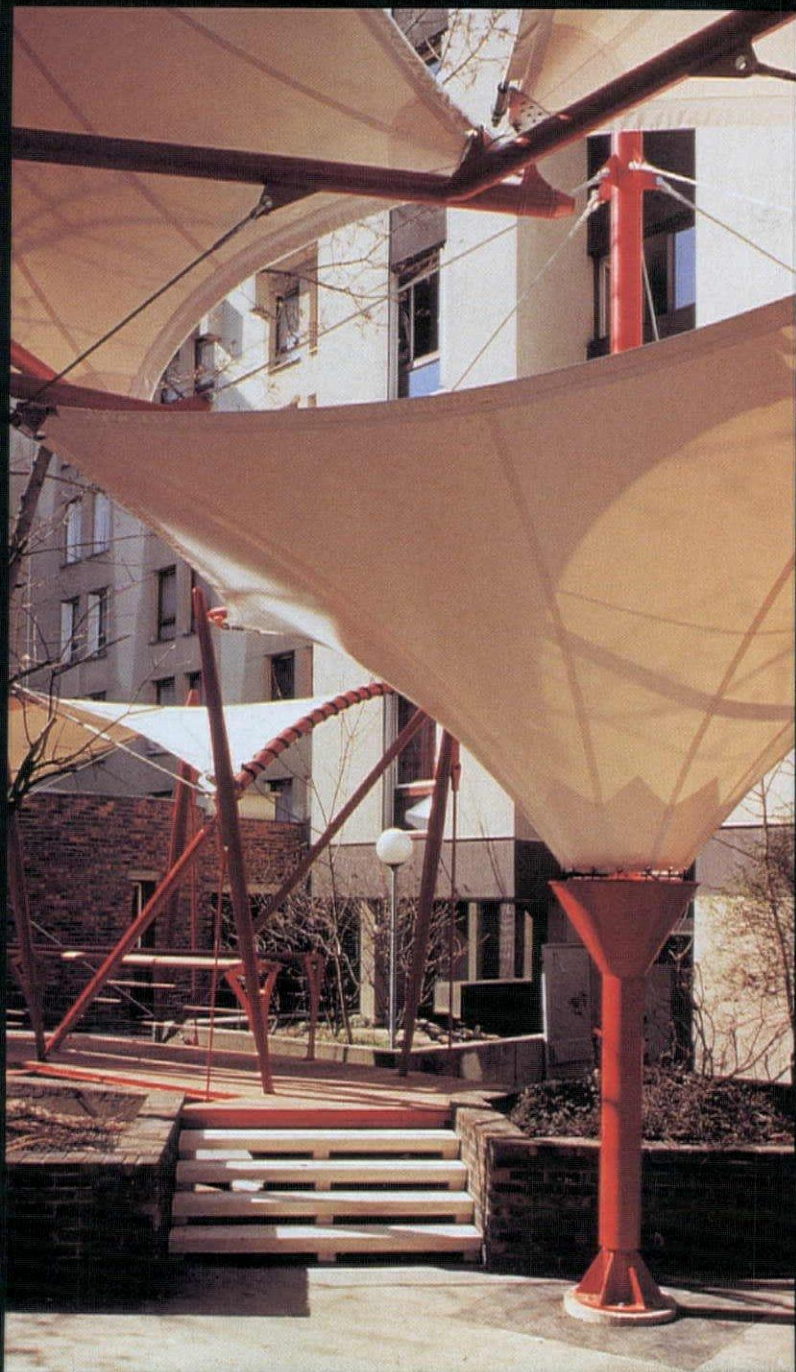
courtyard level plan (scale approx 1:500)



2



cross section through boardwalk



4

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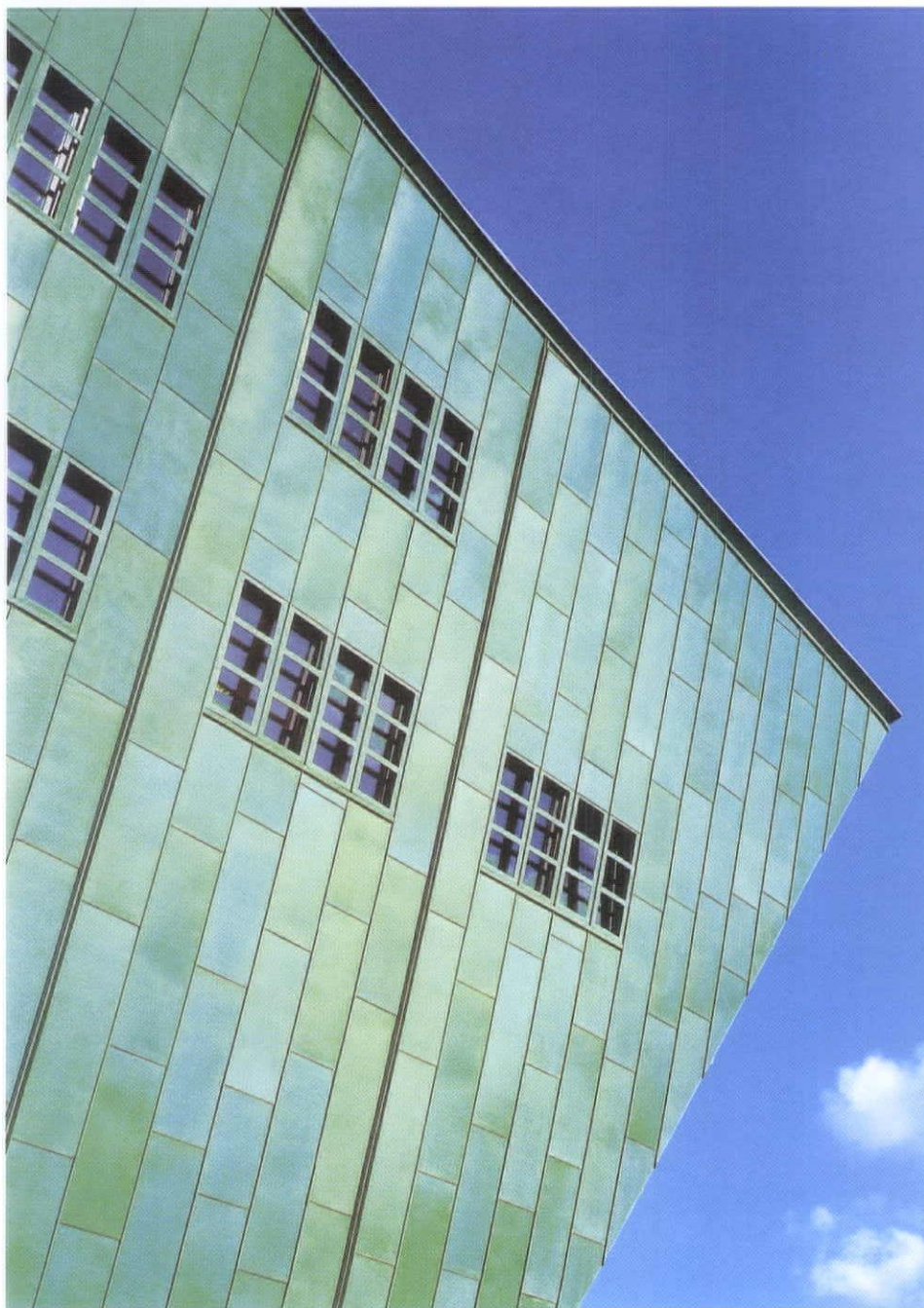


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A LUMPEN BLOCK IS RISING INEXORABLY TO OBSCURE SYDNEY OPERA HOUSE, THOUGH IT HAS GENERATED A HUGE AMOUNT OF LOCAL OPPOSITION. IT IS A MONSTER OF INTERNATIONAL SIGNIFICANCE.

The world knows Sydney for three things: a harbour, a bridge and an opera house. These certainly live up to expectations. But what the visitor is not prepared for is the mediocrity of the rest – and there is plenty of it. From the air, the extent of the sprawl (4790 square miles) is all too apparent. On the ground what strikes the visitor is the dullness of the architecture. For, bereft of its harbour, Sydney would be no more interesting than Finchley, say, or the Bronx. One rapidly comes to the conclusion that the Opera House, flawed though it is, is an aberration – the one building in Sydney which lives up to its spectacular natural setting.

Visitors to the Opera House reach it either from the Botanic Gardens, or from the ferry terminal at Circular Quay. The quay, which is more U-shaped than circular, is the true hub of Sydney. There are pavement cafés, street musicians and a genuine vitality which would not look out of place in Istanbul or even Venice. The eastern portion of Circular Quay has never been satisfactorily resolved. Should there be development here at all, or should there merely be an uninterrupted view of the Botanic Gardens and the Opera House?

These debates are now, sadly, academic because to almost everybody's dismay a luxury apartment complex is rising into the air, and

its profile blots out the Botanic Gardens altogether, and gravely impedes several cherished views of the Opera House itself. Like most unpopular developments, East Circular Quay is the result of complex deals, spread over decades. Sydney, unlike Melbourne, makes up its planning as it goes along, with the result that key sites such as East Circular Quay will always be at risk from developers and their architects. The architect in this case, Andrew Anderson of Peddle Thorp & Walker, is pleading *droit de seigneur* by the planners and a surprising number of his fellow professionals are less than outspoken in their condemnation.

But the truth is that East Circular Quay is a sad banal building, with finishes and detailing so perfunctory that even the Mayor of Sydney has attacked them. Other Sydney-siders are even more determined to express their outrage. Over 80 000 signatures of protest have so far been collected and, at protest rallies, the building has been daubed with slogans, and symbolically pelted with rotten tomatoes. Such quixotic gestures may be enough to drive an opera singer from the stage but they are unlikely to halt the development of East Circular Quay, still less bring about its demolition. ALASTAIR BEST

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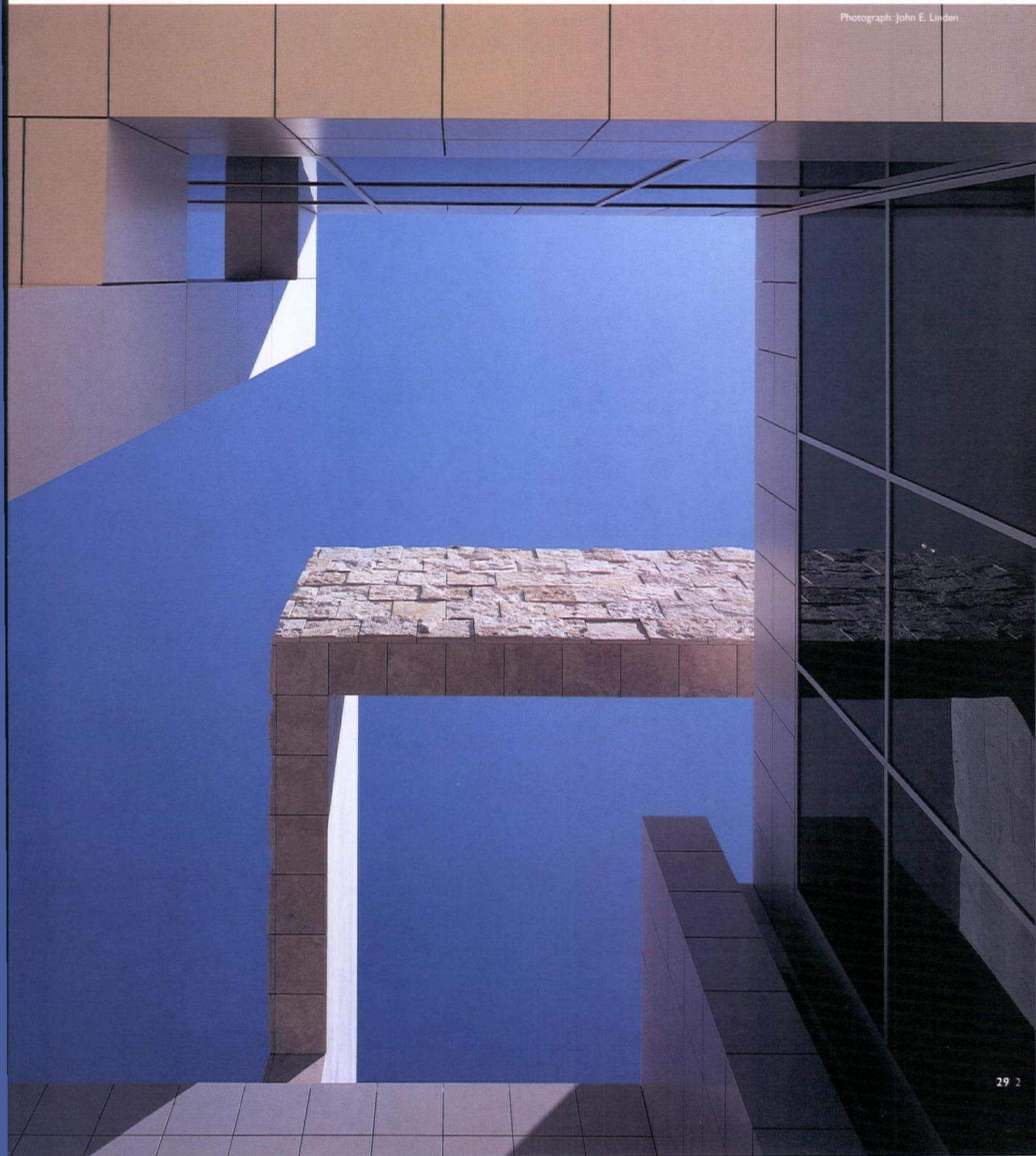
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TREASURE HOUSES

Richard Meier's great hilltop museum in Los Angeles (here and overleaf) is likely to be one of the canonical treasure houses of the late twentieth century. This issue is devoted to buildings which house precious artefacts, ranging from the sculptures in Peter Märkli's tiny museum in Giornico, Switzerland (p70) to the huge aeroplanes in Foster's American Air Museum at Duxford (p52). More evanescent treasures are housed in Chemetov & Huidobro's médiathèque at Evreux (p63) and the Maison des Arts at the Michel de Montaigne University by Massimiliano Fuksas (p66).

Photograph: John E. Linden



THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

ARCHITECT

RICHARD MEIER & PARTNERS, ARCHITECTS

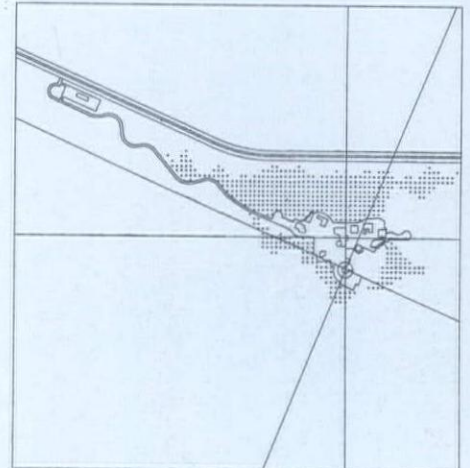
Richard Meier's Getty Center, described by James Stirling as the 'project of the century' opened at the end of last year on its hilltop in Los Angeles. It has taken 13 years to realize, at a cost of a billion dollars. Overleaf, Ivor Richards sets the Center in the context of Meier's work. Then we show the complex in pictures and drawings. Richards analyzes it on pp45 to 49, and Michael Brawne criticizes the galleries on pp50 and 51.

MEIER'S MAGIC MOUNTAIN

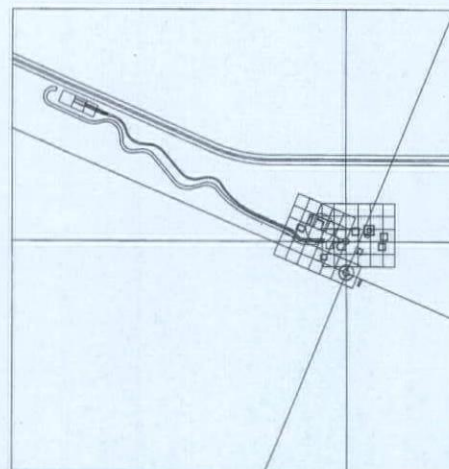
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The arts citadel on its hill above city and sea. Its elements are broken up into discreet volumes to reduce scale, while the composition simultaneously stretches out into the landscape.



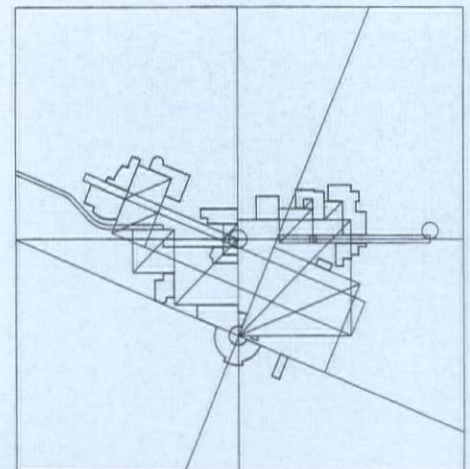
Meier's analytical diagrams: context



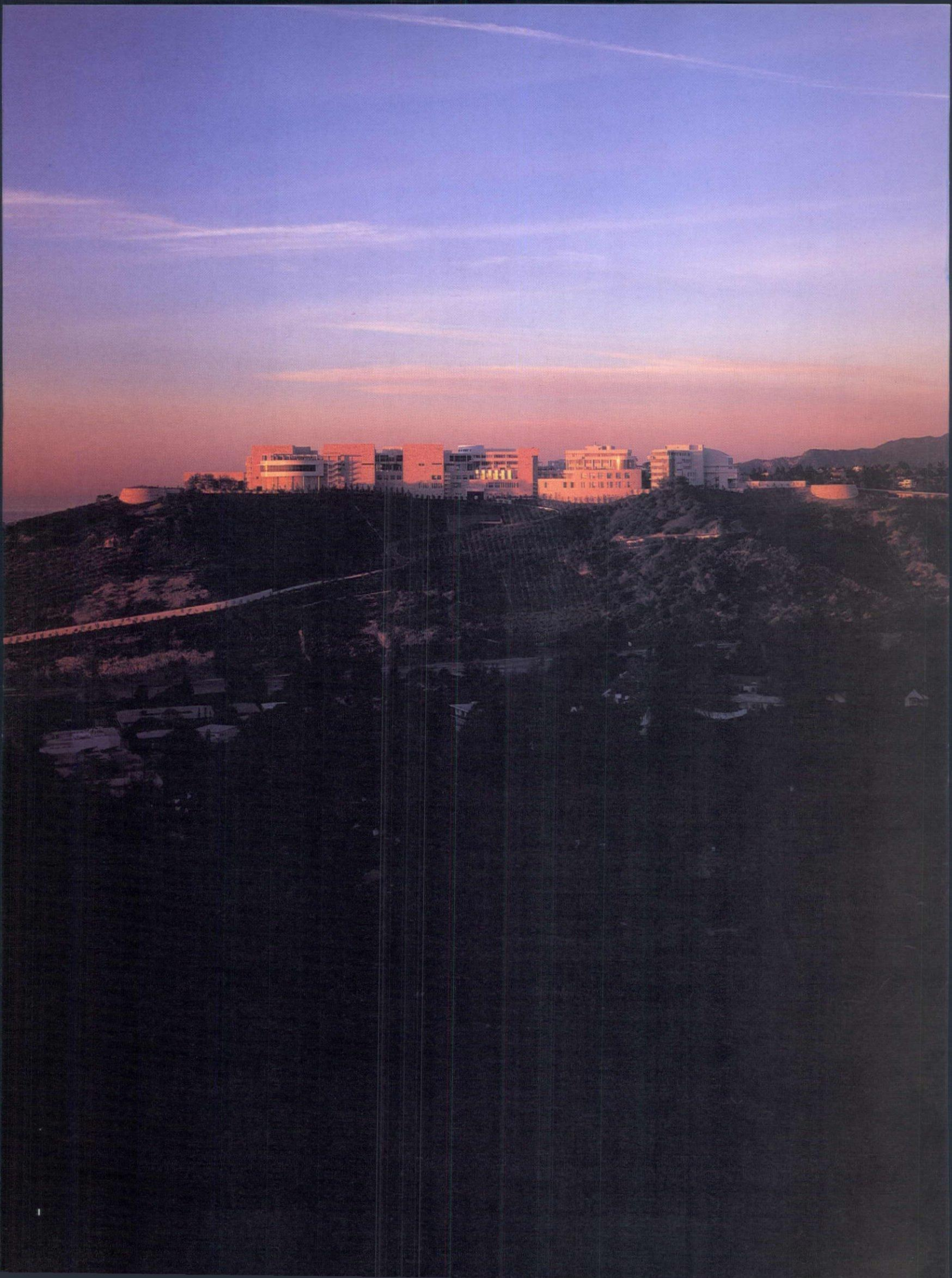
landscape



geometry



exterior spaces



THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

ARCHITECT

RICHARD MEIER & PARTNERS, ARCHITECTS

ANALYSIS

IVOR RICHARDS

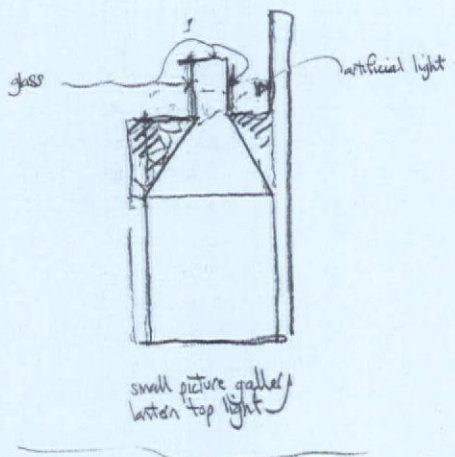
GETTY GENESIS

For Richard Meier, the Getty Center has been a passion. The realization of such a massive and significant project for the arts, over a passage of almost 14 years, is rare in the history of architecture itself.

In global terms, three super-projects have both signalled the culmination of the 1990s and heralded the millennium; these are the recently completed Tokyo International Forum in Japan by Rafael Viñoly (AR November 1996), the Guggenheim Museum in Bilbao, Spain, by Frank Gehry (AR December 1997), and the Getty Center by Richard Meier.¹ These three, all with different programmes and city contexts, also represent a new order of civic achievement, supported by extraordinary design development and construction budgets emanating from exceptional ambitious clients and institutions. All three represent intense collaboration between architects and design teams, clients and programme co-ordinators, contractors, material fabricators and suppliers. Three books have already been written about the design and realization of the Getty Center.²

In Richard Meier's work as a whole, there are several precedents. First, in the realm of forms, is the subliminal presence of two earlier Meier museum commissions, most notably the Frankfurt Museum for the Decorative Arts (AR November 1985), and to a lesser degree, the Atlanta High Museum of Art (AR February 1984). Both exhibit

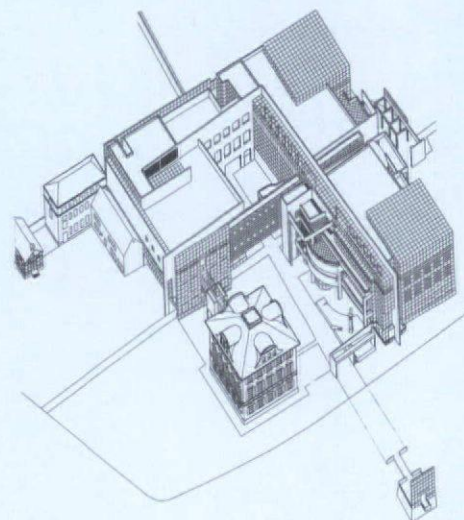
Meier's most successful manipulation of the cubistic museum or gallery space, with separated public circulation in ramp-halls. In the Frankfurt case, the development of a quadripartite plan, with major museum-spaces occupying a four-bay square of a 16-bay overall plan, first established the notion of a regulated cube (in that instance side-lit with windows) as the basis for the *parti*, and a sustainable human-scaled 'villa' experience. This principle is extended, in artificially-lit galleries, at Atlanta. In the Getty Museum, the cubistic format emerges again from the outset, with a unit of space known to Meier and his client, as 'the Dulwich'³ – a cubic naturally top-lit gallery form coupled into a



Dulwich unit adopted in the Getty

nine-bay or four-bay square plan. These squares then form the basis of the museum clusters organised around a major patio and are interspersed with atria and external terraces – the principal innovation of the Meier Californian museum typology. Meier's sketches and models demonstrate these geometrical principles from the earliest proposals, through to the final design itself.

The second precedent in Meier's earlier work is found in the European projects, and within his researches into generators of ensembles from the geometrical and historical layers of the urban site plan.⁴ This process is first shown in the Frankfurt Museum (1979-1985), where the fundamental geometrical formation of the site plan is governed by both the cubic Villa



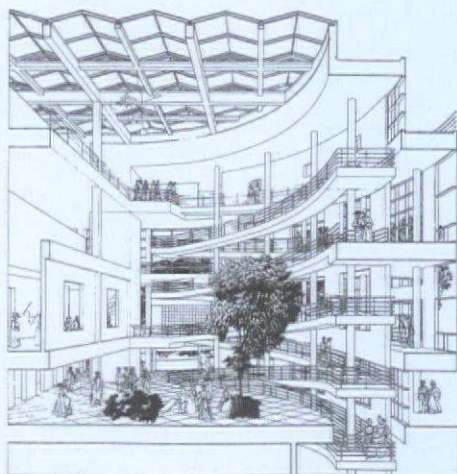
Frankfurt's shifting axes derive from site

Metzler and the 3 1/2 degree shift in the urban boundaries of the museum park on the banks of the Main. From this foundation, Meier goes on to use similar techniques of site analysis and geometrical guidelines, taken from forces within the site plan itself in Ulm, the Hague and Barcelona, among others.

The mountain-top site of the Getty provides for Meier a perfect opportunity to unite the inherent geometries of both landscape and urban grid of Los Angeles itself, as it lies below the elevated Getty citadel with its vistas to mountains, city and ocean.

Richard Meier's personal description confirms his method and priorities, as applied to the overall design: 'The Getty Center takes its form from the opportunities and constraints of a magnificent hilltop site. Just off the San Diego Freeway in the foothills of the Santa Monica Mountains, the site is immediately accessible to the flow of urban life and yet slightly removed from the city. The hilltop offers panoramic views of the ocean and mountains, but it also overlooks the geometry of Los Angeles, which is spread like a vast, elegant carpet below the rugged terrain.'

'In choosing how to organize the buildings, landscaping, and open spaces, I deferred to the site's topography. There are two natural ridges – one lines up with the street grid of Los Angeles and the second with the [22 1/2

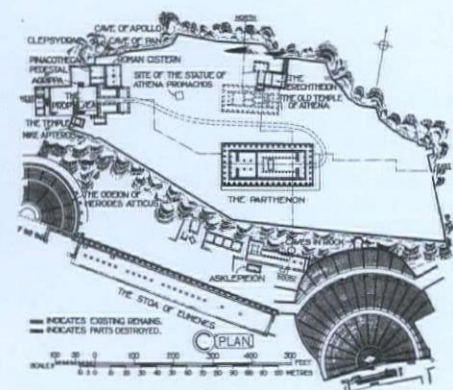


Meier's perspective of the atrium: roof design changed as design was evolved

Atlanta's High: public circulation in ramp-hall

degree geometrical] swing of the San Diego Freeway as it turns north through the Sepulveda Pass. The buildings form axes along these two ridges.

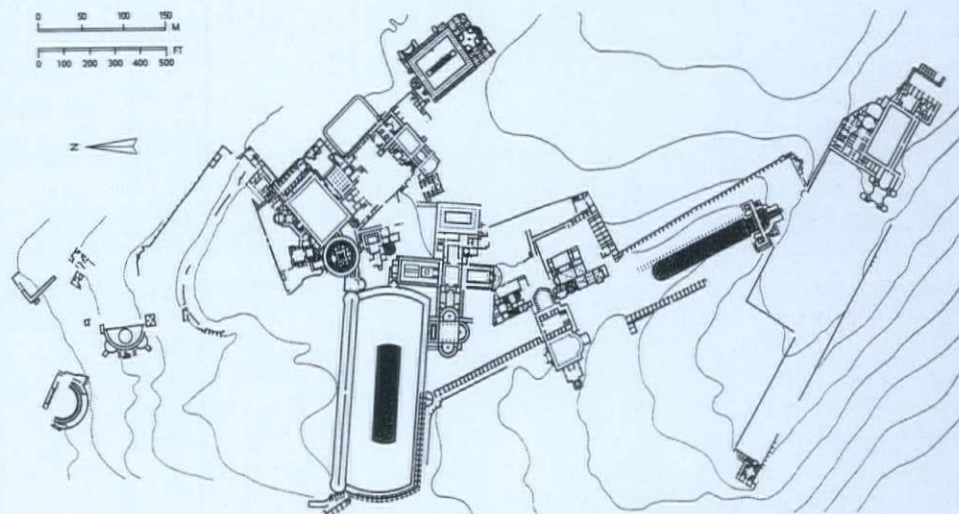
'... It is 30 years since I last visited the Acropolis in Athens, but who could not be inspired by some of the ideas – of procession, circulation and movement – that are expressed there? Another analogy that has been made [of the Getty] in terms of formal relationships is Hadrian's Villa at Tivoli.⁵ Clearly there is no physical



Acropolis: the route (from Banister Fletcher)

resemblance in the architecture, but again it is in the formal concepts – here of asymmetry and surprise, and of the long walls that extend into the landscape relating built form to nature. Another, more modern tradition – that of the Southern California houses of Rudolph Schindler, Richard Neutra, and Frank Lloyd Wright – can be recalled in the Center's sense of openness and crisp horizontality.

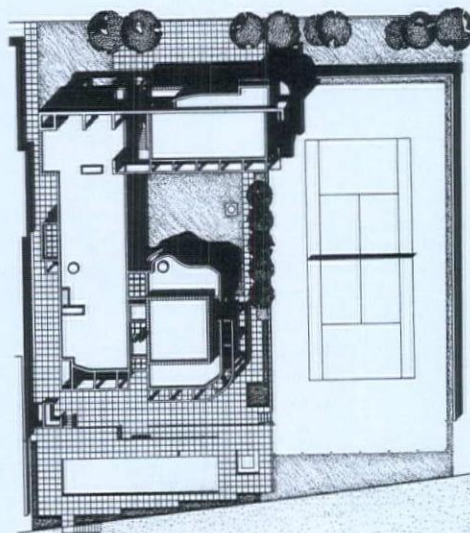
'This was my first commission in California, and like so many easterners and Europeans before me, I was dazzled by the clarity of light and the extraordinary climate in Los Angeles ... Two years after starting work on the Getty, I completed an oceanfront house in Malibu [the Ackenberg House]. That project gave me an opportunity to experiment, on a small scale, with the mingling of interior and exterior spaces, and with the movement of people through a succession of indoor and outdoor rooms. At



asymmetry and surprise in Hadrian's Villa (from *The Roman Empire*: Taschen)

the Getty, galleries, offices, and the auditorium all lead out into courtyards and terraces, and the alternation of ceiling and sky is a crucial element of the design. I had even hoped to have one level of the café left unwall'd ...⁶

These extracts from Meier's personal reflections on his California design leave some impression of his intentions. They form a preface to what James Stirling once described as 'the project of the century'.



Ackenberg house, Malibu: mingling interior and exterior

1 In April 1984, after a series of competitive interviews and visits to the architects' projects, a shortlist of three finalists for the design of the Getty Center was selected. These were Fumihiko Maki from Japan, Richard Meier from the US, and James Stirling & Michael Wilford from the UK.

2 See *The Getty Center: Design Process*, Williams, Lacy, Rountree and Meier, the J. Paul Getty Trust, Los Angeles, 1991, for accounts of the selection process and the design of the final projects. See *Making Architecture: The Getty Center*, Williams, Huxtable, Rountree and Meier, the J. Paul Getty Trust, Los Angeles, 1997, for further accounts of the project and programme development, the construction process and description of the finished buildings of the complex.

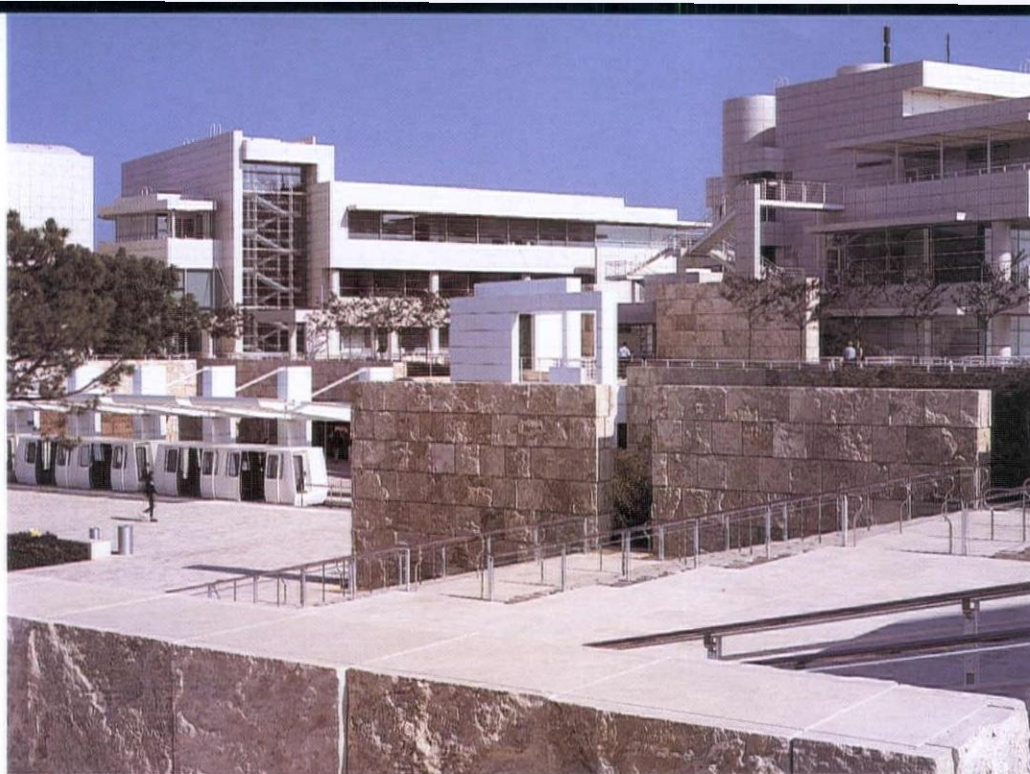
3 Meier explains the evolution of the Getty museum/gallery type as being based on a unit of scale derived from the Frick Collection, New York, and on the sectional principle of Soane's Dulwich gallery, in his own notes, *Building the Getty*, Alfred A. Knopf, New York, 1997.

4 See 'Interactive Languages', *The Architectural Review* April 1993, pp22-37 for a discussion of four Meier projects in historic European city contexts, including Ulm Stadthaus and the Barcelona Museum. See also, 'Ulm Stadthaus', *The Architectural Review*, June 1995, for a parallel detail review of Meier's design method.

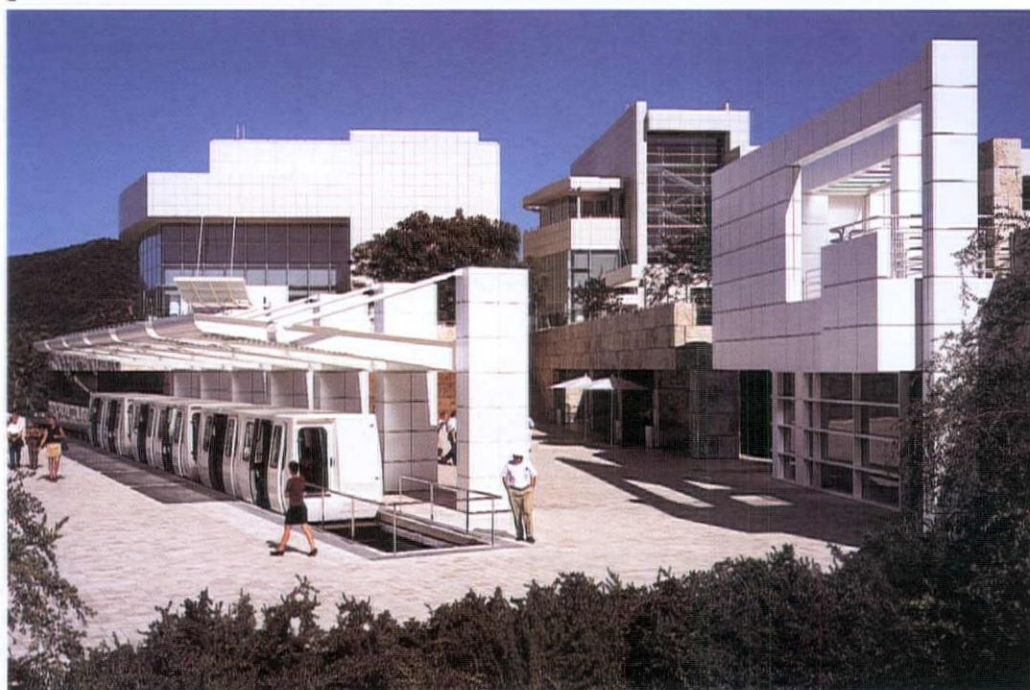
5 See *Hadrian's Villa and its Legacy*, MacDonald + Pinto, Yale University Press 1995, pp26-33 and pp79-94 for a historical analysis of the Tivoli site and its architecture, and pp246-259 for 'Piranesi and Archaeology' – a review of the Piranesian plan of the Villa; see also p324 'After 1800' which refers to Kahn and his studies of the Villa and his project for the Salk Institute; p325 'Pavilioned Landscapes', refers to Thomas Jefferson and his designs for Monticello.

See also 'A Citadel for Los Angeles and an Alhambra for the Arts' by Kurt W. Forster, *a + u* November 1992 Special Issue: 'Richard Meier The Getty Center', pp6-15. In this piece, Forster, formerly director of the Getty Center for the History of Art and the Humanities from 1984 to 1992, refers to Kahn and the Salk, the Alhambra at Granada, and the Palazzo Farnese at Caprarola (1559), among others – as projects that 'invite comparison' with 'Meier's vast Getty Center'.

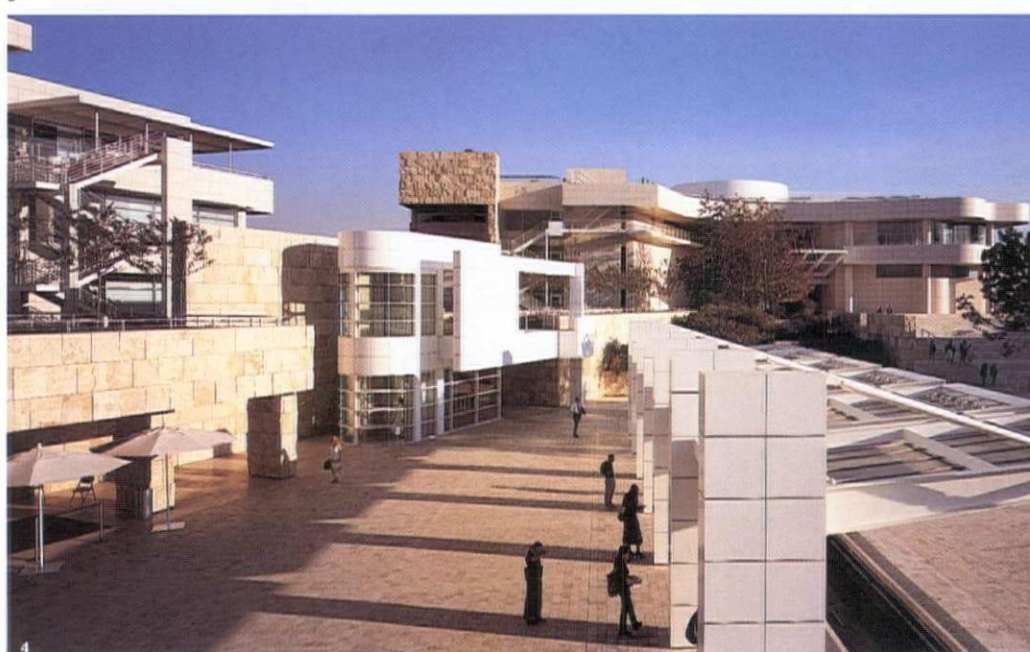
6 *Making Architecture: The Getty Center*, *ibid.*, Richard Meier: 'A Vision of Remembrance' pp32-34, and through p41, gives Meier's personal account and reflections on the design, its formation and future purposes.



2



3



4

2 Looking north down to the arrival plaza, with grand stair in foreground and, beyond, tram stop, with north building behind.

3 Canopied tram stop with beyond to left auditorium, and to right of that north building which contains the Getty Information Institute and the J. Paul Getty Trust.

4 Looking south over arrival plaza towards the museum which forms the crown of the acropolis; drum of museum propylaeum is flanked, right, by curving wall of orientation theatres, and, left, by bookshop and cloakroom complex. To left in middle distance is white east building which houses the Getty Conservation Institute and Getty Grant Program.

5 The auditorium, further down hill than arrival plaza, is linked to it by platform and walkway.

6 Arrival plaza looking east with, to right, grand ramp and stair approaching museum on top of hill.

7 Auditorium entrance, looking east across platform. East building to right.

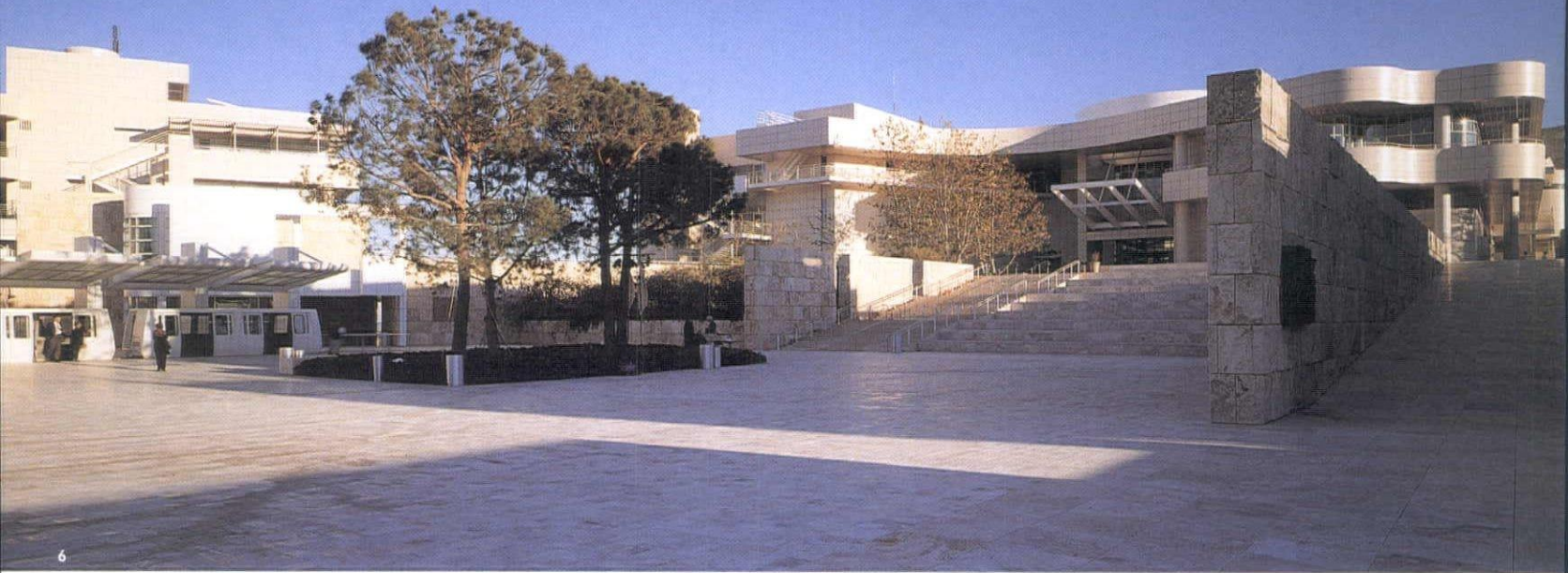


5

THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

ARCHITECT

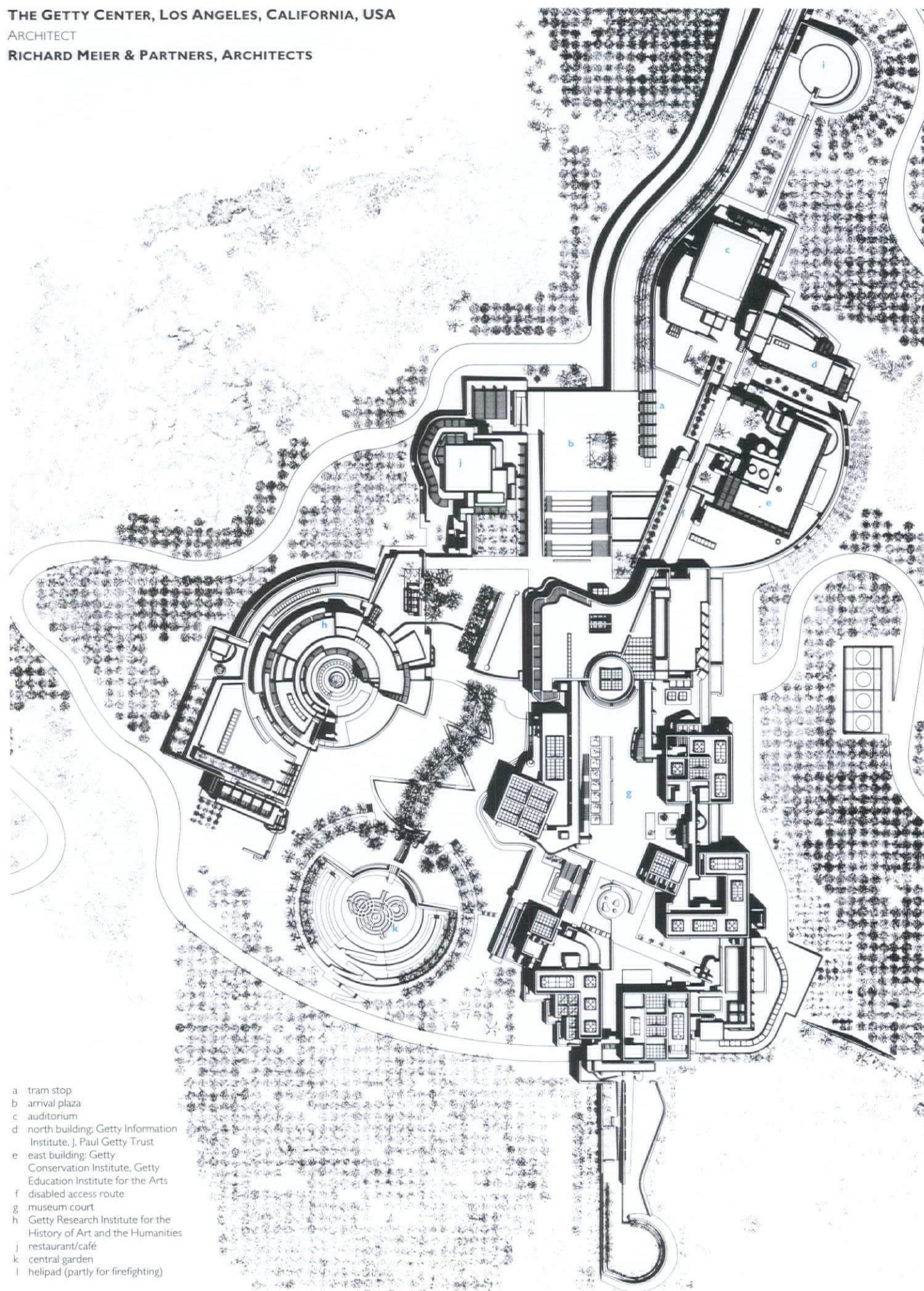
RICHARD MEIER & PARTNERS, ARCHITECTS



THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

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- a tram stop
- b arrival plaza
- c auditorium
- d north building: Getty Information Institute, J. Paul Getty Trust
- e east building: Getty Conservation Institute, Getty Education Institute for the Arts
- f disabled access route
- g museum court
- h Getty Research Institute for the History of Art and the Humanities
- j restaurant/café
- k central garden
- l helipad (partly for firefighting)

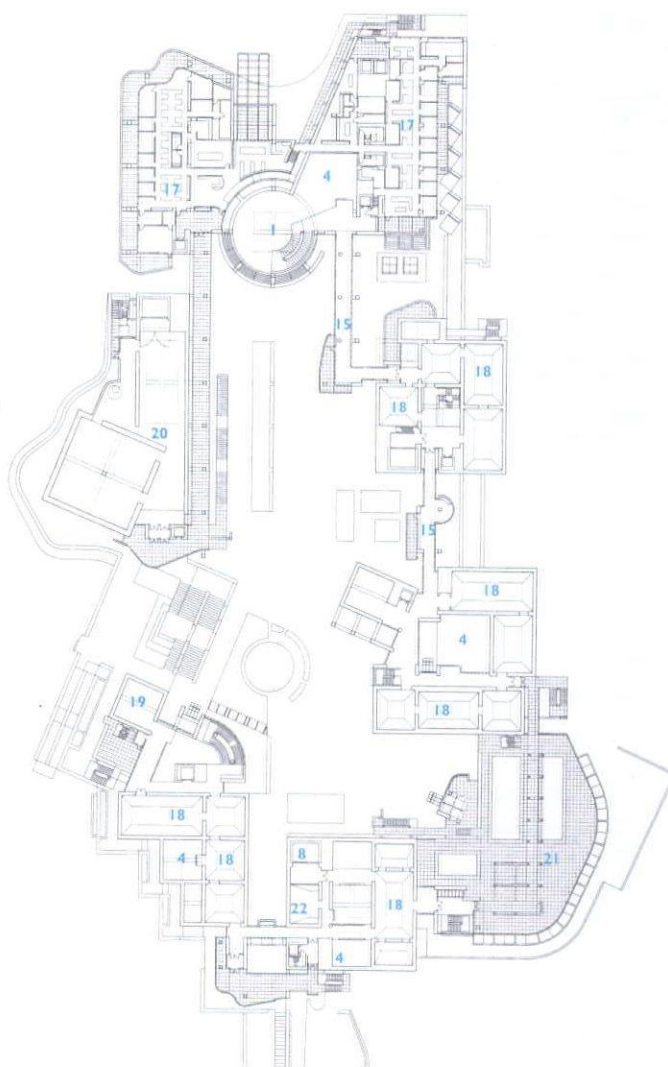


8 Robert Irwin's central garden looking towards galleries with towers of downtown Los Angeles on plain below. To left is stone-clad square form of loan and special exhibits gallery.



museum: entry level plan (scale approx 1:1500)

- 1 rotunda/information
- 2 bookshop
- 3 orientation theatres
- 4 void
- 5 information
- 6 sculpture
- 7 manuscripts
- 8 art lift
- 9 family centre
- 10 drawing
- 11 tapestry
- 12 great hall
- 13 Regency
- 14 Rococo
- 15 transition
- 16 photography
- 17 offices
- 18 painting galleries
- 19 special exhibits
- 20 loan/special exhibits
- 21 decorative arts terrace
- 22 pastels



museum: upper level

THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

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9

Corner detail: lift in east building (see 4).

10

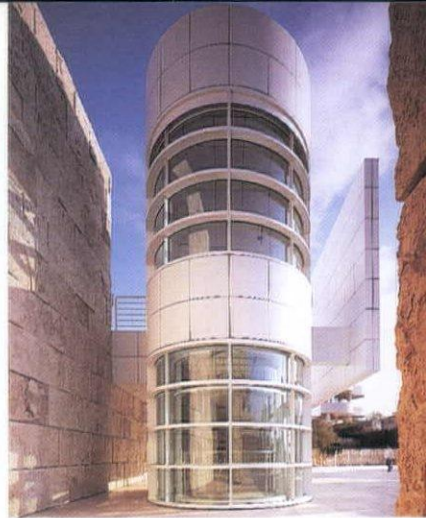
Café west terrace has magnificent views west to ocean and mountains to north.

11

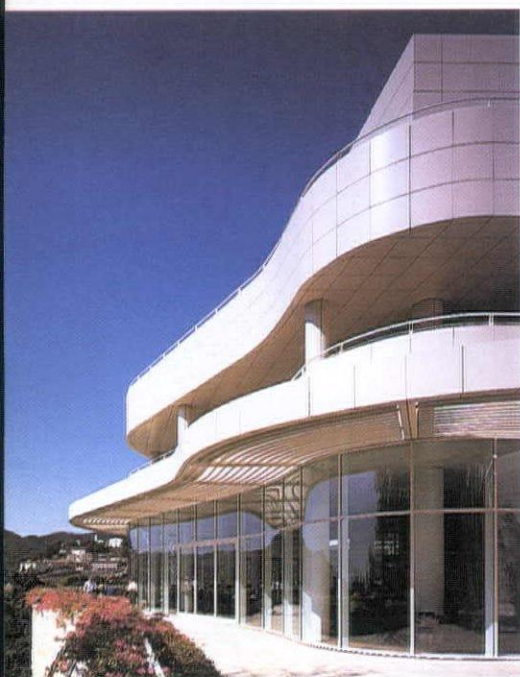
Undulating forms again with orientation theatres under office balcony; museum entrance canopy left.

12

Looking down to garden between east building (left) and north building, with stone pilastered transition space running under auditorium platform behind vegetation.



9



10

13-15

Research Institute.

13

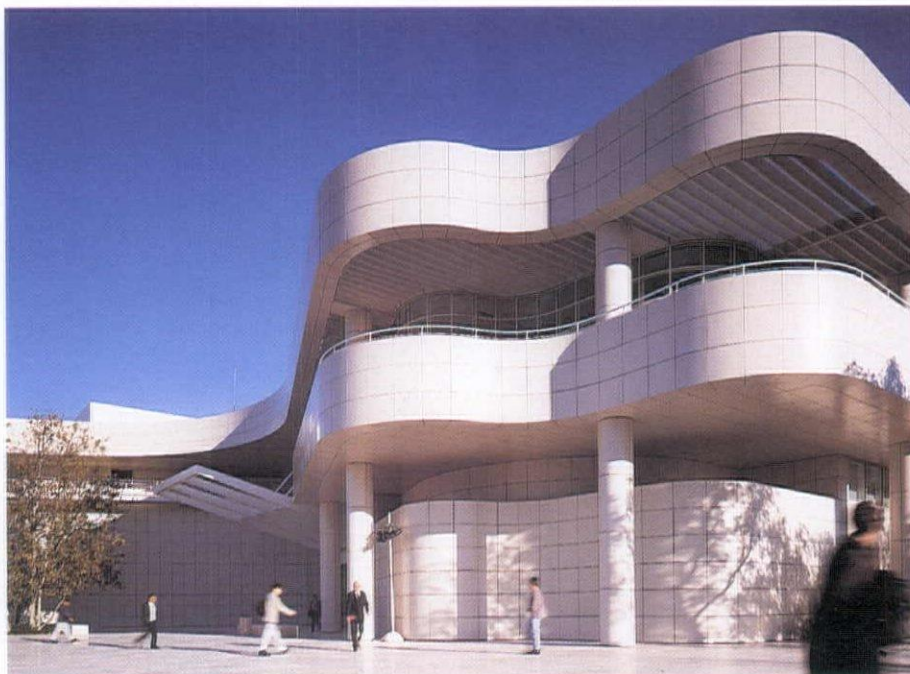
Central cone-shaped space, which ...

14

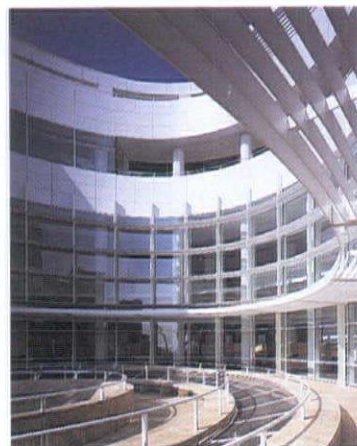
... opens (right in this picture) to allow views of ocean and city. Left is the stone-clad rectangular form of the Scholars' Pavilion with its roof-top belvederes.

15

Ramp which circles central void of Research Institute.



11



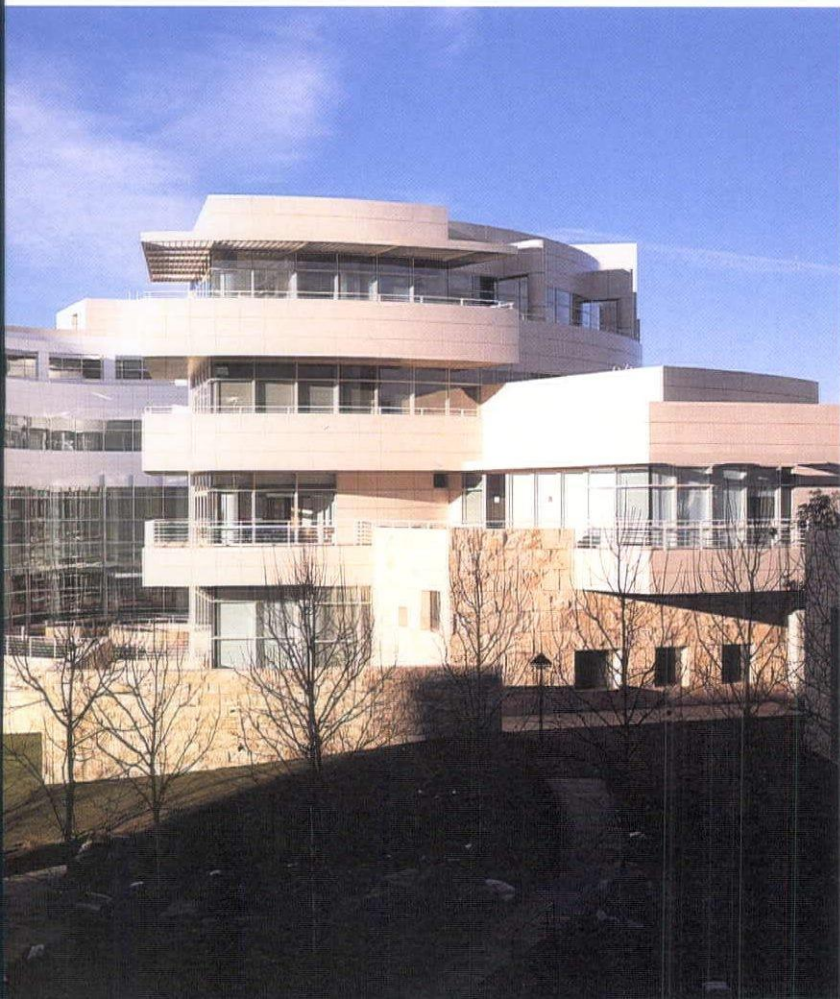
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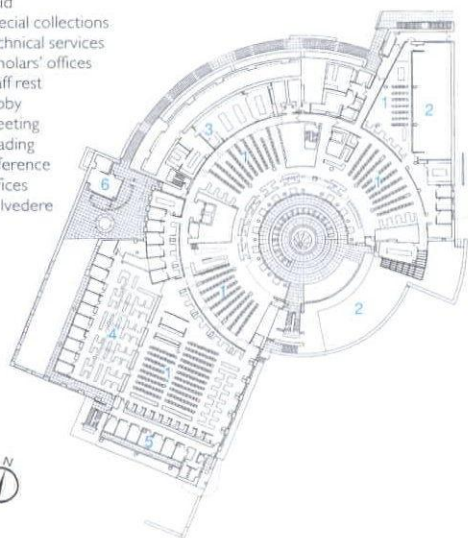


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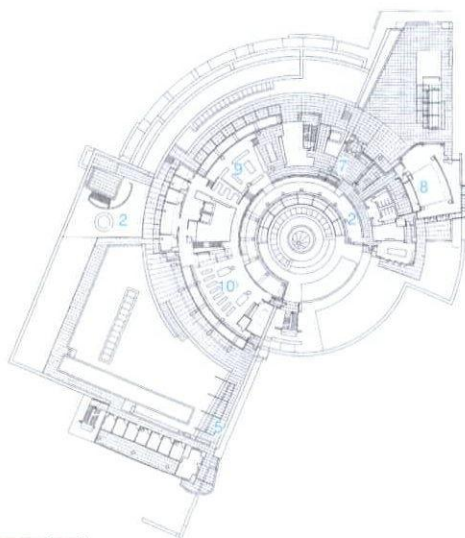
ARCHITECT

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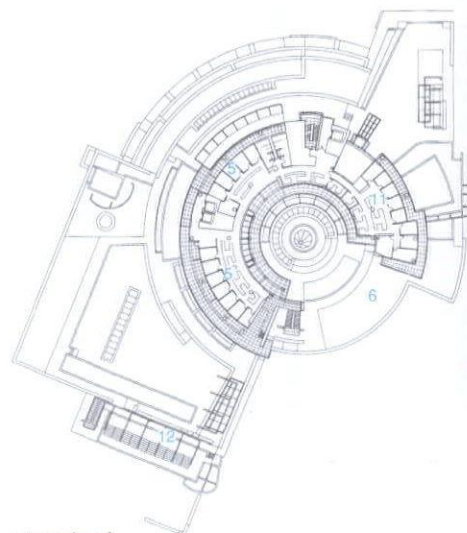
- 1 stacks
- 2 void
- 3 special collections
- 4 technical services
- 5 scholars' offices
- 6 staff rest
- 7 lobby
- 8 meeting
- 9 reading
- 10 reference
- 11 offices
- 12 belvedere



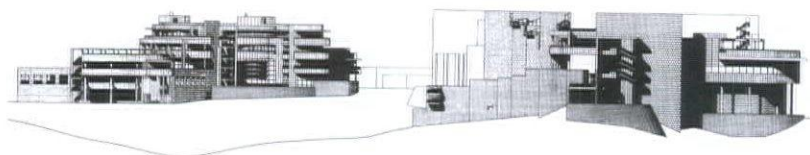
Research Institute: courtyard level (scale approx 1:1800)



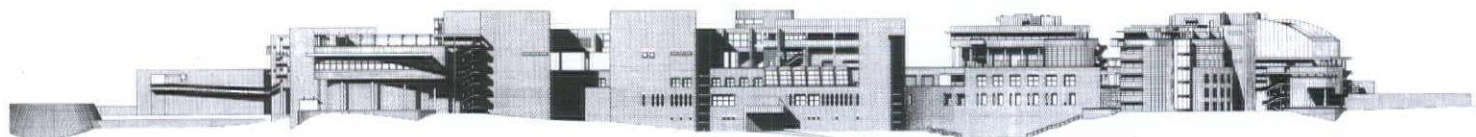
entry level



upper level



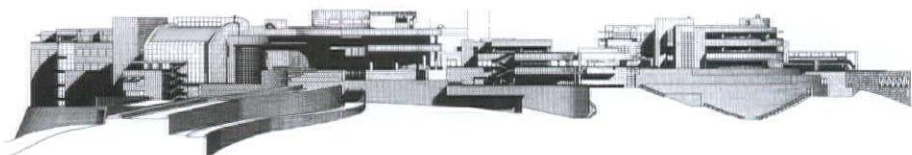
south elevation breaks open to offer views



east elevation



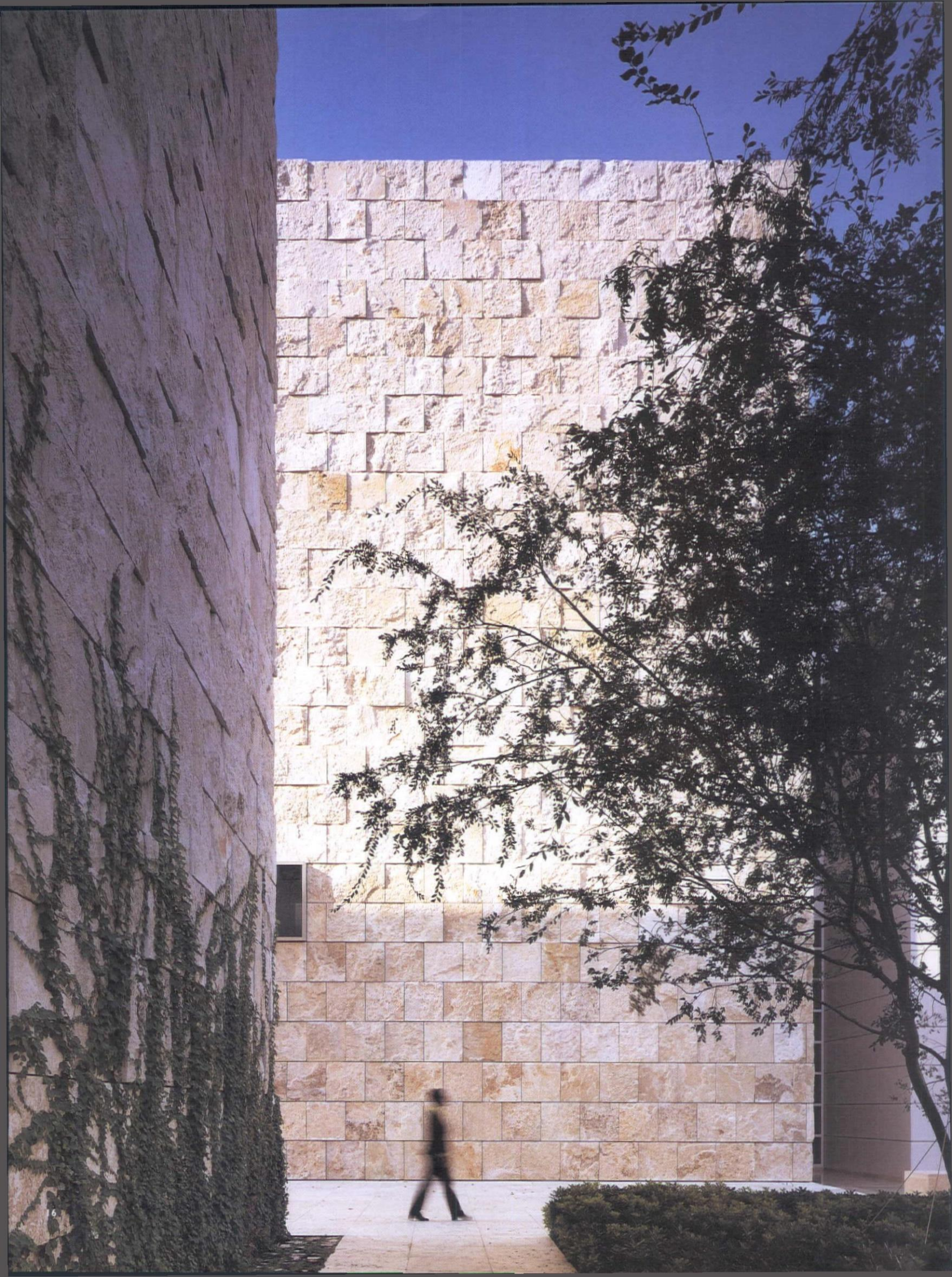
west elevation with auditorium left and Research Institute right



north (approach) elevation

16

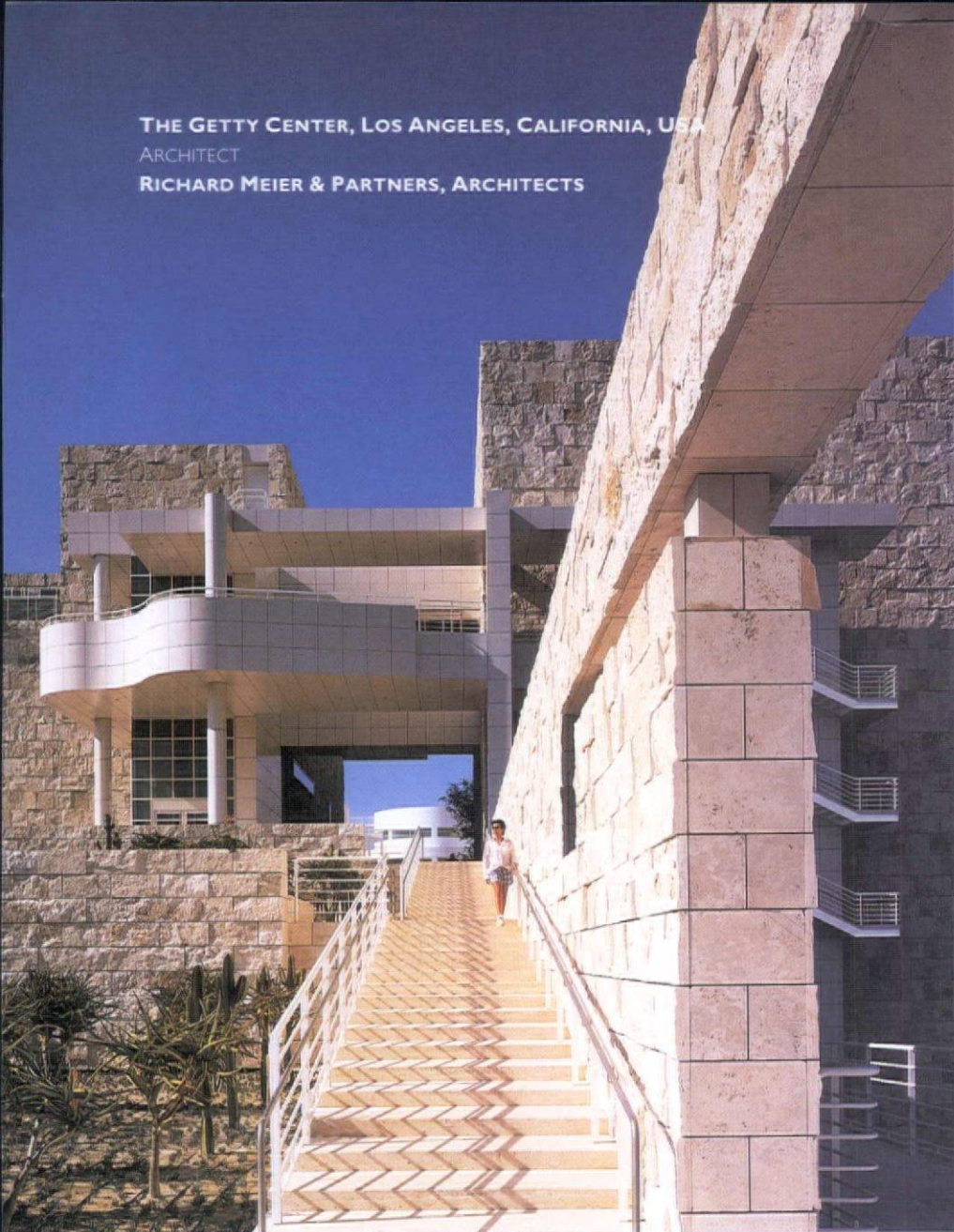
All materials are very thoroughly considered, with stone defining boundaries of most museum open spaces. Stone is laid to emphasize its fossiliferous nature. White of other forms (the Meier white) is carefully chosen to harmonize with stone and not make too strident contrast.



THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

ARCHITECT

RICHARD MEIER & PARTNERS, ARCHITECTS



17

17

Climbing to the museum courtyard from south terrace; upper level painting galleries have wavy balcony under which route passes.

18

Museum court looking north along long axis with entrance rotunda at other end.

19

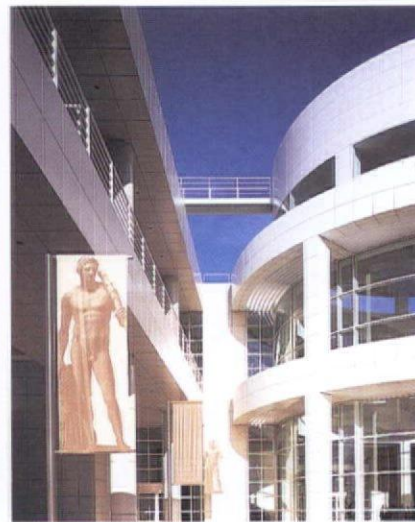
Rotunda joins west arcade of museum court ...

20

... and, on its east side, upper level transitional route (with balcony, right).

21

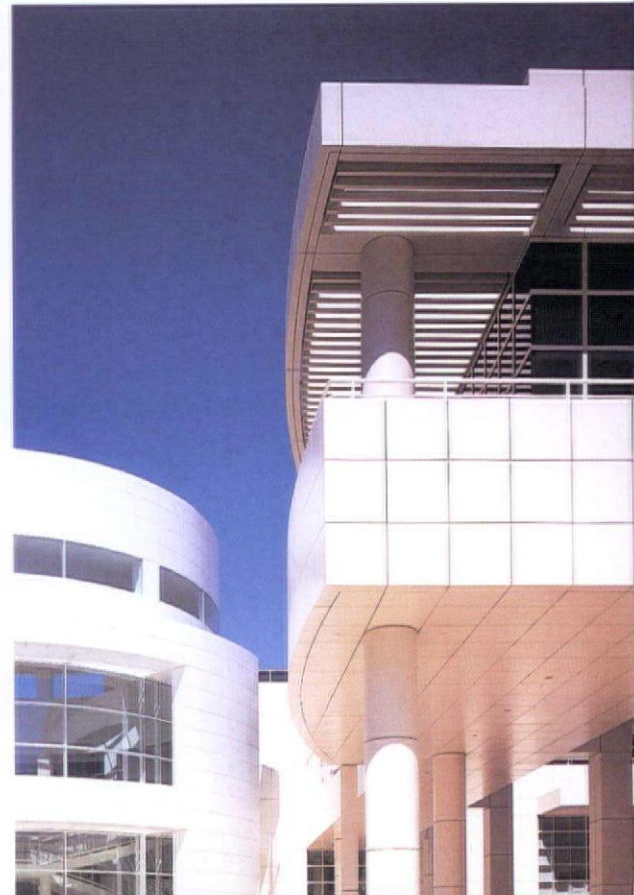
Inside the entrance drum light moves round with time, making the place into a giant internal sundial.



18



19





THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

ARCHITECT

RICHARD MEIER & PARTNERS, ARCHITECTS

22

Gallery type as Meier wanted it to be – serene, and top lit with elegant stone floor and stucco walls, restrained in colour and very carefully executed.



ON THE HILLTOP

These fragmentary statements by Richard Meier, over a decade ago, have heralded what we see today.

THE GETTY CENTER, LOS ANGELES,
CALIFORNIA, USA

ARCHITECT

RICHARD MEIER & PARTNERS, ARCHITECTS

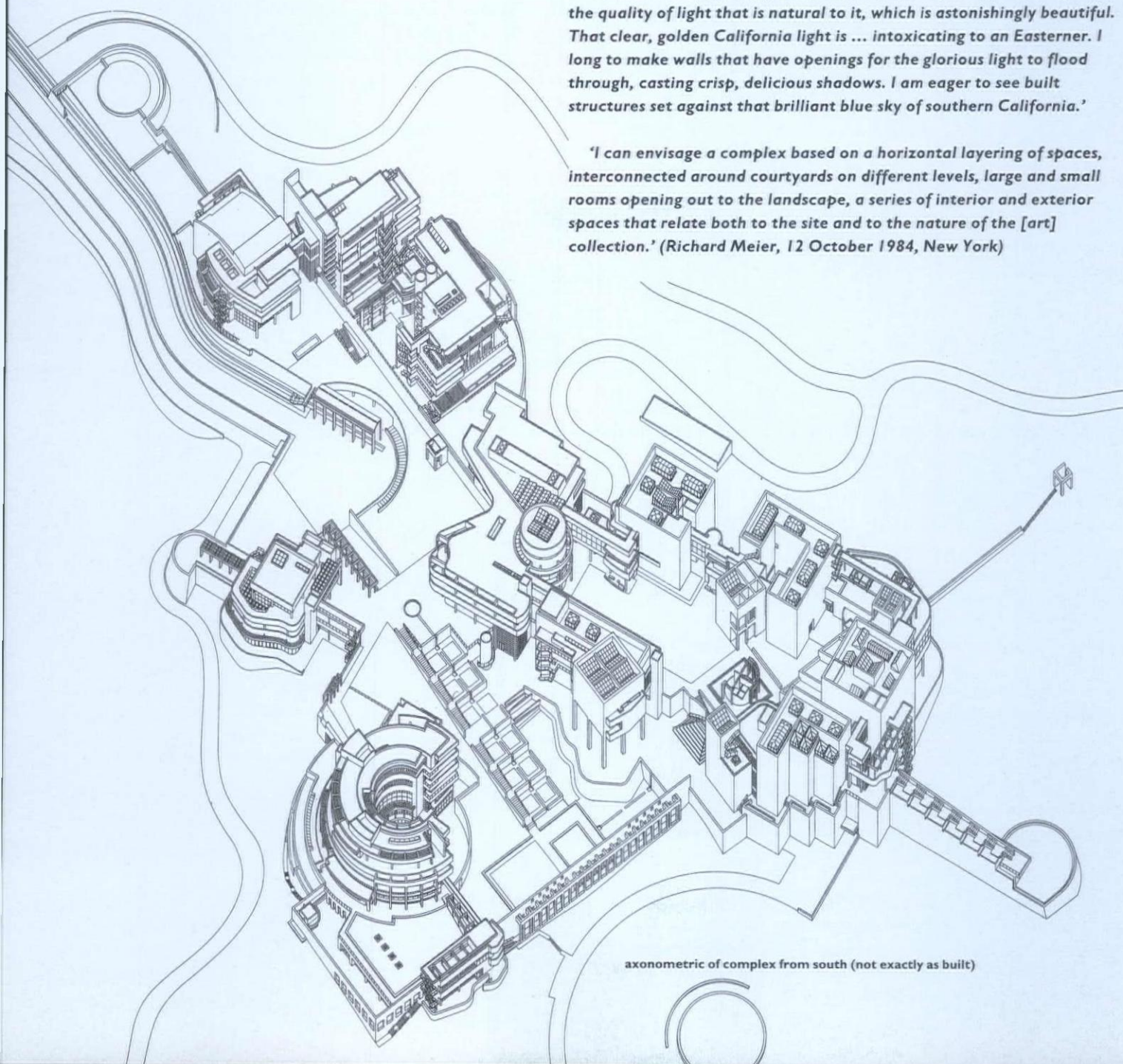
'In my mind's eye, I see a classic structure, elegant and timeless, emerging, serene and ideal, from the rough hillside, a kind of Aristotelian structure within the landscape.'

'Sometimes I think that the landscape overtakes it, and sometimes I see the structure as standing out, dominating the landscape. The two are entwined in a dialogue, a perpetual embrace in which building and site are one.'

'In my mind, I keep returning to the Romans – to Hadrian's Villa, to Caprarola – for their sequences, their spaces, their thick-walled presence, their sense of order, the way in which building and landscape belong to each other.'

'Besides its topography, the most powerful aspect of the Getty site is the quality of light that is natural to it, which is astonishingly beautiful. That clear, golden California light is ... intoxicating to an Easterner. I long to make walls that have openings for the glorious light to flood through, casting crisp, delicious shadows. I am eager to see built structures set against that brilliant blue sky of southern California.'

'I can envisage a complex based on a horizontal layering of spaces, interconnected around courtyards on different levels, large and small rooms opening out to the landscape, a series of interior and exterior spaces that relate both to the site and to the nature of the [art] collection.' (Richard Meier, 12 October 1984, New York)



axonometric of complex from south (not exactly as built)

**THE GETTY CENTER, LOS ANGELES,
CALIFORNIA, USA**

ARCHITECT

RICHARD MEIER & PARTNERS, ARCHITECTS

Arriving in Los Angeles by aeroplane, or approaching the Getty citadel by freeway from north or south, by both day or night, the acropolian form is immediately visible – a massive stone, metal and glass complex crowning its hilltop and set among a grid of over 3000 California live oaks that otherwise cover the natural undeveloped slopes. The presence of the Center is all pervasive in its city context.

Having reached the site entry by vehicle, the circular arrival court is controlled by two cylindrical kiosks in white steel signalling Meier's presence, then you enter the first level of the six floor/1200 place parking structure, buried in the hillside base, alongside and below the San Diego Freeway. Huge lifts provide the transition to the train station, one level above.

The station, with its double barrel-vaulted roof, is the first introduction to both the journey as an event and to the travertine flooring and superb square-cut box hedges used extensively in the main buildings. It also serves to signify the luxurious quality that underscores the whole undertaking – even the floors of the station's rest-rooms are in black-veined white marble, with exquisite stainless-steel installations.

As the silent white automated trams depart and slip under the station roof-vaults, the distant view of the citadel is suddenly framed and revealed. The ensuing serpentine climb of the tram track then takes over and provides constantly changing vistas of both the building clusters and the freeway, and Los Angeles itself, spreading southwards below.

The upward journey is both symbolic – reminiscent of the ascent to the Acropolis in Athens and the Alhambra at Granada – and a peaceful, contemplative interval (a client requirement) between the speed of the freeway, leaving the car behind, and anticipating the peace and splendour of the arrival at the threshold of the exhilarating complex of architecture and landscape, vistas and sky – all in unison.

Arrival

The first physical encounter with the buildings includes Trust Point, the northernmost promontory (the helipad with its terraced gardens), and the curvilinear foyers of the 450 seat galleried conference auditorium.

And then again suddenly, the magnificent arrival plaza (pp34-35) is revealed, flanked on the left side by the north and east buildings and on the right by the restaurant and café. The tram comes to rest under an extended white cantilevered steel and glass roof with the adjacent lift marked by an outriggered planar screen, which recalls the 'villa' entrance of Meier's Barcelona Museum (see AR March 1997).

Alighting from the tram, on to the 7½in square hard travertine paviors, the generosity and splendour of this first major public space with its sense of enclosure and activity, offers the promise of much more beyond. Immediately ahead is a truly massive stair of heroic Roman proportions, flanked on one side by terraced levels of abundant planting and a water cascade, and on the other by an equally heroic ramp, which is partly occasioned by requirements for fire-truck access to the upper museum entrance and courtyard level.

The elegant proportions of the gently ascending staircase evoke memories of the Spanish Steps in Rome. The stair culminates in the revelation of the almost unbelievable vistas to east, west and south. In the early morning, the all-encircling stone forms are silver, in the evening gold. In the golden California light and the clarity of the pure blue skies – the air at this elevation is especially clear – the effect is very difficult to describe, it has to be *experienced*: taken together and

especially in early evening at sunset, the place is truly elating and heavenly.

The magnificent site, with views to the snow-capped San Gabriel mountains and out into the Pacific panorama which are sensational, the *quality* of the buildings – their variable geometry and material presence, the promise of the collections within, the climate and the almost monastic sense of elevated peace, combine into a truly phenomenal achievement. Richard Meier's powers in the making of urban space are confirmed in this masterly site plan.

The heart of the museum

From the datum of the main staircase head, one is then confronted with the super-transparency of the white entrance rotunda and the vistas through its huge opening glass walls into the greatest place in the complex – the museum courtyard (p42). At least 390ft in length, and interspersed with events such as bandstand, fountains and trees, this magnificent urban-room is open to the sky, with its long vista southwards to the city and Pacific, and westwards out under the colonnaded loggia of the skewed cubistic form of the special exhibits gallery to Catalina Island and the void cylinder of the Research Institute. The museum café terrace enjoys spectacular vistas below.

The rotunda itself, always flooded with changing arrays of light (p43), is flanked by cloakrooms and a bookstore and opposite, two beautifully crafted, maple-panelled orientation theatres.

Two principal routes to the museum galleries then emerge. One is to step out into the court and go to the first cluster of galleries (north pavilion) from its related entrance and thereafter to rotate through the 30 x 30ft rooms of the nine-bay, atrium-centred square, with variants, interlinked at court level. This route extends around the court and culminates in the western pavilion with the decorative arts. This route also contains sculpture, illuminated manuscripts and photography.

The gallery typology fits into a 30 x 30 x 30ft cubic matrix and offers a range of volumes from square to rectangular 1½ or 2 bay units with optional sectional profiles and skylights which, on the first floor, give delicately controlled natural daylight.

The alternative route (to the upper galleries) emerges by going up the grand travertine and steel staircase in the rotunda and then proceeding by a series of vestibules, verandas and loggias, with resting places, through the paintings collection. This route is broken by an extensive roof terrace, with planting and shade pergolas at the southern corner, where it is possible to serve refreshments or give a party. Yet again, from this elevated, privileged retreat the vistas are even more sublime, in every direction.

A web of incidents

Any sense of museum-fatigue is virtually eliminated by the thoughtful incidence of gallery seating, resting spaces, atria, break-out roof terraces and astonishing vistas.

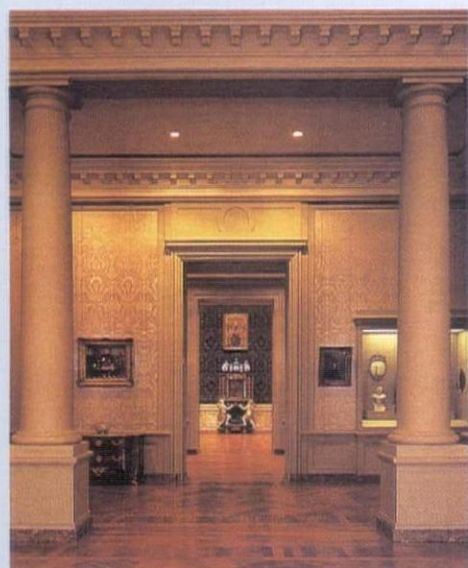
The upper level route is broken at the southern pavilion where one descends to the courtyard, experiences the circular fountain and then ascends again, by staircase or lift, to the museum exhibition pavilion for special exhibits and loans. In turn these are linked by an external gallery – a breezeway – a favourite Meier device that occurs over and over again from the early Saltzman House, through the Weishaupt Forum (AR March 1994) to culminate in the Getty.

At this upper level, flanking the rotunda, are the museum director and the curatorial offices.

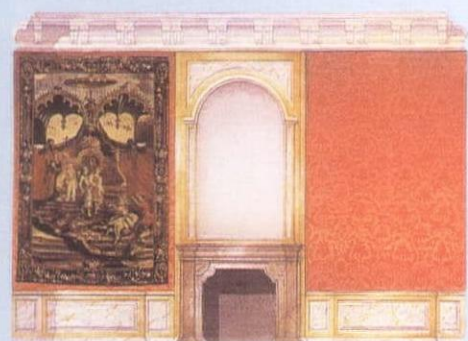
Finally, the journey to lunch is a short stroll from the rotunda to the café, across the secondary external plaza that links these food facilities and the gardens that introduce the Research Institute and its foyer. Central to this plaza, at 22½ degrees to the main axis of the museum, is a further major descending stair that signals the entry to the fan-shaped central garden and the major prospect of the Pacific Ocean.



Meier painting gallery smeared with Despont fabric



decorative arts gallery by Thierry Despont



pastiche gallery wall elevation by Despont

Ivor Richards discusses the organisation of the Getty complex and shows how the galleries have evolved, sometimes into spaces unforeseen by Meier.

THE ORGANISATION

'In my opinion, an individual without any love of the arts cannot be considered completely civilized. At the same time, it is extremely difficult, and sometimes impossible, to interest people in works of art unless they can see them and know something about them.' J. Paul Getty, 1965

These remarks are the foundation of both the Getty Center as a whole, and the J. Paul Getty Museum that it now houses. In addition five other programmes, which focus on scholarship, conservation and education, occupy the other buildings within the hilltop citadel. Within the overall complex, the distinct and different forms of the museum, clustered around its courtyard, and the Getty Research Institute for the History of Art and the Humanities, are the two major elements from which the design springs.

Both the original museum, in Getty's own Ranch House (circa 1952), and the later Roman Villa Museum (circa 1974), are sited in Malibu, and in common with Richard Meier's Getty Center (1997) in Brentwood, have vistas over the Pacific Ocean. Of these, the spectacular prospects of the latter are the crowning magnificence uniting art, nature and the city of Los Angeles.

John Walsh, director of the Getty Museum, explains in his introduction to the Getty collections – which now include antiquities, manuscripts, paintings, drawings, decorative arts, sculpture and works of art and photographs – the unparalleled expansion and improvement in these artistic areas '... that could not have been imagined when [the Getty Ranch House Museum] first opened in 1954, or even when the [Roman] Villa building opened in 1974. Since the early 1980s, hundreds of important new works of art have been acquired in the areas of the museum's three traditional interests, antiquities, French furniture and decorative arts, and European paintings, and thousands more have been acquired to form four new collections ...', and Walsh concludes: '...

The works of art ... were brought to Los Angeles for the joy and enlightenment of the public'.¹

Mission statement

This great cultural, artistic and social mission would never have been possible without the fabulous wealth of J. Paul Getty: 'At his death in June 1976, Getty bequeathed four million shares of Getty Oil stock worth about \$700 million to his museum (the Roman Villa in Malibu), leaving it to the trustees' discretion to decide how the legacy should best be used. Although the assets would be tied up in the courts for some time to come, the collections grew impressively in the first years after he died through the receipt of Getty's private collection from Sutton Place (in Surrey, England) and some purchases ... By April 1982, with the receipt of the proceeds of Getty's estate, the Trust already had begun to prepare for its transformation from a small museum into a visual arts institution of international significance. Realizing that the new income represented an unparalleled opportunity to expand upon Getty's initial vision, Harold Williams (appointed as President and Chief Executive Officer of the J. Paul Getty Trust in 1981) and the trustees moved to set up other organizations that could operate in tandem with the Getty Museum in furtherance of Getty's mandate for: "the diffusion of artistic and general knowledge".²

These organizations included the Getty Research Institute, the Getty Conservation Institute, the Getty Information Institute, the Getty Education Institute for the Arts and the Getty Grant Program. To this has been subsequently added the Getty Leaderships Institute for Museum Management.

With the Museum itself, these Institutes and Getty's vast bequest form respectively the project programme and funding source for the Getty Center, which Richard Meier designed and built over some 13 years between 1984 and 1997.

**THE GETTY CENTER, LOS ANGELES,
CALIFORNIA, USA**

ARCHITECT

**RICHARD MEIER & PARTNERS,
ARCHITECTS**

When Meier himself first assessed the likely timeframe as 10 years, he could not possibly have perceived that this project could take even longer and culminate at a global cost of \$1 billion, the official Getty figure, in December 1997.

Apart from the magnificent museum galleries, with the museum director and staff, the two institutions that most support the art and scholarship are the Conservation Institute and the Research Institute, with their activities concentrated at the Getty Center, within the Meier citadel.

Vectors

In describing the creation of the architectural project in the documentary film, *Concert of Wills: Making the Getty Center*, Meier – actively drawing the initial site plans – first defined the very limited area of the site that could receive the buildings, by delineating the contour encirclement in red. He then drew what he defined as ‘the two major vectors’ arising from the two principal ridges of the land-form. One vector, or axis, is normal to the LA grid and carried the centre-line of the museums clustered on the periphery of their courtyard. The other vector, deflected 22½ degrees from the north-south axis, carries the centroid of the Research Institute. This geometry and placement of the two major elements of form, creates a third – the fan form of external space which receives the terraced Italianate garden, of Meier’s early projects, terminating in a colonnaded breezeway whose crucial geometrical line unites the west pavilion of the museum cluster, with the Scholars Pavilion of the Research Institute. This in turn was followed by an amphitheatre which echoed the lower arroyo.

This summary proposes in principle a very simple and natural solution. It has remained constant throughout all the design development.

The museum courtyard (p42), and the surrounding enclosure of art galleries, is the principal public space of the Getty Center – it is also the finest, most beautifully crafted area of the whole complex. The extreme length of the space, at first sight, recalls the seaward-orientated court of Kahn’s Salk Institute at La Jolla, and has a similar tranquillity and serene, spiritual aura, when unoccupied.

However, when fully loaded with people and events (such as on the inauguration day of 13 December 1997) the court, with its shade, light and sparkle of water comes alive with the vibrant humanity of a piazza in an Italian hill-town. Meier has consistently

eschewed the deliberate comparison of this kind, insisting that the forms have arisen from the programme and topographical conditions. But the architectural grammar and language can hardly avoid this evocation.

The courtyard itself is enriched with many features which reinforce the Californian tradition and climatic opportunities. The use of fountains and water-tumbles is fundamental. A major linear watercourse with water jets defines the long axis of the space, paved in natural travertine in various forms and edged by shade-trees. This is followed by a further pool – the Boulder Fountain – which responds to the skewed 22½ degree axis, at a 90 degree displacement. The boulders – a beautiful organic array – are of a Columbia Oregon origin and occur again, in an adjacent inner courtyard pool, at the centre of the east pavilion. Within the displaced cube and external colonnade of this nine-bay square cluster of galleries, a further accent is included that repeats at intervals throughout the entire complex: within the stone walls, special monumental feature stones are corbelled out to emphasize their complex fossilised surface.

The courtyard landscaping – both hard and soft – is splendidly detailed and promises a rich contrast to the rough stone envelope of the buildings. Already, deciduous Boston Ivy is adding an autumnal red warmth to the masonry surfaces.

Vistas

Added to all this are the supreme and often unexpected vistas, outwards to mountains and ocean, across to the Research Institute, down to the museum café terraces swirling outwards below and inwards to the radiant top-lit rotunda – a volume that anchors the whole project, resplendent in ‘Meier-white’ – at the very heart of the whole architectural scheme.

One especially memorable outward vista occurs beneath the soffit of the raised special exhibit volume – a vast four-bay, cubistic piece of almost Egyptian scale – standing on monumental stone pilotis. In taking the outward views through the columnar space, Classical memories are evoked: the Bay of Piraeus from the Parthenon, or Schinkel’s loggia of the Altes Museum come to mind. The distant views include Catalina Island and even the more deep and distant Pacific, on a clear day.

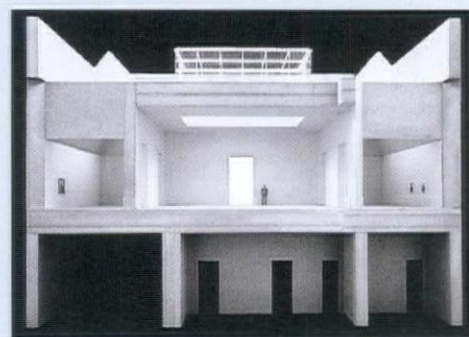
The design and finish of the museum galleries surrounding the courtyard has been the subject of much debate and exhaustive research. Ultimately, Meier has deferred to the wishes of museum director, John Walsh, and many of the spaces have been fitted out by Thierry Despont, in particular the decorative arts galleries, which include

whole room installations – notably a garden-room by Ledoux – an axial mirrored interior, a Neo-Classical panelled room in cool grey and gold.

Many of the galleries, especially for paintings, are finished with colour-painted or fabric walls all related to the hang. These again reflect curatorial policy. However, and particularly in the atrium spaces – transitional white volumes with top-light, frequently incorporating travertine staircases – the spirit of Meier’s seminal Atlanta High Museum re-emerges. Equally in a few galleries, for instance those for sculpture in the north and west pavilions, Meier’s original finishes have prevailed. These include Barco-travertine flooring, upstand edges and architrave reveals, a tobacco-walnut colour stone, with a honed finish. This is coupled with elegant, traditional self-coloured grey stucco.



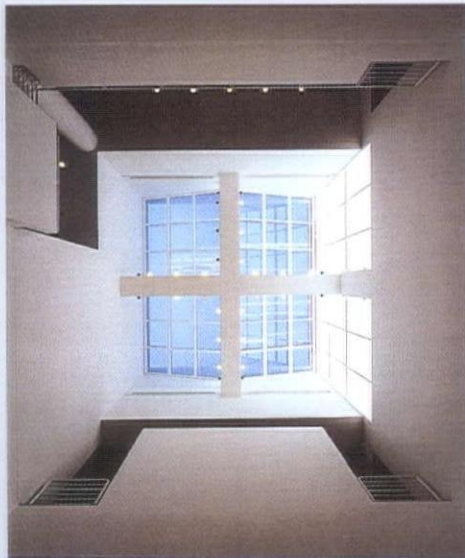
lighting studies: quadrant space ...



... and Dulwich arrangements

Equally, in all other galleries (except special exhibits and decorative arts) Meier’s details and principles have endured. The double-height cross-section and cone-shaped lining, generally white, delivers even natural light. Known as ‘The Dulwich’, the gallery typology has developed the simple principles of John Soane. The most widely used finishes and details are light American oak floors, upstand edges and architrave linings. Picture-rail and louvered skirting act as linear air handlers. The rail supplies and skirting extracts yielding a constant environment to the wall surfaces.

The naturally illuminated art and the quality of experience of the museum pavilions, and their scale, interspersed with



restful daylight moment

spaces of relief, provide an experience that must rank as one of the finest in the world of major art galleries.

Research Institute

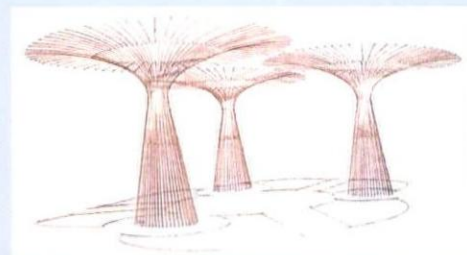
The Research Institute (pp38-40), approached at museum plaza level, is, without doubt, the most serene and unified architecture and idea of the whole Getty Center ensemble. After many initial studies, it was decided the brief itself was flawed and did not yield the true expression of the programme. Meier's determination to pinpoint exactly the right solution for Kurt Forster (director at design stage), was eventually resolved in the circular form. The courtyarded form is cut open – a great wedge is voided – signalling rotation and openness. This project is aptly summarized as 'a path through the collections'.

Essentially a great combination of offices, study areas, library and special collections, for visiting scholars and resident staff, the Research Institute is centered on a spiralling glass ramp, which surrounds the central court. A massive beige-panelled structure, with a white centre, standing on a great archival stone plinth, which houses support facilities and some 26 miles of bookshelves in open and closed stacks, the building is pure Meier and Palladino (a principal in charge). It is clear that the union between client, programme and architect is complete, resolved and deeply fulfilled. The building has an atmosphere of deep joy, in its creation and existence. It is a superb place to study, work and relax.

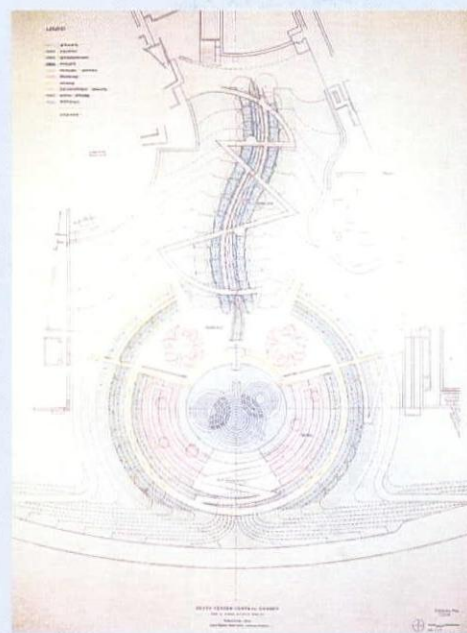
The outrigger structure of the Institute is a Scholars Pavilion. As well as incorporating its own exhibit space, meeting room/auditorium and staff lounge/café – and its own linear courtyard and terrace with ocean views – this key building has a signal position in the overall, now invisible geometric union of the whole building-group.

The Scholars Pavilion is remote and symbolic – the closest the Center comes to a monastic occupation and symbolism. Although sleeping and service accommodation was precluded, the individual studies with communal terraces are beautifully equipped for individual research and contemplation. The vistas from this building, especially from the roof terrace, are stunning and evocative of a real place of retreat and scholarship, such as one might find in an Oxbridge college.

The sparse, minimal nature of the fine metal and glass architecture, the roof-pergolas and *brise-soleil* outriggers all seem to recall the spirit and intention of Richard Neutra's Californian Modernism. Richard Meier is proud, and rightly, of this homage and equally recognizes the legacy of the legendary Angeleno, Rudolph Schindler: the



steel armatures for bougainvillea in ...



... Robert Irwin's central garden

relation of interior and exterior space, external circulation, shade and the whole celebration of the elating and intoxicating Californian climate – and the glorious daylight, awe-inspiring sunsets and radiant blue skies.

It is, as yet, too early to fully judge or appreciate the ultimate success of Californian artist Robert Irwin's central garden. A jagged thunderbolt-pathway of aggressive cor-ten sided pathways zigzagging

across, and boulder watercourse, descends in the central wedge to an azalea-ringed water pool. This device, and the use of levels deliberately denies the culminating prospect of the Pacific Ocean. With its gravel floor surfaces and lawns of bright grass, it does not yield the potential of being the most significant public space of the whole project. Its use of black stone and other dark materials is as yet somewhat unwelcoming and it is too early to appraise properly its wild mixed arrays of flowering plants and grasses, or the effect of the steel-reinforcement rod 'trees', yet to be festooned with bougainvillea fronds.

Garden paths

What is certain is that Meier's greatest public space of earlier versions of the design – the stepped Italianate garden – has been temporarily lost. This great space, with its crucial colonnade (see axonometric p45) – the subject of many beautiful wooden models from the Meier-Gruber model-shop – could even yet be constructed. It is worthy of reconsideration.

Robert Irwin makes one consistent point – that his arrangement induces the visitor to turn, and look back at the most impressive upward view of Meier's building of the Getty Center from the central garden. But, it does this at the expense of the overall project and celebration that Meier had intended – the view of LA and the magnificence of the Pacific Ocean.

The generous abundance of architectural and programmatic subject matter of the Getty Center cannot be properly described in these notes. Nor, most importantly, can the splendid experience of the combined architecture, light and vistas.

The Getty Center is a triumph of architecture and an inspired, singular investment in both the arts and humanities, as well as research. It is unique.

IVOR RICHARDS

1 The J. Paul Getty Museum: Handbook of the Collections, Los Angeles, 1997.

2 Ibid. 'J. Paul Getty and His Legacy', pp10 and 11.



one of the numerous design models of the complex

THE GETTY CENTER, LOS ANGELES, CALIFORNIA, USA

ARCHITECT

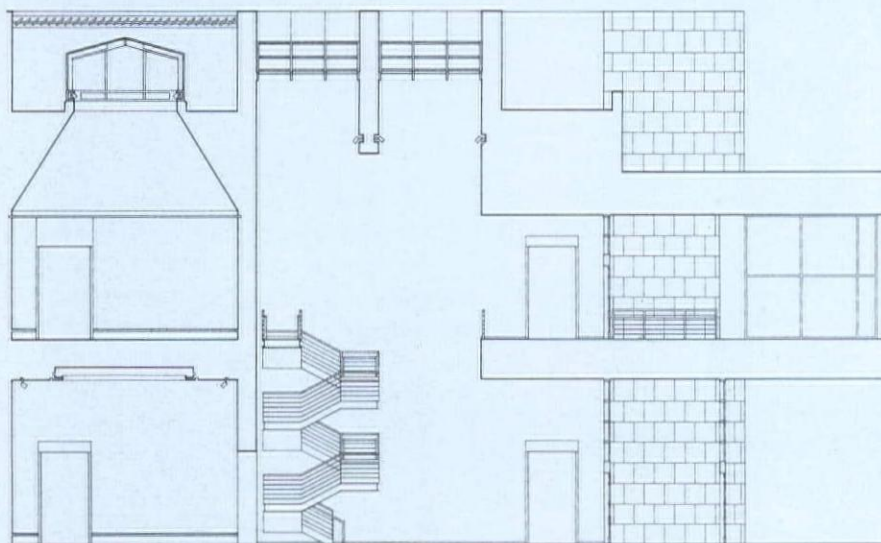
RICHARD MEIER & PARTNERS, ARCHITECTS

CRITICISM

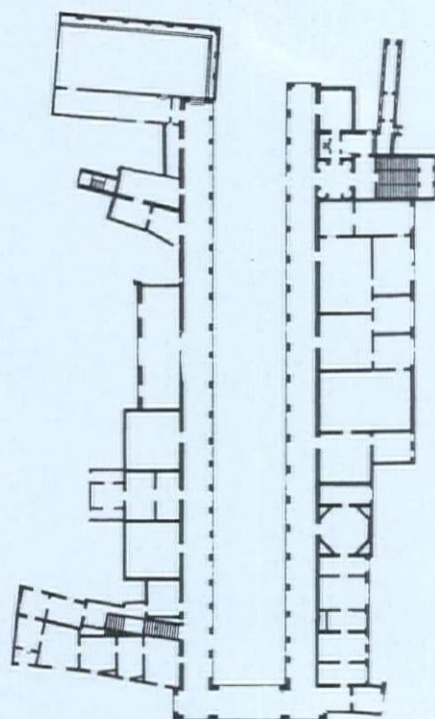
MICHAEL BRAWNE

The Getty is influenced by history and topography, but is (potentially) one of the finest museums in the world. Michael Brawne castigates the Trustees' lack of courage but celebrates a great composition.

PLAYING TO THE GALLERY



diagrammatic section showing natural and artificial lighting in Dulwich galleries and double-height lobbies



1
'The great belvedere on the plateau of the hill' overlooks mountains, the plain of Los Angeles and Pacific Ocean.

Vasari's Uffizi: a precedent?

The galleries of the museum are the principal public indoor spaces of the Center; they are the goal of the pilgrimage from the continuous hum of the Santa Monica Freeway to the great belvedere on the plateau of the hill. Their layout follows the much admired plan of the top floor of the Uffizi in Florence; the armature being a primary circulation which always makes contact with the outside world and which links a sequence of independent galleries. Exhibition areas can be bypassed and there is never a need to retrace one's steps. At the Uffizi the U-shaped glazed route focuses on the Piazzale degli Uffizi between the two wings of the building; at the Getty it is the plain of Los Angeles and the Pacific Ocean which hold the eye. What matters in both instances is that the sequence of viewing need not be prescribed and one's position within the museum is frequently and readily verified.

It is therefore a great pity that the treatment of the individual galleries shows a loss of nerve on the part of the Trustees. The shells which Richard Meier has provided are entirely appropriate and versatile; it is the surface treatment, the essential immediate background to the works of art, trying to imitate the appearance of certain galleries of the past which raises grave doubts. The most cursory glance at eighteenth- and nineteenth-century galleries as depicted on contemporary pictures would have shown that paintings were hung so densely that very little wall was visible. Each period sees works of art in new and different ways. It is therefore regrettable that the Trustees asked Thierry Despont, a New York interior decorator, to become a consultant on the wall finishes of the upper floor picture galleries at a late stage in the design process. What we now have in the painting galleries is a white daylit upper half contrasting uncomfortably with a usually sombre lower half frequently covered in fabric (p47). All of Richard Meier's capacity to create Baroque-like luminous spaces has been put aside.

Despontism

Despont has also been almost entirely responsible for the installation of the galleries on the lower floor devoted to the decorative arts. Here the public wanders past furniture placed in an apparently historical stage set (p47). Neither the furniture as a work of art nor the background as a historical imitation gains from the juxtaposition. The most important conjunction has been forgotten: artistic works of highest quality demand a setting of corresponding quality. The Getty could so easily have been in the forefront of the difficult task of displaying objects of use from the past. It has now lost that opportunity, seemingly failing to remember that what we think of as someone's past was

never anyone's present.

Carlo Scarpa when designing the Canova plaster cast galleries at Possagno (November 1996) was advised that only a dark coloured background would be correct for the white plaster sculptures. Scarpa was uneasy with such a solution. What finally emerged was a magically lit white interior which, through light and texture, revealed the delicate handling of Canova's surfaces and forms. This is not to suggest that the galleries of the Getty should have been white, but only to indicate that the tonalities of the whole room need to be considered. There are enough marvellous examples of Italian *palazzi*, for instance, with their slightly rose-tinted raw plaster, for one to know that it is not necessary to select lugubrious tones in order to display old master paintings successfully. It is the work of art *and* the space which make an impression on the visitor and which demand a synergy for the object on view to communicate.

Getty and Gugg

Comparisons between the Getty and the Guggenheim in Bilbao are inevitable and relevant. Their similarities are as significant as their differences. Both museums adopt the strategy of creating different kinds of space: one, architecturally subdued for the display of objects, the other exuberant, to be admired in its own right. The second spatial category is the space for public circulation. The strategy can be seen in a great many museums of the recent past and has already been discussed in these pages.¹ Although there is no indication from the outside, at the Bilbao Guggenheim the major display area consists of six simple rectangular galleries on two floors, cunningly top-lit (AR December 1997, p35). The architecturally vibrant spaces exist in the atrium and its associated routes as well as externally. At the Getty, it is the spaces which guide movement and which relate enclosed volumes to the external world which immediately absorb our attention.

The differences between these two recent masterpieces are equally instructive and reflect on the way we think about building. The Guggenheim is a striking special object wonderfully situated by the river with a backdrop of a green hill, its shimmering metal demanding attention. The Getty Center is part of a new town which includes a museum; a complex hill town with its public plaza, belvederes and gardens which can absorb thousands and which is a fitting setting for a day of urbane pleasures in a city not so far known for its public spaces. It is architecture as place making.



Architect

Richard Meier & Partners, Architects, New York

Principals in charge

Richard Meier, Michael J. Palladino, Donald E. Barker, James Crawford

Project architects and team leaders

John H. Baker, Tom Graul, Michael Gruber, Dennis Hickok, Richard Kent Irving, Christine Kilian, James Mawson, A. Vic Schnider, Timothy Shea, Richard Stoner, Aram Tatikian, J. F. Warren

General contractor

Dinwiddie Construction Company

Central garden

Robert Irwin; Andrew Spurlock, Martin Poirier

Gallery design consulting

Thierry W. Despont Ltd

Acoustics

Paul S. Veneklasen & Associates

Audio/visual consulting

Paoletti Associates Inc

Civil engineers

B&E Engineers; RBA Partners, Inc

Colour consultants

Kaufman/Dahl

Cost estimating

Hanscomb Associates

Landscape architects

Olin Partnership/Fong & Associates;

Emmet L. Wemple & Associates; Dan Kiley

Lighting design

Fisher Marantz Renfro Stone, Inc

Mechanical and electrical engineers

Altieri Sebor Wieber; Hayakawa Associates

Project management

Karsten/Hutman Margolf

Scheduling consultant

Poulsen Construction Management, Inc

Specifications

American Nova Co

Structural engineer

Robert Englekirk Consulting Structural Engineers, Inc

Operable louvres

C/S Group

Laminated vision glass

Viracon

Floor tiles

Graniti Fiandre

Interior fixtures

Zumtobel/Staff

Exterior fixtures

BEGA/US

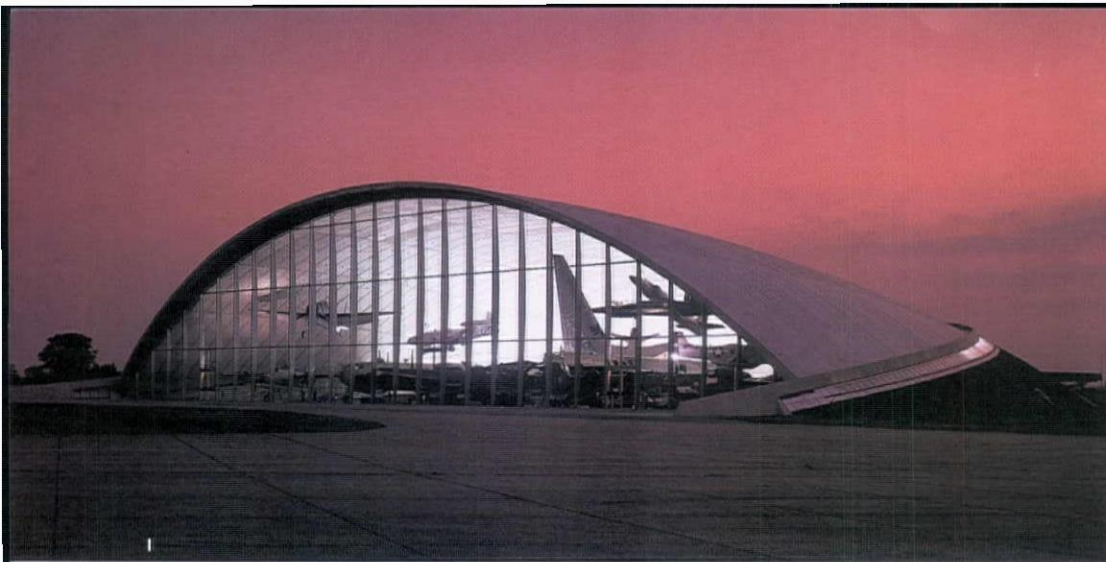
Dimming controls

Lutron

Photographs

All photographs by John E. Linden except for mid picture p47 (Tom Bonner) and top left p49 (Scott Frances)

¹ Brawne, Michael, 'Museums mirrors of their time?', *The Architectural Review*, February 1984, Vol CLXXV, No 1044, pp17-19.



AMERICAN AIR MUSEUM, DUXFORD, ENGLAND

ARCHITECT

FOSTER AND PARTNERS

PHOTOGRAPHER

RICHARD BRYANT/ARCAID

FLYING COLOURS

The design of a new museum in East Anglia, sheltering a collection of historical American aircraft, pays powerful tribute to all US airmen, past and present.

Of all proposals to Norman Foster in recent years, the one by the Imperial War Museum to design the American Air Museum in Britain must have caught his imagination with particular force. A pilot himself, his passion for flying and aircraft is well-known.

The American Air Museum is part of the aviation museum, run under the auspices of the Imperial War Museum at Duxford, about eight miles from Cambridge. As part of one of the best collections of historic aircraft in the world, the museum also has what is thought to be the finest collection of American military aircraft outside the USA.

This featureless stretch of land is an emotive place. The airfield has been in existence as an RAF station since 1918, when British pilots training for the Great War were joined by an American squadron. In the Second World War, Duxford was a Battle of Britain fighter station and occupied between 1943 and 1945 by the US Eighth Air Force. Closed down in 1961, it was taken over by the Imperial War Museum and opened to the public about 15 years later.

Today, standing beside the airfield, which is still active, you can watch the more agile of the old planes – Spitfires, Mustangs and Lightnings – climb into the sky. Relics of the Great War are the hangars which, now listed,

serve as exhibition halls for the various collections.

The Foster design of a new American hangar took shape over 10 years ago when it became clear that aircraft displayed outside, rotting and corroding in the English climate,¹ had to be sheltered. Recession and lack of funds delayed construction until the arrival of a grant from the Heritage Lottery Fund. It was supplemented by money from fundraising on both sides of the Atlantic – by such glamorous former pilots as Charlton Heston and the late James Stewart – and from Saudi Arabia, grateful for British and US efforts in the Gulf War.

The client wanted a landmark but also a building that would be a neutral backdrop for the planes; and Foster's museum is both an elaboration of the basic hangar and in substance a monumental tribute to the machinery it shelters.

Set at one extremity of the airfield, the building is a huge shell-like structure emerging from a grassy mound (it is not the same, but you cannot help recalling the Sainsbury Centre extension). This toroidally generated shell – like the sliced half of an odd bi-valve – is slashed around the base by a crescent of glass and enclosed where sliced through by a glass wall. Abstract form and the building's tendency to dematerialize (it is



¹ The toroidally generated shell is backed into earthworks and enclosed by a glass wall on to the active airfield.

² Glass facade is composed of clamped pairs of vertical steel plate mullions. Their depth is related to height, but all mullions have the same curved profile. To ensure overall stability of the facade in its own plane, mullions have been linked into Vierendeel frames; 19mm thick glass helps screen out UV radiation.



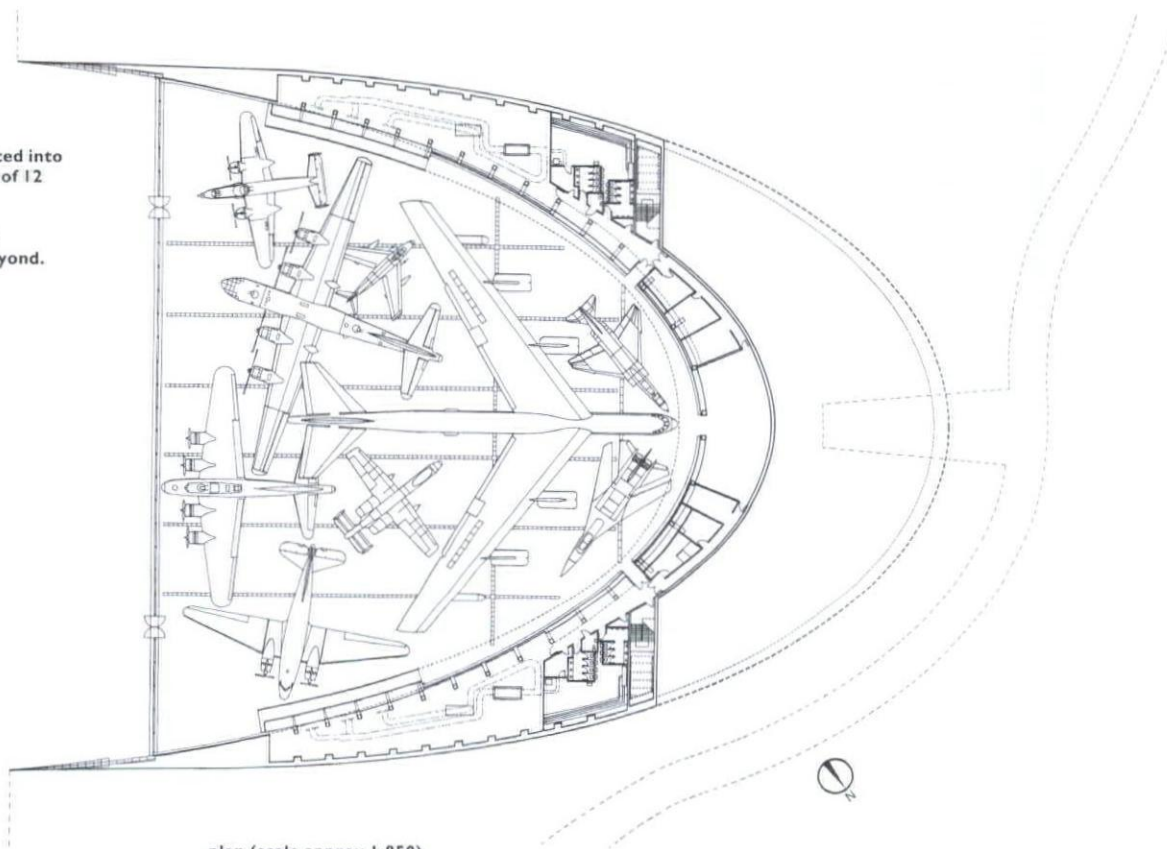
AMERICAN AIR MUSEUM, DUXFORD, ENGLAND

ARCHITECT

FOSTER AND PARTNERS

3
Cast-in steel sockets were converted into suspension points, with a capacity of 12 tonnes.

4
Under the wing of a Boeing B-29A Superfortress, with the airfield beyond.



plan (scale approx 1:850)

sheathed in a silvery membrane that at times disappears into the skies), dissipate size and make accord with the ephemeral nature of the wide Cambridgeshire landscape.

Inherent in the design of the structure is a nice opposition, for if aircraft design is to do with detailing, the architects of this starkly dynamic shed have eliminated it, leaving the thrust of the structure to speak for itself. At its greatest, the free-spanning arch of the roof measures 90m across and 18m in height, and elliptical on plan, the building is 100m long. Its design was driven mainly by the need to house the sinister B-52 Stratofortress, the long-range bomber famously used in Vietnam and the Gulf with a wingspan of 61m and a tailfin 16m high; but also by the desire to suspend some of the smaller aircraft, weighing up to 10 tonnes, from the roof. The building had also to be economic to build, run and maintain, for the only source of Duxford's income is admission charges. While heating costs were felt to be prohibitive, humidity control was considered essential. As much daylight as possible was to be admitted to reduce lighting bills.

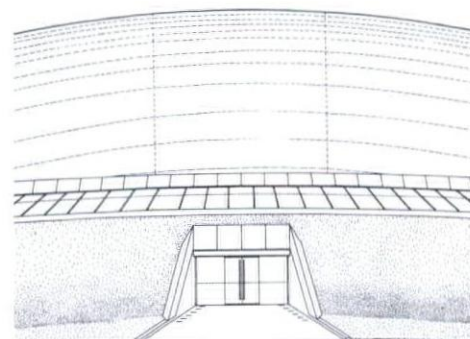
Comparative analyses showed that a concrete building could keep the temperature above dew-point, so that condensation did not occur and

dehumidifying plant could be kept to a minimum; and in effect, the Foster and Arup engineers have devised a structure that is self-regulating – within limits. Thermal mass helps delay the change in temperatures, ironing out peaks and troughs and taking 2 to 3 degrees Celsius off external extremes.² Daylight flooding through the glass facade is augmented by light bounced through the inclined glass crescent off surfaces at the rear of the hall.

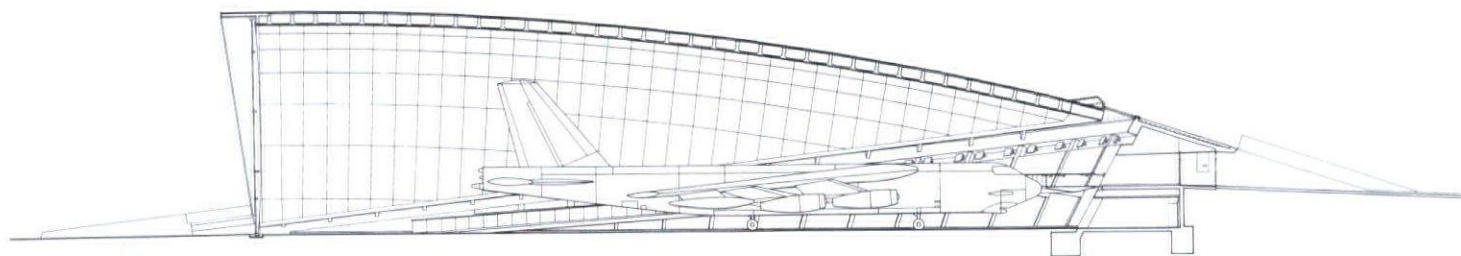
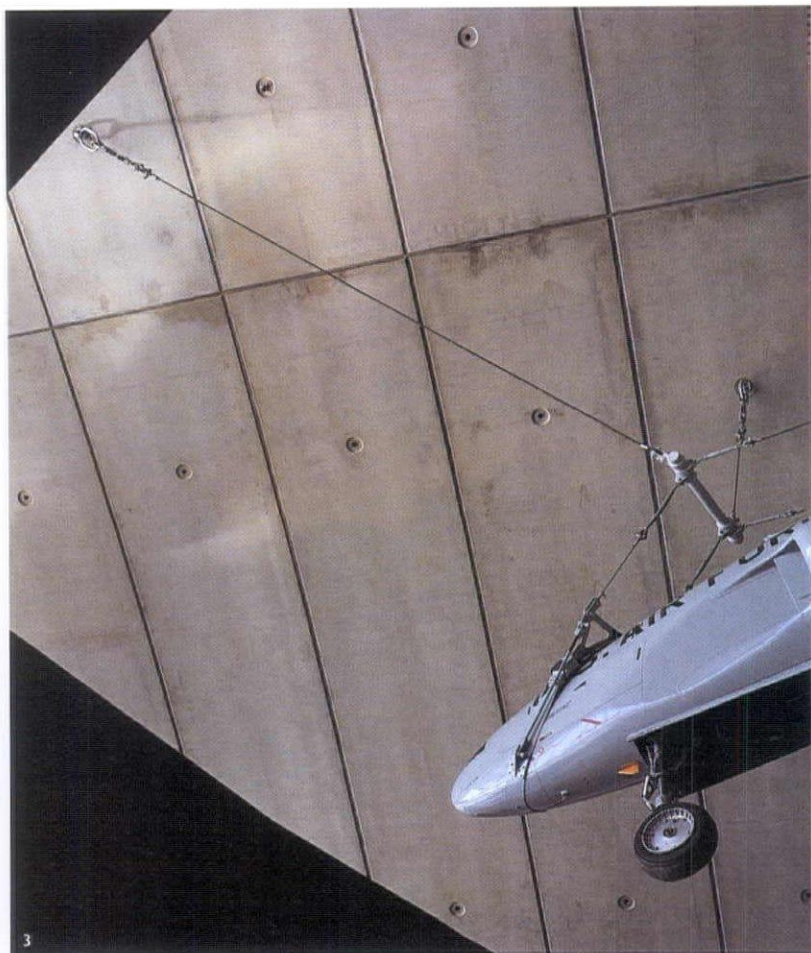
The roof is composed of two shells, each built up from precast concrete panels and fitted together like a Roman vault. Because a torus is defined by only two constant radii, using toroidal geometry simplified and cheapened construction. There are only five panel types for the entire roof. Those of the lower shell are T-shaped in cross section, the stems of the Ts separating the shells and forming the ribs to which the upper panels are fixed. The roof was erected, much as Roman vaults were, by means of false towers; and when completed, sockets of the lower panel were cleaned out and converted into suspension points, each having a capacity of 12 tonnes. At the front of the building the structure behaves mainly as an arch, and at the back, where it is very flat, as a beam. Membrane action of the shells permits load



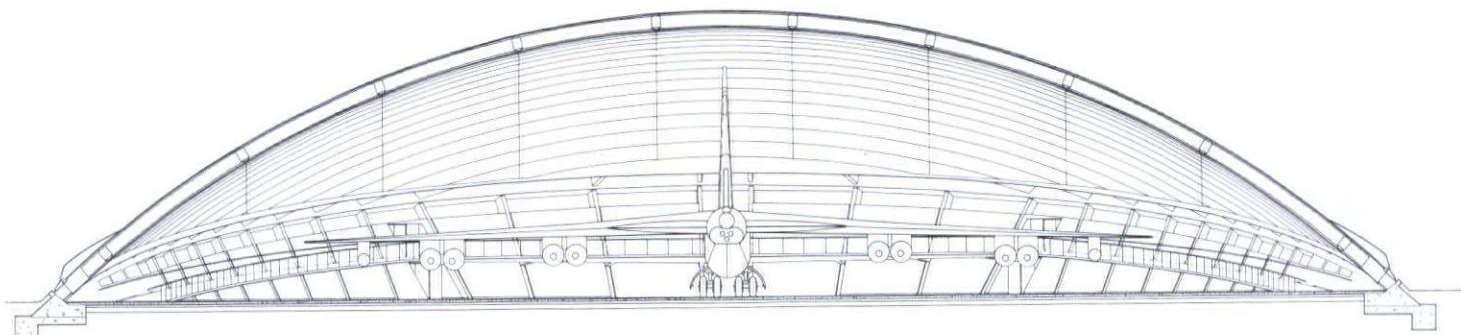
site plan



north-west elevation

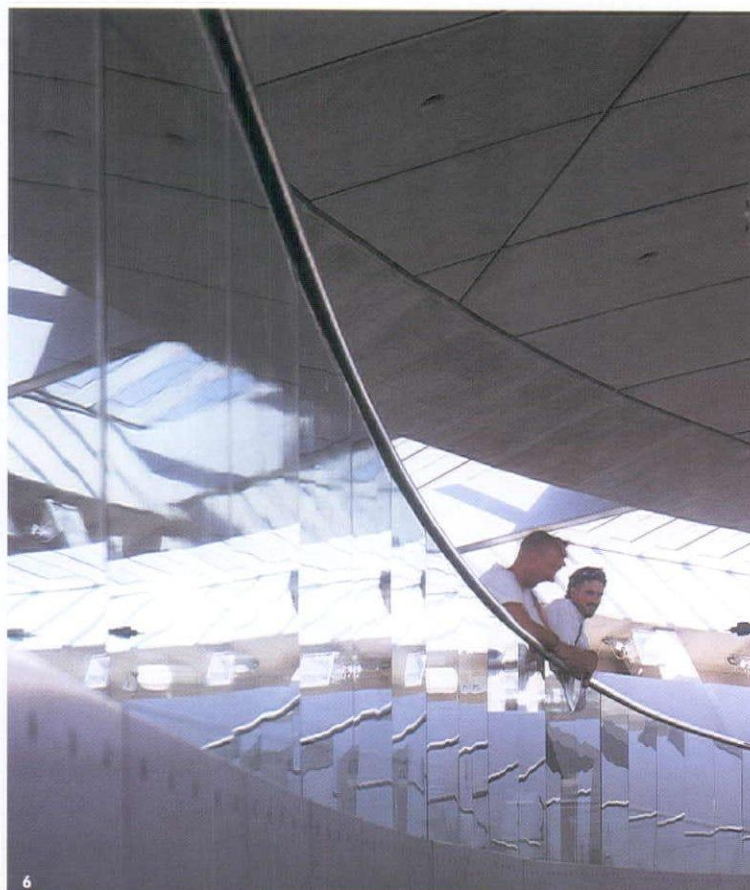


longitudinal section: south-east/north-west



cross section: south-west/north-east

AMERICAN AIR MUSEUM, DUXFORD, ENGLAND
 ARCHITECT
FOSTER AND PARTNERS



sharing in two directions under the weight of the suspended aircraft.

Forces from the roof shells are collected into an in-situ upper ring beam, passed across the glazed crescent through steel arms to a lower in-situ ring beam, and finally to the abutments in an arrangement borrowed from ancient habits of military defence. As well as stabilizing the structure, the embankments help to insulate it. Massive concrete foundations resist the thrust of the arch into local chalk.

The glass facade is demountable so that aircraft can be taken in and out. Here too, the architects were able to rationalize the structural system. The wall is stabilized out-of-vertical by the roof but is otherwise self-supporting.

You approach the museum from the north-west. Passing a Renato Niemis glass sculpture commemorating the dead, you enter a tunnel in the earthworks, resembling the reinforced shelters in airfields. Entrance is dramatic, for at once you find yourself on a platform looking straight at the wicked nose of the B-52. Overhead, Gary Powers' U2 spy plane hovers like a black shark. To right and left a ramp following the edge of the roof curves down to the ground, the curve dynamically opposed to angled buttress-like walls

enclosing the rear of the main hall. Behind them, and buried in the abutments, are small exhibition rooms, services and the dehumidifying plant.

On the ground, you are free to wander around at will, to crawl under wheel arches and touch. An extraordinary slice of recent history is embodied here. For enthusiasts there is a logical progression around the 20 or so planes on display; but even the averagely imaginative visitor must be stirred by the human ingenuity, good or bad, that is present on all sides. Visions of destruction exert a horrid fascination. There is too a magical relationship between the defunct aircraft in the museum, and the airfield outside that is buzzing with resurrections and very much alive.

PENNY MCGUIRE

1 Boeing's B-29 Superfortress, for example, the long-range heavy bomber used for atomic raids on Japan and a gift from the Americans, arrived from dry storage in the Nevada desert. Once in Britain, dust and sand in the structure trapped moisture causing rampant internal corrosion. Unique in Europe, the B-29 has been restored, as have many other aircraft, by Duxford's experts and teams of enthusiastic volunteers.

2 Last year's exceptionally hot summer caused problems, for the structure is calculated to cope with a maximum of 29 degrees, and summer heat exceeded 33 degrees. Venting the structure would have negated the effects of dehumidifying plant.

Architect

Foster and Partners, London:
 Norman Foster, David Nelson,
 Robin Partington, Simon Reed,
 Mark Bramhall, Nic Bailey, Simon
 Beames, Caroline Brown, William
 Hunt, Richard Hyams, Armstrong
 Yakubu, Andrew Yeoh

Structural engineers

Ove Arup & Partners

Quantity surveyors

David Langdon & Everest

**Mechanical and electrical
 consultant**

Roger Preston and Partners

Humidity control

Munters

Aircraft suspension engineer

Aerospace Structural and
 Mechanical Engineering

Glass sculpture

Renato Niemis

Glass facade

Focchi

Roofing membrane

Sarnafil

Entrance doors

Marcus Summers Structural
 Glazing

5

Entrance through earthworks marked by Renato Niemis' memorial sculpture, consisting of 52 glass sheets etched with outlines of aircraft missing in action by Eighth and Ninth US Army Air Force and US Navy operations during the Second World War.

6

Entrance on to a mezzanine with ramp.



7
Curving ramp under light crescent in
dynamic opposition with buttressed
walls.



1
The west elevation of the Miho Museum appears as a loose agglomeration of geometric forms set in a densely wooded mountainside.

2
The approach to the museum is characterized by a sequence of concealment and unveiling. A spectacular post-tension bridge leads up to the main entrance.

3
The entrance terrace of granite steps recalls the approach to traditional Japanese temples.

4
The semi-formal garden at the end of the south wing.

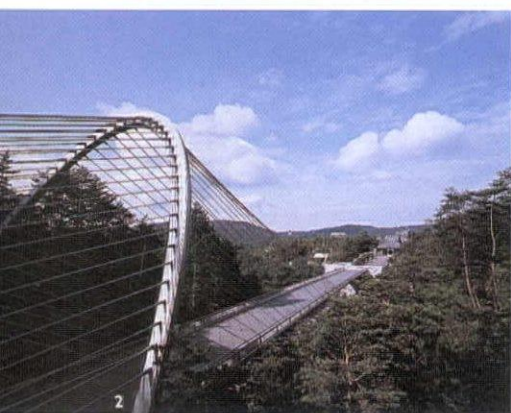
MUSEUM, SHIGARAKI, JAPAN

ARCHITECT

I. M. PEI

BURIED TREASURES

Poetically integrated within a mountainous landscape, I. M. Pei's new Miho Museum reinterprets traditional Japanese forms to create a modern armature for the display of precious artefacts.

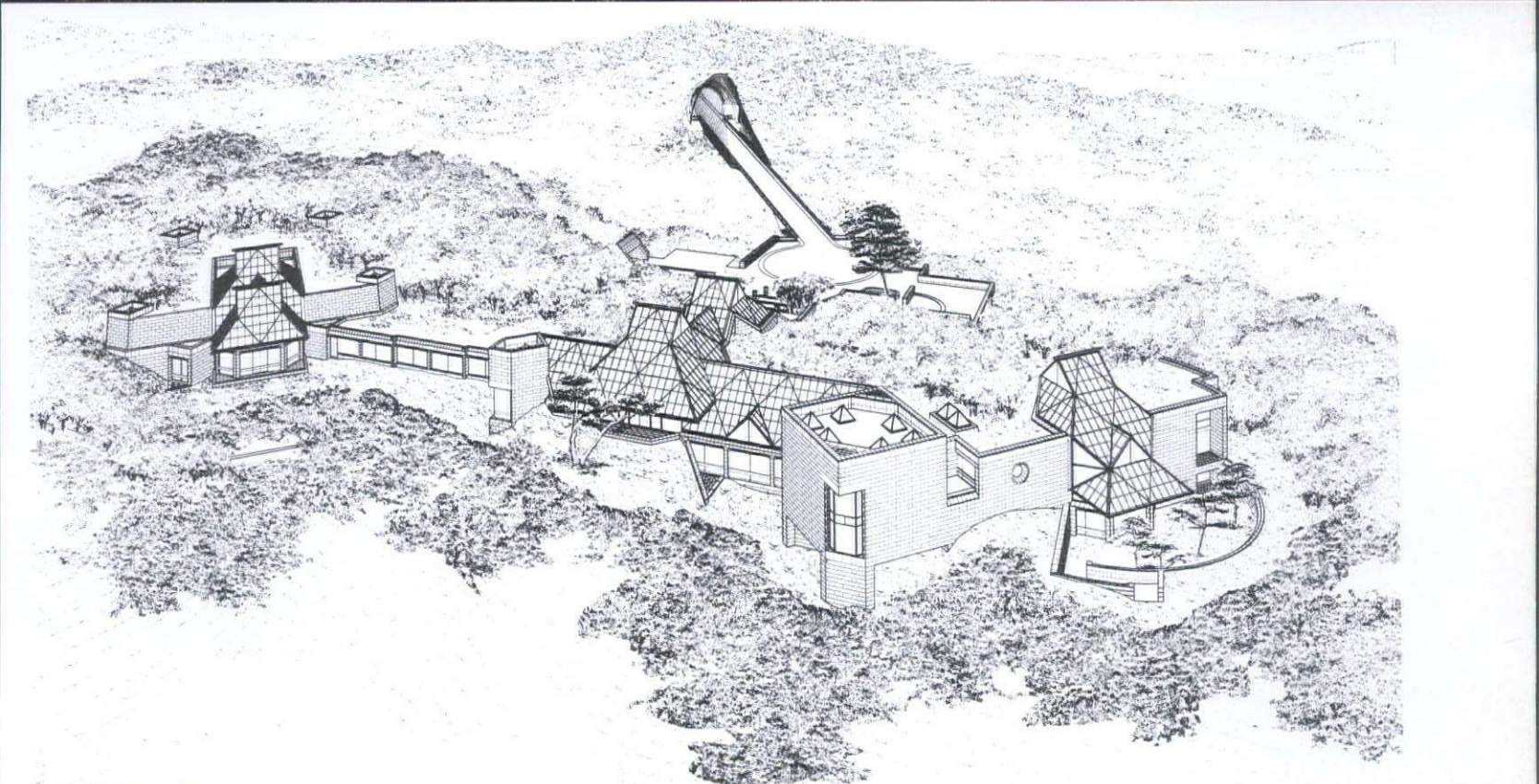


Set in a sublime landscape of densely wooded mountains outside Kyoto, the Miho Museum was designed to house the Shumei Family Collection of precious artefacts from ancient civilizations in the Middle and Far East. Established in 1948 by Mihoko Koyama, the diverse collection includes vessels, statuettes, bronzes, jewellery, textiles and an exceptional array of Japanese tea ceremony objects. Designed by I. M. Pei, the new museum is on a steep hillside in a nature reserve. Prefectural and national conservation requirements sought to limit disruption to the landscape, so over three-quarters of the 17 400 sq m building is buried underground. The relationship of the museum to its topography is also influenced by early Chinese and Japanese landscape painting, in which a complete narrative or image is never fully revealed, but glimpsed in fragmentary ways. In particular, Pei was inspired by the traditional Chinese tale 'Peach Blossom Spring' by Tao Yuan Ming in which a fisherman passes through a cave opening and discovers a remote and paradisaical lost valley.

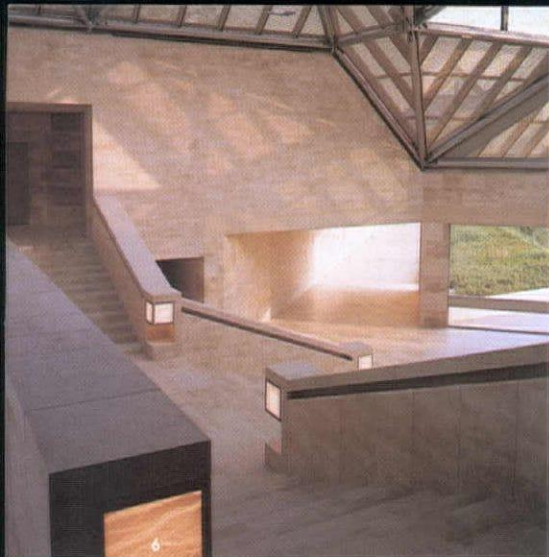
This sense of discovery is recreated by the approach to the museum, which is characterized by a carefully orchestrated sequence of concealment and unveiling. Visitors arrive at a reception pavilion set in a forest of cedars, a short distance from the museum. From here you either walk or take a small electric buggy through a gently curved tunnel, emerging from the bowels of the hillside on to a dramatic post-tension bridge cantilevering over a deep ravine. Framed by the network of splayed cables is the skyline of the museum beyond, a series of angular glass roofs and skylights rising ethereally above the luxuriant landscape. The configuration of the roof is, in fact, a dextrous elaboration on a simple geometric model. A trio of distinct glass roofs with reticulate triangular structures spring from massive boundary walls that rise and fall to follow the contours of the site. Each roof is oriented in a different direction in response to the topography. The roof form recalls the distinctive hipped profile of traditional



5
The roof volumes float ethereally in the stunning landscape. More than three-quarters of the building is buried underground.



aerial perspective



6
A luminous stairhall at the north end of the spine leads up to the Japanese galleries.

7
Part of the double-height volume of the tea room.

8
Detail of the steel space-frame roof and delicate sunscreens. The surfaces of the aluminium slats are digitized to look like wood.

9
The sliding 'Moon Gate' at the main entrance with views to the mountains beyond.



MUSEUM, SHIGARAKI, JAPAN

ARCHITECT

I. M. PEI

irimoya thatched roofs, still prevalent in the region, and the corbelled eaves are reminiscent of Japanese temple architecture.

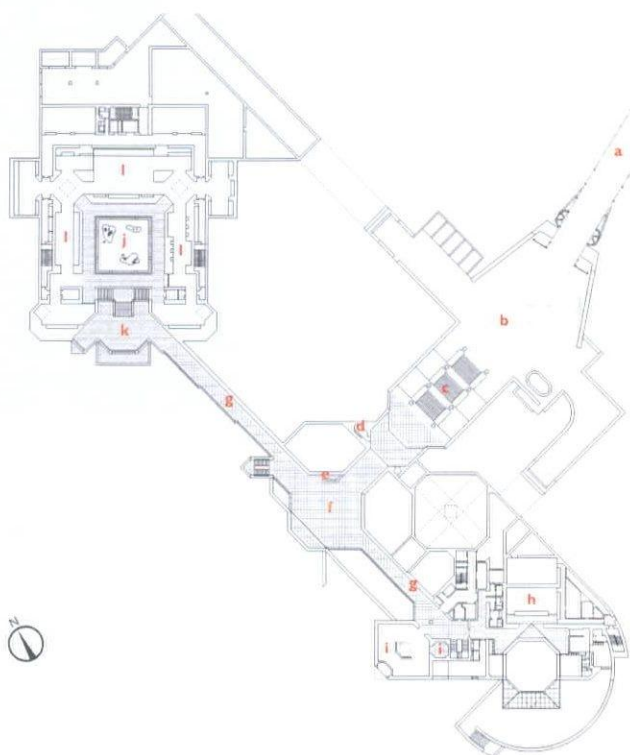
The bridge connects with a circular plaza at the foot of the museum complex. Terraced granite steps lead up from the plaza to the entrance hall, which extends laterally to form a glazed spine between two wings of galleries. Enclosed by an elegantly detailed steel space-frame, the spinal hall overlooks the undulating hills and valleys to the west. Light is filtered through finely slatted aluminium sunscreens and washes over walls of honey-coloured Magny Doré limestone. The surface of the aluminium slats is etched with digitized images to evoke the warm texture and grain of wood, and the rotated square profile of the screens reinterprets the vertical grilles found in traditional temples such as Horyuji in Nara.

Within the hall, the overwhelming impression is of boundaries dissolving between the natural and the man-made worlds. The long galleria-like space is filled with the presence of nature, like a huge scroll painting unrolled for contemplation. A group of ancient and weathered *akamatsu* pine trees frames the breathtaking view, in the tradition of *shakkei* or 'borrowed landscape', the Chinese and Japanese technique of creating a visual passage between an object in the foreground and one in the distance. Throughout the building, subtle framing devices contrive to make you constantly aware of the surrounding landscape, both in its raw and more formally manicured states. The latter is exemplified by the starkly abstract Japanese rock garden strategically placed in the square courtyard of the north wing.

Dug deep into the mountainside, the hermetic gallery volumes form a counterpoint to the visible, above ground spaces, as the museum slowly reveals itself in a sequence of transitions and shifting planes of light. At the north end of the horizontal glazed spine, a luminous stairhall leads to the Japanese galleries above. Cuboid alabaster lanterns, delicately veined like rice paper, are set into the monumental limestone stairs.

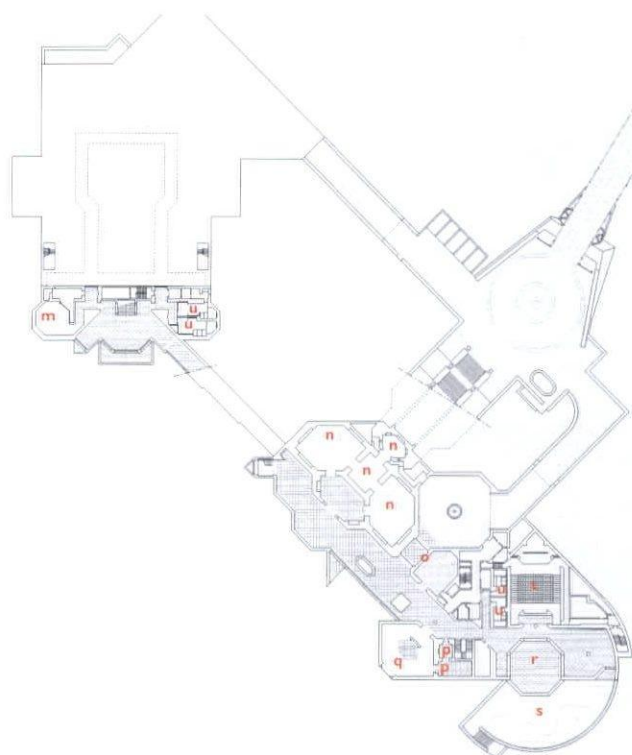


10
The glazed entrance hall and spine link
the two gallery wings.

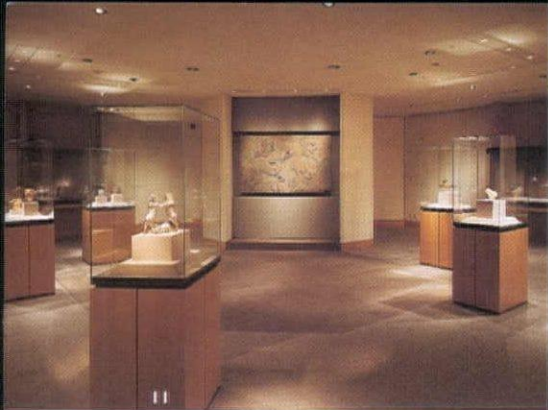


entrance level plan (scale approx 1:2500)

- a bridge
- b plaza
- c terrace
- d cloakroom
- e reception
- f entrance hall
- g spine
- h administration
- i Egyptian galleries
- j Japanese rock garden
- k stairhall
- l Japanese galleries
- m museum shop
- n Chinese and Persian galleries
- o South Asia gallery
- p Greek and Roman galleries
- q Near East gallery
- r tea room
- s garden
- t auditorium
- u wcs



lower ground level plan



11
The Near East gallery. A floor of local Shigaraki tile augments a rare Assyrian relief. The hermetic volumes of the galleries form a counterpoint to the luminous above-ground spaces.

12
The centrepiece of the Islamic gallery is an elaborately decorated carpet 6m high, dating from the sixteenth century.

13
The Gandhara Buddha in the South Asia gallery. The design of the interior aims to evoke the cave in which the statue was discovered.

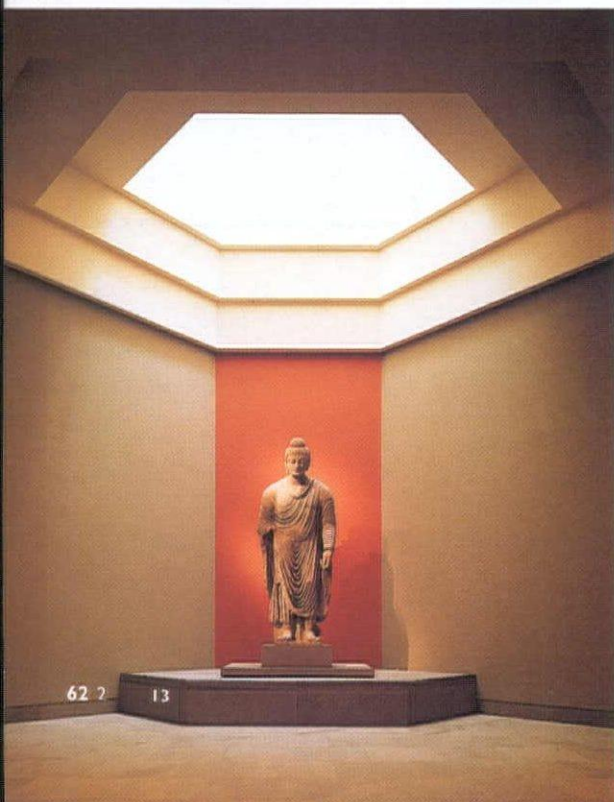
MUSEUM, SHIGARAKI, JAPAN

ARCHITECT

I. M. PEI



12



Architect

I. M. Pei, New York

Project team

I. M. Pei, Tim Culbert, Perry Chin, Chris Rand, Carol Averill, Price Harrison, Celia Imrey, Hubert Poole

Associate architect

Kibowkan International

Structural engineers

Leslie E. Robertson Associates; Aoki Structural Engineers; Nakata & Associates; Whole Force Studio

Mechanical and electrical engineer

P. T. Morimura

Lighting consultant

Fisher Marantz Renfro Stone

Skylight curtain wall and sunshading

YKK

Vertical glass wall sash

Tajima

Space frame

Sumitomo

Exhibit showcases

GlasBau Hahn

Photographs

Timothy Hursley

Arranged around the rock garden courtyard, the north wing houses the museum's collection of Japanese art, with conservation laboratories and art storage facilities on the floors below. The south wing is devoted to the art of the Silk Route, focusing on the emergence and expansion of the great Middle and Far Eastern civilizations. At the south end of the spine are the Egyptian galleries with Near Eastern, Chinese, Islamic and Asian exhibition areas below. The south wing also contains a handsome auditorium, a double-height tea room with towering bamboo plants and various offices and meeting rooms for the museum's administration. At the lowest level, curatorial offices open on to a recessed garden, enclosed by a curved wall and planted with shrubs, pines and Japanese maples.

Each gallery wing comprises 1000 sq m of exhibition space and it is envisaged that the museum's collection of around 1000 objects will be displayed on a rotating basis. Certain galleries are also individually designed for specific works of art, such as the South Asia gallery, which contains a rare Gandhara Buddha dating from the second century. The design of the interior is intended to evoke the cave in northern India where the sculpture was originally discovered. The Islamic gallery, the tallest volume in the museum, was specially designed to accommodate an elaborately decorated sixteenth-century carpet, more than 6m high.

The Miho Museum marks a departure from I. M. Pei's usual design process of progressively elaborating on a controlling geometric strategy. Here, the rigorous constraints of the site have resulted in a looser, more flexible plan in which interconnected underground spaces spin off from a main spinal core. As project architect Tim Culbert notes, the notion of an 'improvised lyric' (used by Bruno Taut to describe the Katsura Imperial Villa in Kyoto) is perhaps a more accurate reflection of Pei's approach at Shigaraki, in which museum and landscape are fluidly and poetically integrated in a remarkable, unified whole.

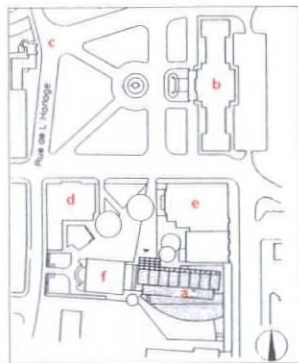
CATHERINE SLESSOR

MÉDIATHEQUE, EVREUX, FRANCE

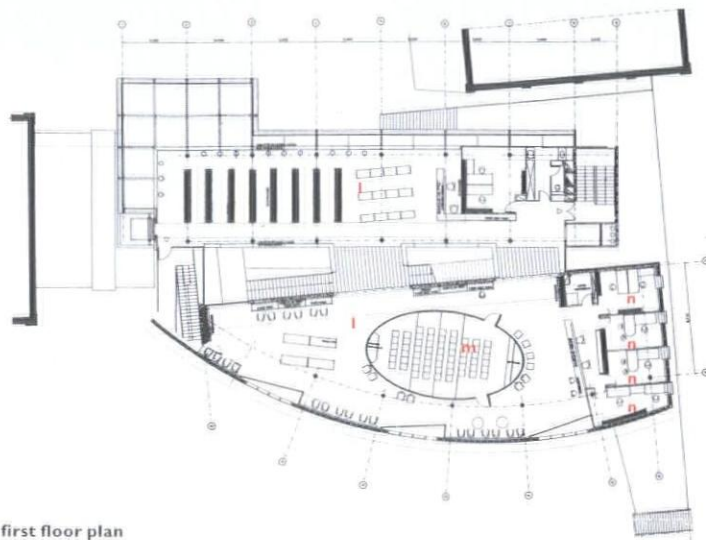
ARCHITECT

CHEMETOV & HUIDOBRO

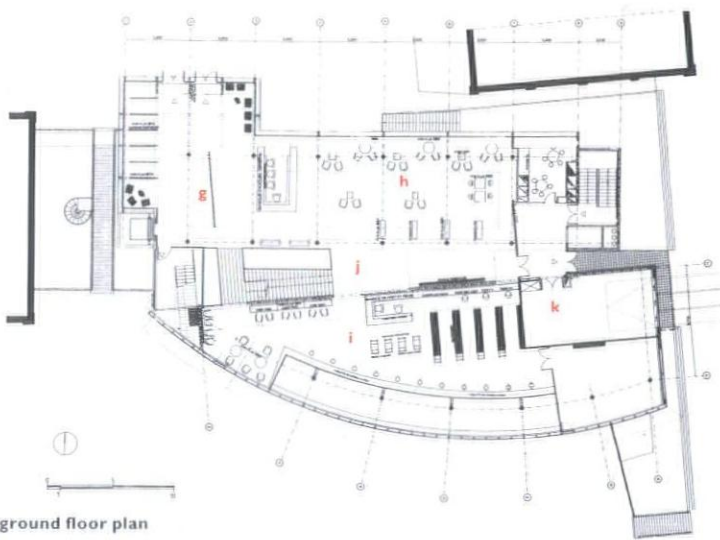
- | | |
|--------------------|---------------------------|
| a médiathèque | h current affairs library |
| b town hall | i children's library |
| c belfry | j atrium |
| d maison des arts | k garage |
| e theatre | l adult library |
| f existing library | m auditorium |
| g entrance hall | n offices |



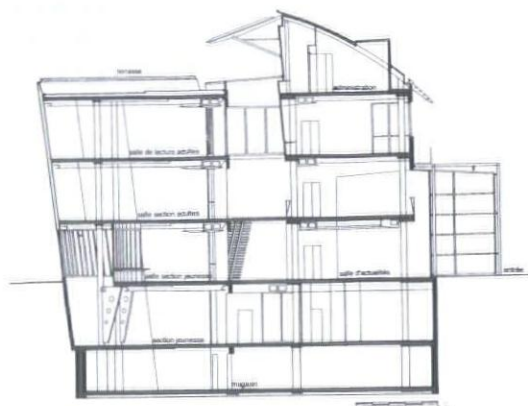
location plan



first floor plan



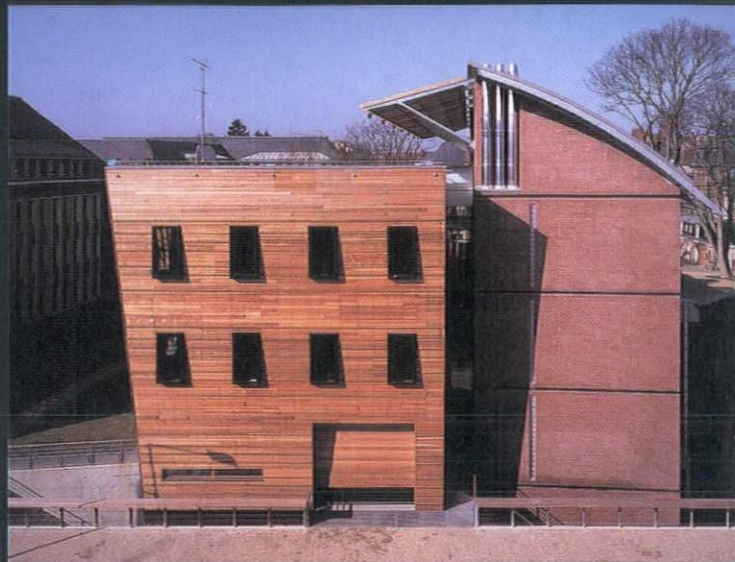
ground floor plan



cross section



3



4

Architect

Chemetov & Huidobro, Paris

Project team

Paul Chemetov and Borja Huidobro

Director of works

Laurent Boudrillet

Structural engineer

B'Prim Conseil

Electrical engineer

Bielec

Quantity surveyor

P. Chauvière

Photographs

Luc Boegly/Archipress



5

3 North elevation. The orthogonal brick volume is topped by a sweeping zinc mansard.

4 East elevation. The bipartite nature of the building is clearly apparent.

5 Detail of the crisp steel and glass entrance portico. The overhead walkway connects with the existing library.

6 The luminous volume of the current affairs library.

7 The children's library, housed in the curved timber hull.

8 The wedge-shaped atrium, with its ceremonial staircase.

9 Part of the adult reading rooms.

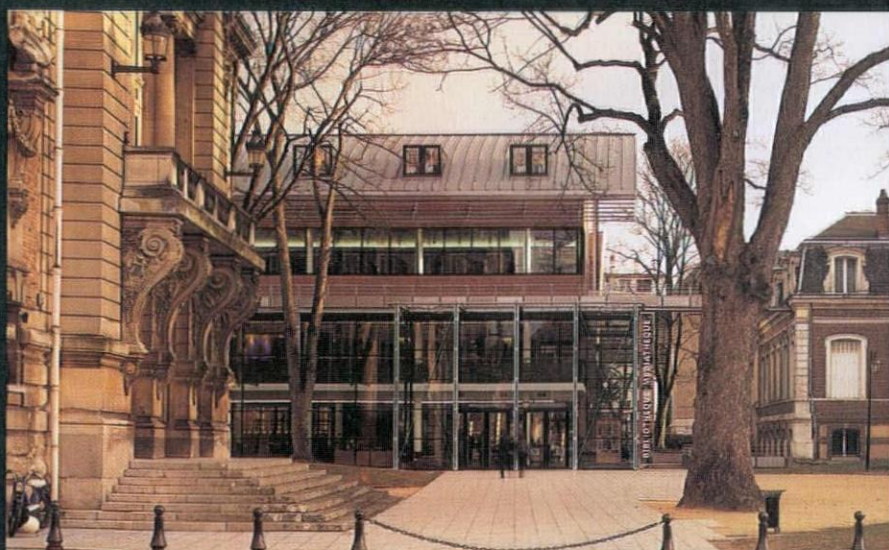
SHIP OF CULTURE

MEDIATHEQUE, EVREUX, FRANCE

ARCHITECT

CHEMETOV & HUIDOBRO

Located in the heart of Evreux, this new médiathèque makes an invigorating contribution to both the civic and cultural landscape.



Through its long-standing programme of médiathèque-building in town and city centres, the French government has made strenuous efforts to bring culture to its citizens. The médiathèque itself is a nebulous yet essentially contemporary typology, that may variously encompass such elements as a library, theatre, cinema, bookshop and gallery. Foster and Partners' médiathèque at Nîmes (AR July 1993) is perhaps one of the more conspicuous examples of the genre; yet there are numerous smaller médiathèques in provincial towns and cities which succeed in making modestly invigorating contributions to both the civic and cultural landscape.

Chemetov & Huidobro's médiathèque for the western Normandy town of Evreux is one such example. Located in the historic heart of the town, the new building takes its place among a cluster of civic monuments that includes the town hall, theatre, municipal archives and library. These are arranged around the east and south sides of a Beaux Arts square. The west side is dominated by an imposing fifteenth-century belfry and the remaining north side is given over to an unremarkable array of post-war additions.

As Foster's building exploited the creative tension between a new intervention and the existing historic fabric, so Chemetov & Huidobro's médiathèque registers as a bold modern presence in the heart of Evreux. The building occupies a site flanked by the theatre to the north and the library to the

1 The sensuous curved hull of the new building forms a contemporary foil to Evreux's existing library, left.

2 Contextual yet of its time, the médiathèque is a bold modern presence in the heart of the town.



6



7



8



9

west. It appears separate from the library, but the two buildings are connected at lower ground level. Housing library facilities for adults and children together, with a small auditorium, the médiathèque consists of two parts: a red brick and glass orthogonal slab, topped by an oversailing zinc roof and a seductively curved volume, like the hull of a ship or beached ark, clad in broad strips of red cedar. The smooth cedar plane of the hull is systematically fractured in places, revealing the timber structure and layers of glazing behind. At ground level, the cladding is pared back completely to channel natural light into the lower ground floor. The two main volumes are linked by a tapering, wedge-shaped atrium, containing a triumphal staircase.

Facing into a courtyard, the orthogonal brick and glass volume forms the principal public elevation. A crisply detailed steel and glass entrance portico at the north-west corner leads into a luminous salon devoted to current affairs, with the usual newspapers, audio and video facilities. This is the accessible, informal, public hub of the building. Beyond lies the wedge of the circulation atrium which links through to children's library housed in the hull-like volume.

A section of the ground floor is peeled back to bring daylight into the lower level of the children's library on the floor below. On the first floor is the main adult library, and a free-standing elliptical auditorium; above this are reading rooms and attic-like offices, slotted under the sweep of the zinc mansard. The flat roof of the hull forms an agreeable, south-facing terrace.

As an expression of state-sponsored culture, Chemetov & Huidobro's médiathèque is a notable addition to the life of Evreux's citizens. The skilful interplay of space, light and materials has produced a building that is dignified, yet accessible; contextual, yet clearly of its time.

MAISON DES ARTS, MICHEL DE MONTAIGNE UNIVERSITY, BORDEAUX, FRANCE

ARCHITECT

MASSIMILIANO FUKSAS

MONTAIGNE ESSAY

The Maison des Arts sets a tone against a dreary campus and gives promise that there may be a more imaginative future.



1
The green prism crouching among neo-Corbusian mediocrity.

2
West elevation; the horizontal slit runs right round the whole building, sometimes blind, sometimes as clerestory.

3
On the top floor, folding shutters signal life in the music school.

4

The radio station sits ungainly over the south end.

5

The big exhibition space from the main entrance hall.

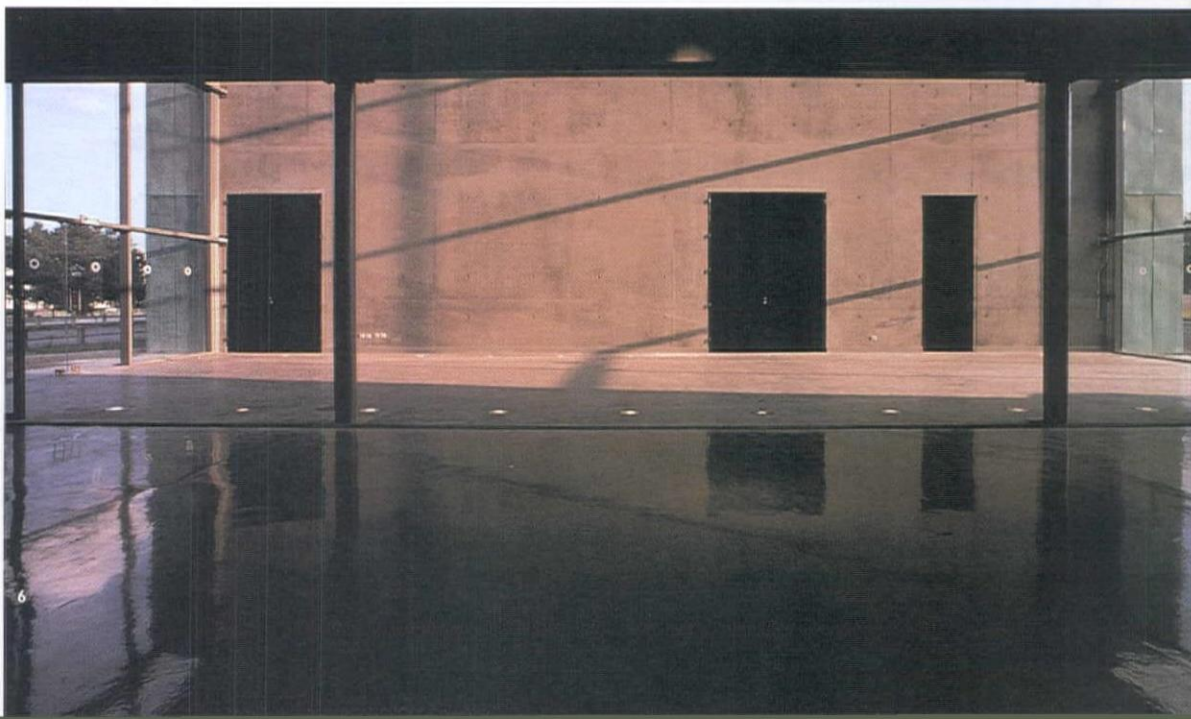
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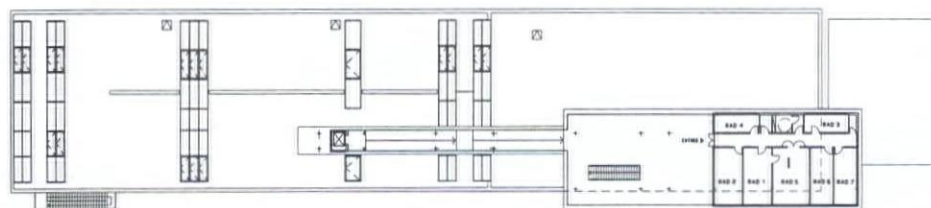
Looking the other way across the main hall from the exhibition space to the theatre entrances.

Massimiliano Fuksas is nothing if not a Latin architect: specifically a Latin who works mostly in France, the country in which the 300 year old tradition of The Big Architectural Gesture remains extremely important. Think for instance of his wave-like Bastille gymnasium in Paris (AR August 1994) or the memorable totemic beast he made to signal the entrance to the prehistoric cave at Niaux (August 1995). But, unlike many French architects, Fuksas, who is Italian and sat at the feet of de Chirico as a young man, is concerned with the tectonic: the Parisian swooping roof, for instance, is covered in ribbed zinc which will weather to silver, white and grey; the cave-monster is appropriately made of dark brown rusted steel, where the pelt-like oxidation of the metal trickles like old blood into the rocks at its base.

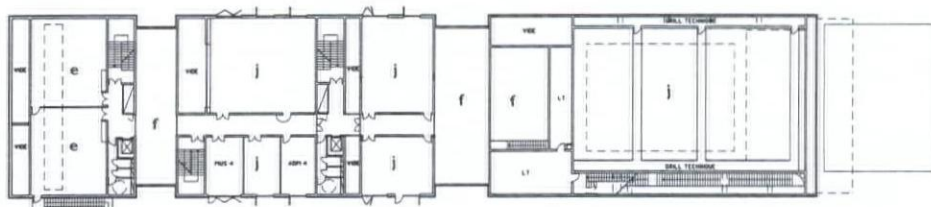
Fuksas's Maison des Arts at the Michel de Montaigne university at Bordeaux continues his fascination with the big gesture and the expressive qualities of metal. The supremely elegant and witty Montaigne would not be very happy with the university which has been named after him. It is much made up of stolid sub-Corbusian precast concrete slab blocks set rigid in militaristic ranks: as dull a campus as can be found anywhere in the Western academic world which during the 1960s and '70s went berserk building huge quantities of university accommodation with little regard to quality, or even longevity.

Fuksas's new building shares the same plan discipline as the surrounding concrete ones: it rigidly follows the grid and is rigorously oblong. Yet it is quite a different affair. A huge green parallelepiped initially appears to

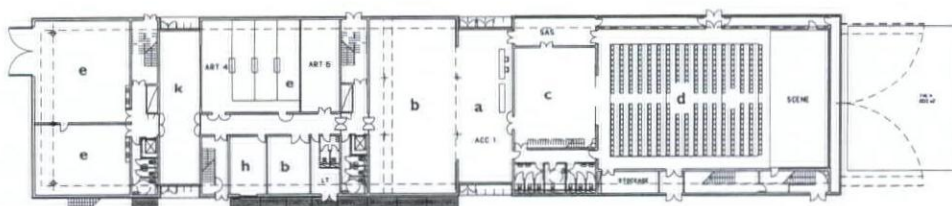




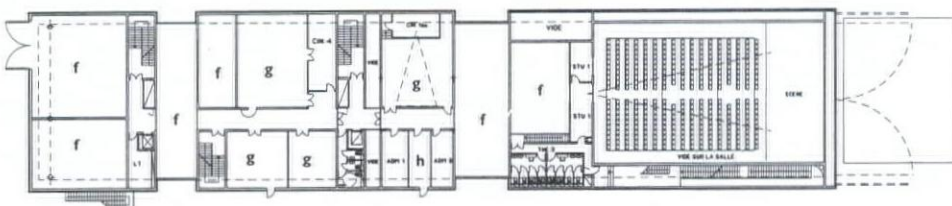
third floor



second floor

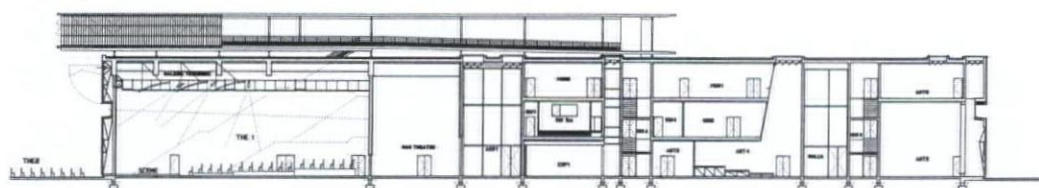


first floor

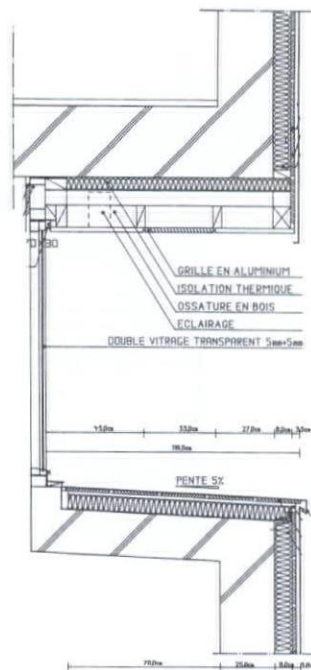


ground floor (scale approx 1:830)

- | | | | |
|---|---------------|---|----------------|
| a | hall | g | cinema |
| b | exhibition | h | office |
| c | small theatre | j | music |
| d | large theatre | k | secondary hall |
| e | art studio | l | radio |
| f | void | | |



long section



detail of clerestory

be almost inviolate, except for a deep horizontal slot which runs round the whole box, about two-thirds of the way up. A couple of vertical incisions in the tight green pre-oxidised copper skin signal entrance.

The glass slashes are the ends of full-height slots that run right across the building. Using these as the major public volumes, Fukas weaves off a surprising variety of spaces. The largest is the theatre (or rather the *salle de spectacle*), a black box which occupies the whole south end of the rectangle and can accommodate an audience of 350 in different configurations. A smaller black box is between the entrance and the main volume; it can be thrown together with the main space when occasion demands.

Across the wide hall with its flat plain in-situ concrete walls and glass ends is the major exhibition gallery. Here, a slot through the whole building brings daylight down to the back of the room – and puts the space at least vestigially in touch with the other levels of the building, from the bridges of which you can look down into the gallery. The rest of the ground floor is occupied with fine art studios and it includes

7

8



MAISON DES ARTS, MICHEL DE MONTAIGNE UNIVERSITY, BORDEAUX, FRANCE

ARCHITECT

MASSIMILIANO FUKSAS

the two big, calm double-height spaces at the north end, which are lit by the clerestory of the horizontal slot.

The first floor is for the departments of cinema and audio-visual studies and the second is for music (apart from the north end which has two top-lit art studios). The music rooms have the delightful (from the outside) device of shutters which are clad in the same green copper as the rest of the building. They sit flush with the facade and fold open and back as necessary when the rooms are occupied and used in different ways: the mute box suddenly speaks of humanity.

On top of the whole thing is another box, this time clad in vertical wood boards. It houses the campus radio station, perched apparently precariously over the south and west edges, and as Fuchsas says, '*installé symboliquement sur le toit comme une antenne tournée vers le monde*'. Symbolic it may be, but seen against the purity of the green prism it seems merely clumsy and wilfully rustic.

But this is a sad move in an otherwise elegant building. Its finesse should have an influence on all new buildings on the campus – though we must hope that they do not emulate its Chiricoesque, hermetic qualities. Inward turning is perhaps reasonable in a school of arts, but quite wrong in most other university departments.

ANN ROSE

Architect

Massimiliano Fuchsas, architecte, Rome
Patrizia Anania, Mirela Constantin

Structural engineer

Paolo Bruschi

Quantity surveyor

SITAC

Photographs

All photographs by Antonio Martinelli apart from 9 and 11 which are by Philippe Ruault

7 Main entrance cuts right through building.

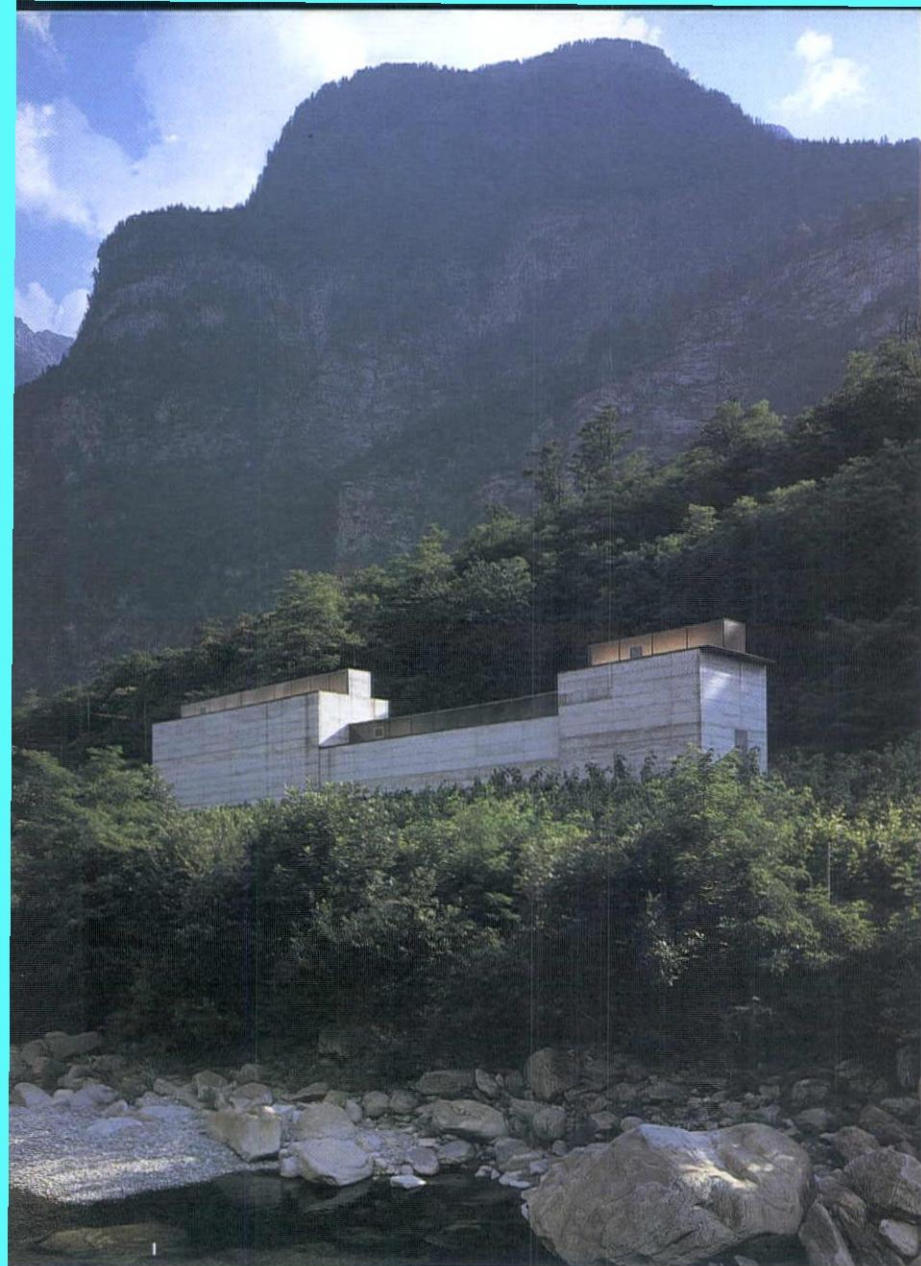
8 Slot at back of main exhibition space brings daylight to heart of building.

9 Radio station on top of prism is permeable to elements.

10 Colourful lavatories.

11 One of main studios on west side showing how light both comes from above and from the great slot clerestory.





SCULPTURE MUSEUM, GIORNICO, SWITZERLAND

ARCHITECT

PETER MÄRKLI

RAW INTENSITY

Perched on an Alpine hillside, this small sculpture museum takes the form of an elemental concrete pavilion.

Located in a spectacular Alpine valley just outside the town of Giornico, this starkly elemental concrete pavilion houses the work of sculptor Hans Josephson, a German Jewish refugee who has lived in Zurich since 1939. The minimal building is a modern reinterpretation of the European monographic museum, a typology that has its roots in the nineteenth century; Canova's *gipsoteca* at Possagno was one of the first museums specifically dedicated to the work of one artist. Recent contemporary examples include Renzo Piano's Brancusi studio in Paris (AR September 1997) and an exquisitely minimal new museum extension for work of Swiss Expressionist painter Ernst Ludwig Kirchner by Gigon and Guyer (p75).

Set in breathtaking landscape of mountains, crags and forests, Peter Märkli's structure is basic in the extreme; a truly primitive hut fashioned from planes of raw concrete. The bunker-like building squats in the landscape, an impassively solid, geological presence. The linear volume continues the geometry of adjacent vineyards, yet the monolithic walls give no clue as to the building's function or contents.

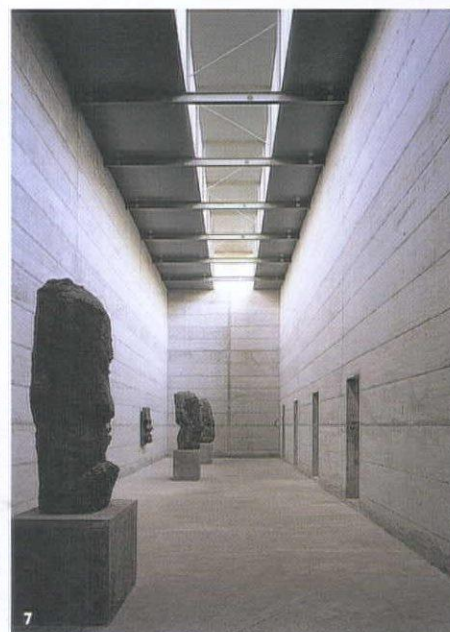




5



6



7

- 1 The bunker-like sculpture museum in its stunning Alpine setting.
- 2 The monolithic walls give no clues to the building's function or contents.
- 3 The minimal entrance.
- 4 The building's starkly orthogonal geometry continues the rhythm of adjoining vineyards.

- 5 The interior is divided into an enfilade of three long gallery spaces.
- 6 The bare surroundings act as a *tabula rasa* for Hans Josephson's powerful bronze sculptures.
- 7 Light diffuses through translucent clerestories that run the length of the roof. On the left are the entrances to the quartet of ante-rooms.

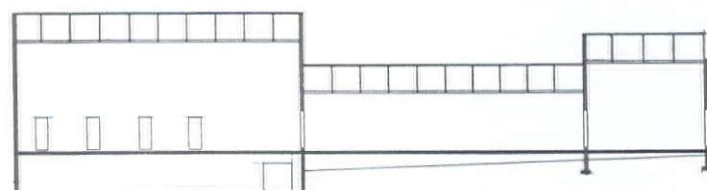
No path leads to the entrance and there is no electricity, water, security or climate control. Visitors simply turn up and request the key to the museum from a local café.

Light penetrates through an enfilade of three long gallery spaces from translucent clerestories. These form a lantern running the length of the roof. A quartet of alcove-like rooms adjoins the third gallery. With its hermetic concrete walls, exposed steel roof structure and gently diffused light, the austere, proto-industrial interior makes a cogent foil for Josephson's brooding bronzes. The narrow volumes are well suited to the mixture of bas-reliefs and free-standing pieces; powerful, existential representations of the human form. The museum was commissioned by the Congiunta Foundation (a non-profitmaking group of art enthusiasts), which provided funds to purchase the land and construct and maintain the building. Imbued with an almost spiritual intensity, Märkli's bald, unadulterated form is a searing antidote to the fussiness and commercialisation of the modern art world.

CLAUDIA KUGEL



ground floor plan (scale 1:500)



longitudinal section

Architect
Peter Märkli, Zurich,
with S. Bellwalder
Photographer
Friedrich Busam

TADAO TOMORROW

In his first major project for the USA, Ando faces the daunting task of having to build a big museum across the street from Kahn's jewel-like Kimbell.



site plan

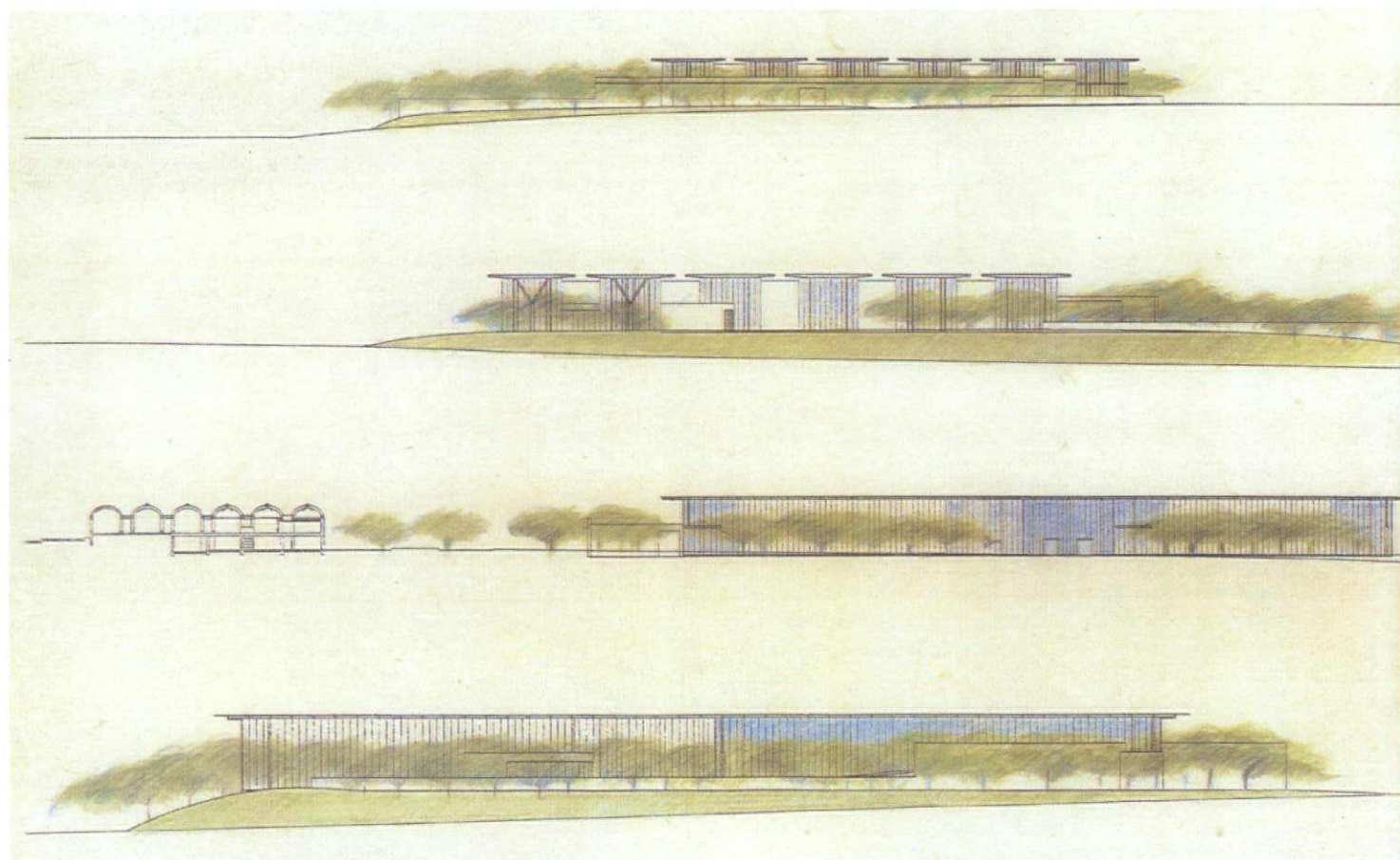
It must be exceedingly difficult to build next to an acknowledged masterpiece – even more so when the building you are making is of the same type. Tadao Ando faced this problem when he won the limited competition* for the modern art museum at Fort Worth in Texas which is just across the road from Kahn's Kimbell, one of the really great galleries of the twentieth century. They are both in the academic quarter, a leafy common, calm and completely detached from the mess of Fort Worth. Like Kahn, Ando will have a reflecting pool, but his is intended to be irregular and merge into the lawns and copses of the apparently natural landscape.

Ando's building has something of the grain of Kahn's masterwork. It too is to be arranged as a series of long thin parallel galleries and its height is roughly the same. But Ando's building is undeniably very much bigger, both in bulk and scale. It

consists of a series of concrete boxes within glass ones, an apparently curious parti which in fact allows a large number of different kinds of space, ranging from the totally enclosed and protected inner boxes to the glazed areas which overlook the landscape. The entrance is one of the latter spaces and separates the galleries from the auditorium and eating areas, while offering a magnificent view of the new lake and groves.

Much yet needs to be resolved, particularly the lighting, on which this new museum will be judged against the Kimbell; there, the beautiful diffused daylight was an inspiration to a generation of museum architects. Now, 30 years later, curatorial demands have become much more exigent. Within this demanding climate, Ando has the daunting task of making spaces as memorable as Kahn's. W. G.

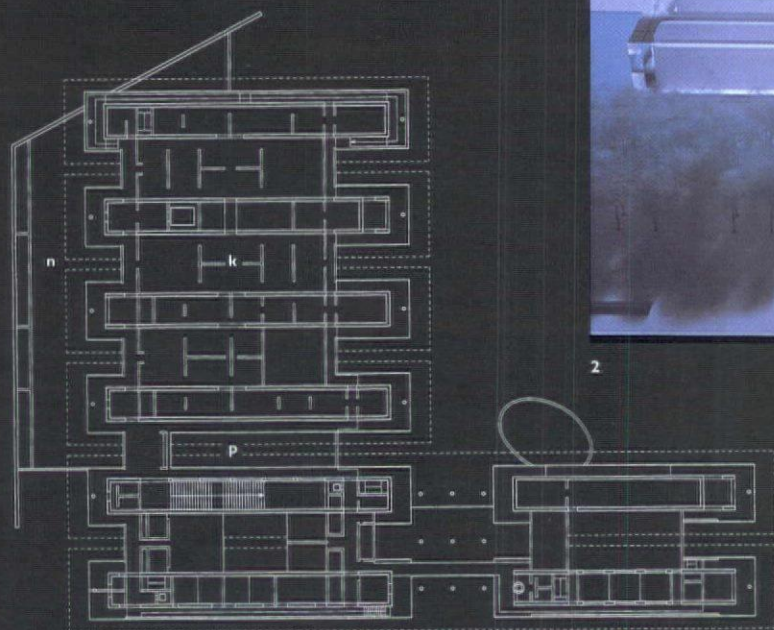
* Other entrants included Isozaki and Legorreta



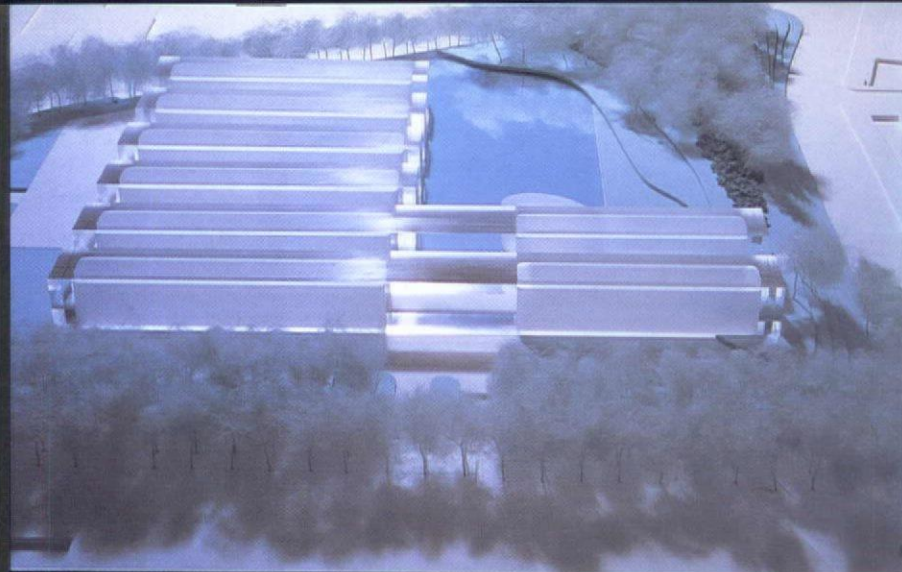
ART MUSEUM, FORT WORTH, TEXAS, USA

ARCHITECT

TADAO ANDO



upper level



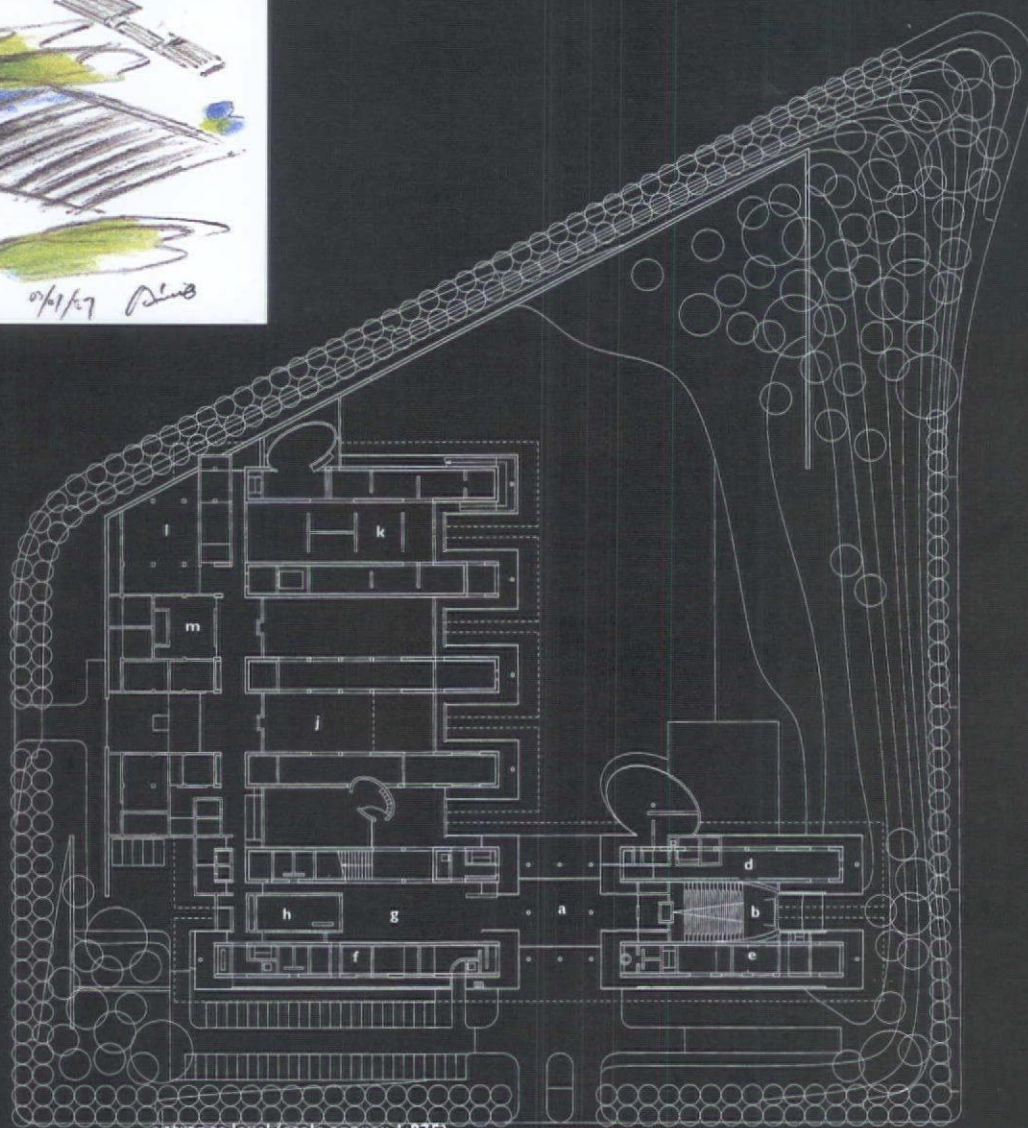
2

1 Ando sketch showing relationship to Kimbell (top right).

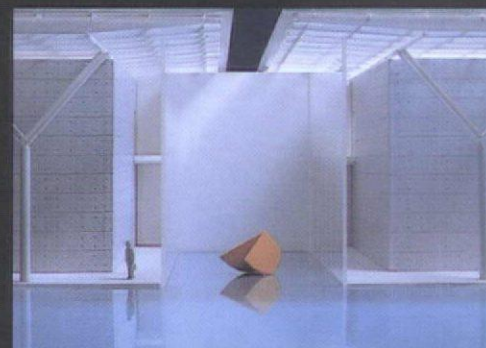
2 From south, with entrance hall between galleries (left) and auditorium with education centre (right).

3 Galleries are concrete boxes within glass ones; gallery structures terminate in heraldic Y-shaped columns.

- a entrance
- b auditorium
- c café
- d restaurant
- e education centre
- f offices
- g lobby
- h shop
- j special exhibition
- k permanent collection
- l store
- m workshop
- n sculpture garden
- o administration
- p court



entrance level (scale approx 1:875)



3

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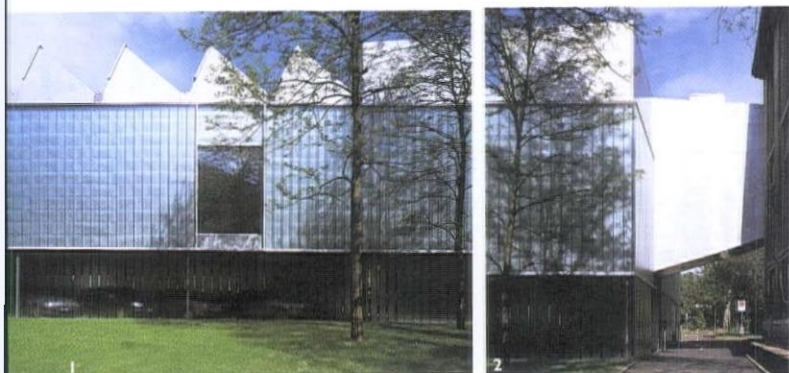
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ART MUSEUM EXTENSION, WINTERTHUR, SWITZERLAND

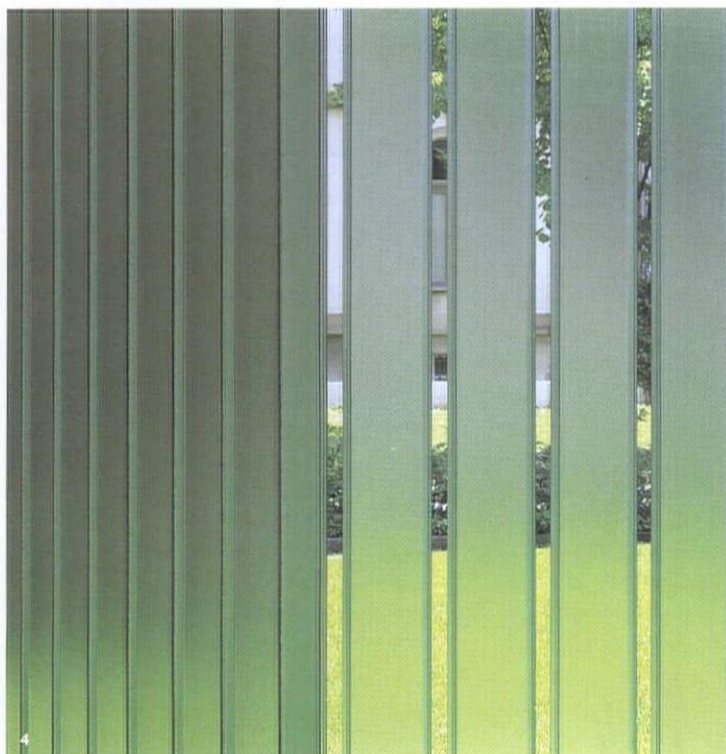
ARCHITECT

ANNETTE GIGON AND MIKE GUYER



Art of glass

A shed structure provided the model for an art museum in a Swiss city with an industrial history. The architects' poetic rigour supplied lyricism.



1 Building floats into park, encased at first floor level with glass skin and screened below with glass skirt.

2 A trapezoidal bridge forms a hinge at first floor level to the main building.

3 Galleries are flooded with light from north-facing skylights; and open in places to tops of trees outside.

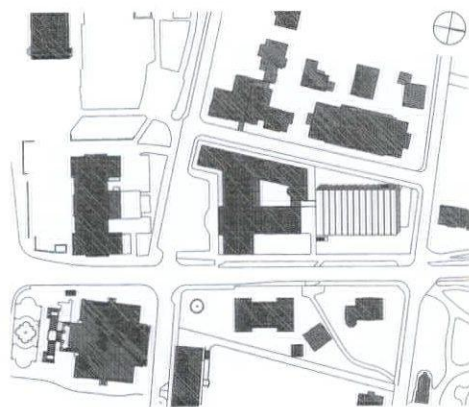
4 Detail: green glass skirt round parking bays.

The industrial city of Winterthur, north of Zurich, has a history of manufacturing textiles and machinery, some fine medieval architecture and good civic buildings. Of these last, the Neo-Classical museum by Rittmeyer and Furrer, completed in 1916, possesses one of the most important art collections in the country, including French nineteenth-century paintings and early Modern American works. Built up gradually over the 80 or so years of the museum's existence, the collection grew to the point where it became plain that more space was required urgently, particularly as the building was partly taken up by the city library and a small natural science museum. Under pressure from the local Society of Arts, the city authorities agreed to the provision of a temporary extension, commissioning Annette Gigon and Mike Guyer, architects of the Kirchner Museum in Davos, to design it.

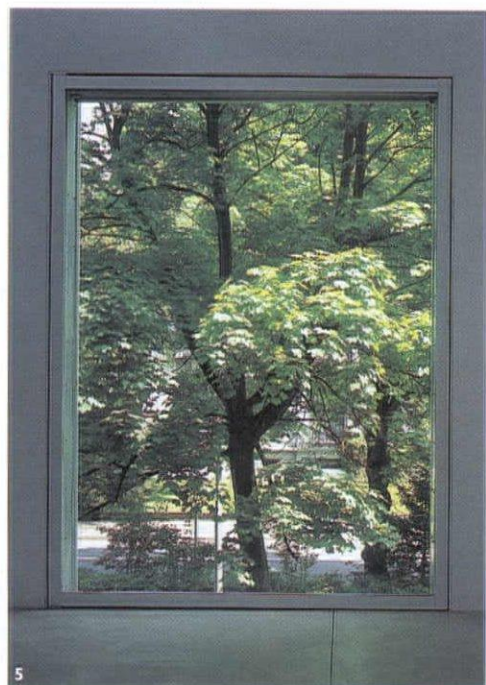
These architects are masters of the evanescent. The Davos museum (dedicated to the works

of Ernst Ludwig Kirchner) is clad in different kinds of glass and sits quietly among mountains, the milky glass skin refracting and diffusing the alpine light. Galleries within, designed with the utmost austerity, promote calm contemplation of the works. The approach has been adapted to the exigencies of the Winterthur brief which provided a limited budget and asked for at least 1000 square metres of floor space.

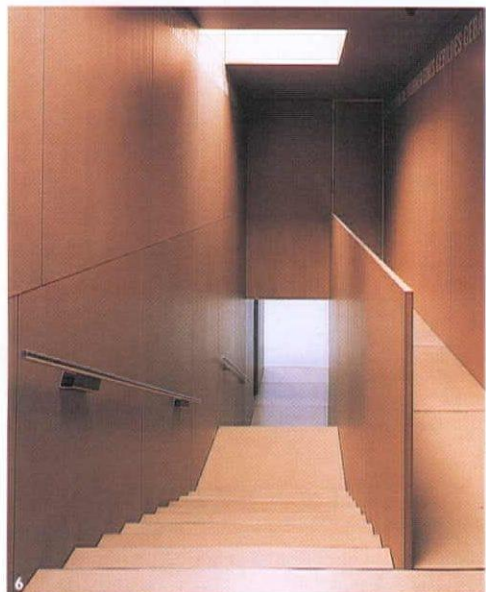
Gigon & Guyer's lithe extension floats off into the Liebewiese (Park of Love) behind its substantial host, its corporeality masked by a shimmering veil of bluish-greenish glass. The building is essentially an industrial shed on stilts, rectangular in form and with a saw-tooth roof. What could, in an area of villas and parks, have been a harsh proximity to its Neo-Classical neighbour has been rendered poetic by the skin of profiled glass which breaks up into vertical strips, providing a kind of glass skirt around ground floor parking.



site plan



5



6

5 Plainly detailed window rising from floor level frames trees.

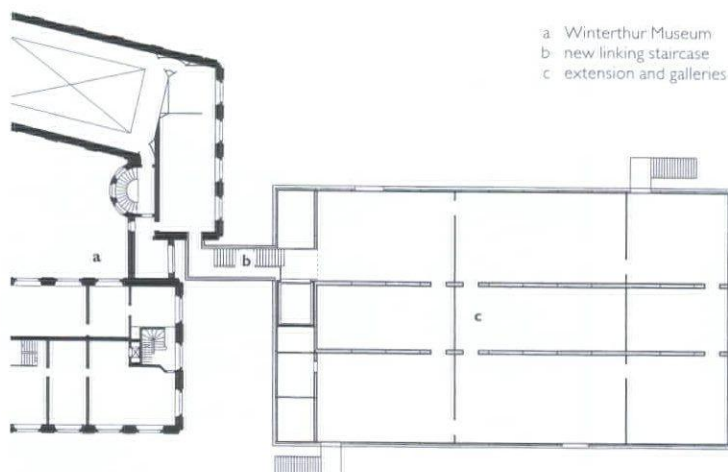
6 Stairway linking the extension to the main building is austere panelled in wood and skylit.

7 Light washes across plain white walls.

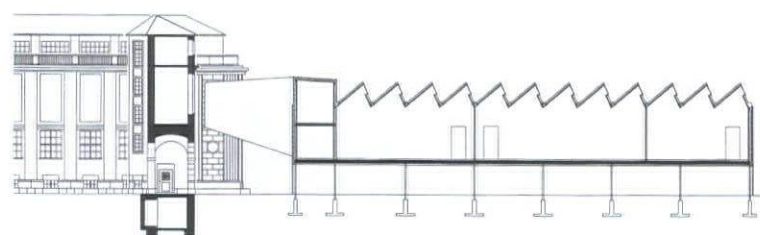
ART MUSEUM EXTENSION, WINTERTHUR, SWITZERLAND

ARCHITECT

ANNETTE GIGON AND MIKE GUYER



first floor plan (scale 1:650)



south-north section

A trapezoidal hinge, clad in silvery grey metal and reminiscent of industrial flues, links the first floor galleries to the first floor of the main museum. This contains a staircase lined with plain wooden panels, and not the ramp that external appearances suggest. Similarly surprising is the spatial variety achieved by the architects within the straitjacket of the orthogonal plan. There are nine galleries, given five different sizes and proportions, and different degrees of seclusion. Doorways are offset so that the visitor is gently encouraged to meander, and variety is quietly experienced rather than perceived consciously.

All the galleries are illuminated by the cool light which pours in through the rows of north lights overhead and washes over large expanses of plain white wall. Three large windows, one in each side, are set at floor level framing the tops of trees outside and creating lyrical intrusions into calm white spaces.

It will be surprising if this building does not become more permanent than its progenitors envisaged. It was put up in record time, with little money; the structure is basic prefabricated steel frame, and finishes are similarly basic: plain plastered walls and polished concrete. All of this is in striking contrast to the opulent museums and art galleries presently making their appearance all over the world. Yet the architects have achieved timelessness in the spaces they have made here, and their sensitivity to the works on display, to the requirements of curators and visitors' pleasure, is impressive. You are reminded once again that simplicity, poetry and efficiency are produced by real appreciation of complex things.

PENNY MCGUIRE

Architect

Gigon & Guyer: Annette Gigon, Mike Guyer, Michael Widrig, Dieter Bachmann, Stefan Gasser

Photographs

Luc Boegly/Archipress



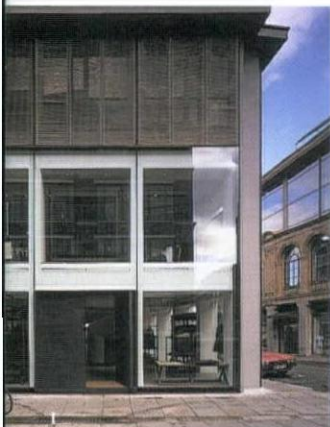
SHOP, SOUTH KENSINGTON, LONDON

ARCHITECT

DAVID CHIPPERFIELD ARCHITECTS

A new clothes shop for men in London's Sloane Avenue provides an austere setting for soberly tailored clothes and contributes to the local chic.

Space craft

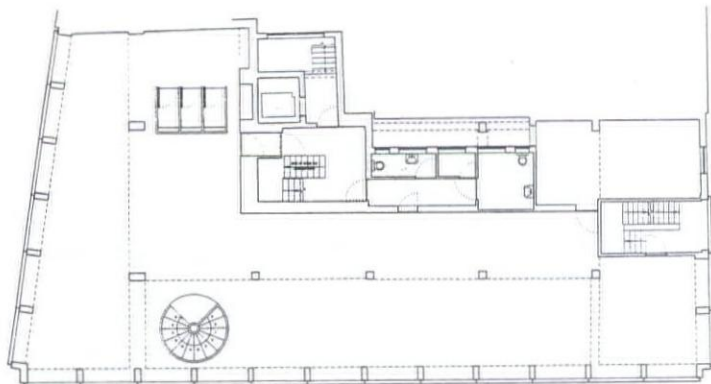


The new Joseph store for men on Sloane Avenue, adds to the huddle of chic that has grown up around Brompton Cross in South Kensington. During the course of his lengthy career as an arbiter of fashion, Joseph Ettedgui has turned to elegantly inclined architects for a series of shops, notably Norman Foster, Eva Jiricna and David Chipperfield. In the early '80s Chipperfield was responsible for one of the most refined pieces of interior design, the Issey Miyake shop on Sloane Street, now sadly defunct; and his practice was invited to design this latest store.

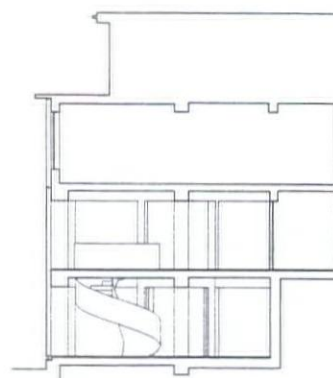
The shop has been inserted into the ground and first floors of a '60s office block. Ettedgui had already turned the third floor into his offices but in the interests of architectural harmony, Chipperfields have treated the exterior of all three floors as a unity, wrapping a stainless-steel mesh screen around two sides of the building above elegant new glazing.

The interiors of both floors were stripped out, leaving a long irregular space on the ground floor, and a roughly L-shaped one on the first. By this time Ettedgui must be an experienced client with keen knowledge of shop planning. This shop is clearly laid out along a central spine and easy for the staff to survey. As it is Ettedgui's first store for men it is tempting to read austere masculinity into the design, while knowing it would probably not have been different had it been otherwise.

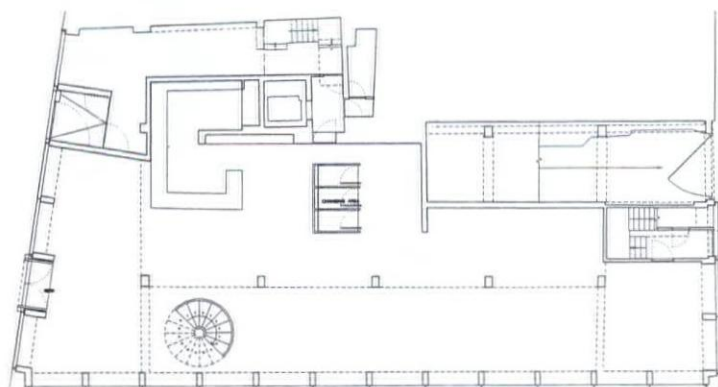
Both levels were floored in sumptuous Petra Serena stone, and walls simply relined and painted white. Within these calm spaces, from which you have views over the tree-lined street, the pieces of free-standing furniture for displaying and hanging clothes become events. In particular, changing cubicles with solid wooden partitions are well-detailed and handsome. But the main event is the spiralling staircase between the two floors, a double helix made of steel ribbon and wood summoning up shades of the Villa Savoie. PENNY MCGUIRE



first floor



cross section



ground floor (scale approx: 1:320)

Architects

David Chipperfield Architects:
David Chipperfield, Patrick McNerney,
An Fonteyne

Structural engineers

Dewhurst Macfarlane

Quantity surveyor

Tim Gatehouse

Services

BDSP Partnership

Lighting

Isometrix

Stone floor

Stoneage

Photographs

Richard Bryant/Arcaid



1
 Exterior of building on Sloane Avenue.
 2
 First floor.
 3
 Helical staircase of steel ribbon and wood.
 4
 First floor.
 5
 Changing cubicles.
 6
 Ground floor.

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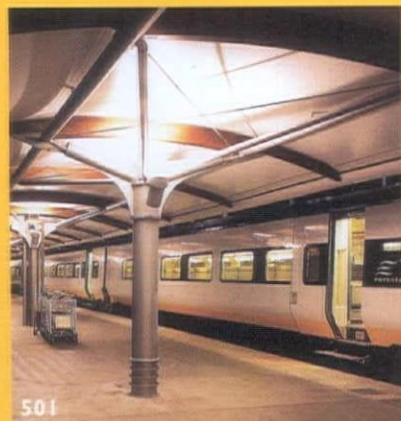
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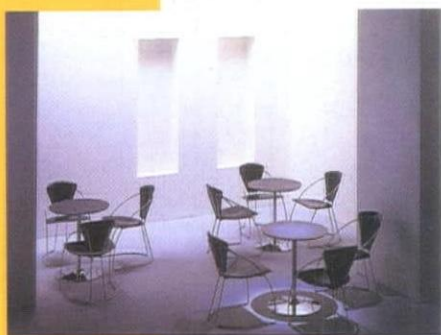


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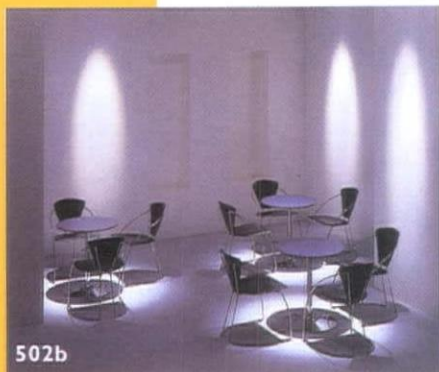
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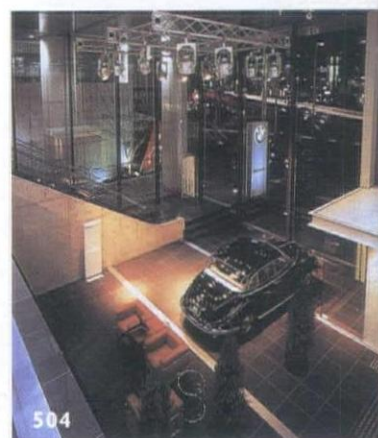
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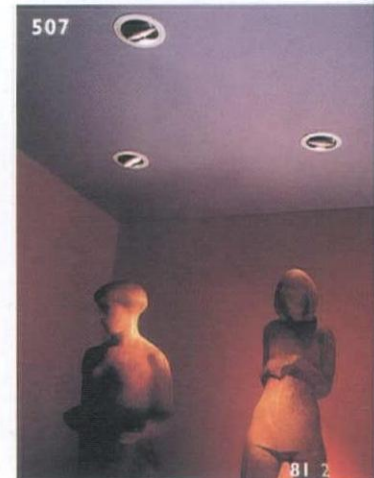
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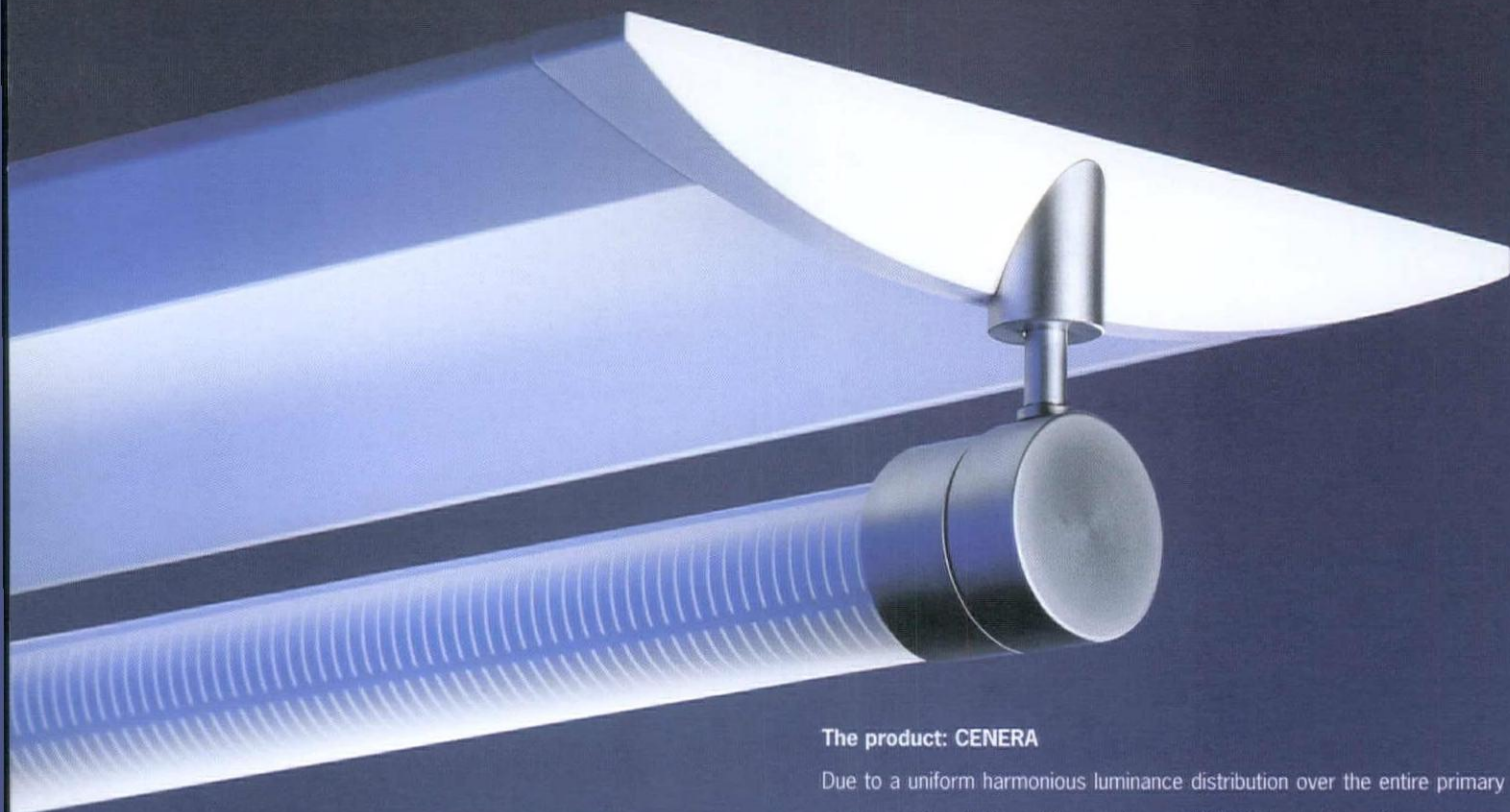
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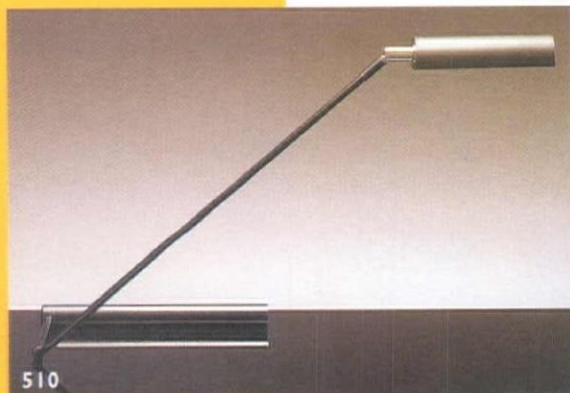
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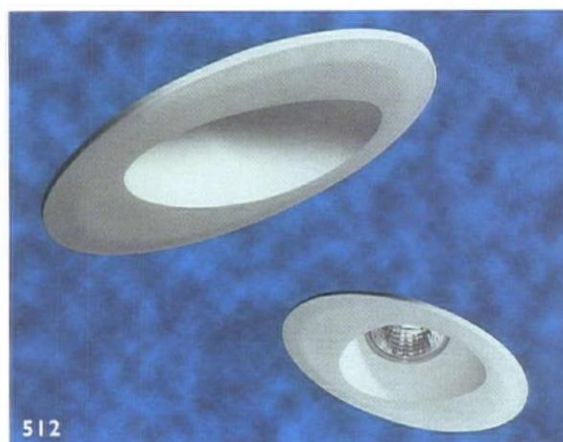
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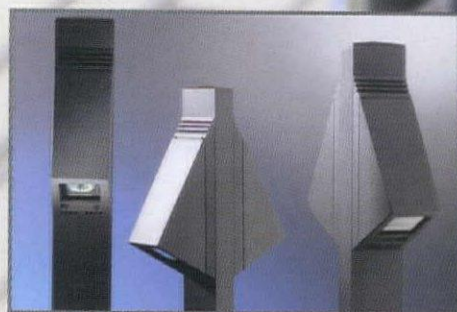
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PRODUCT
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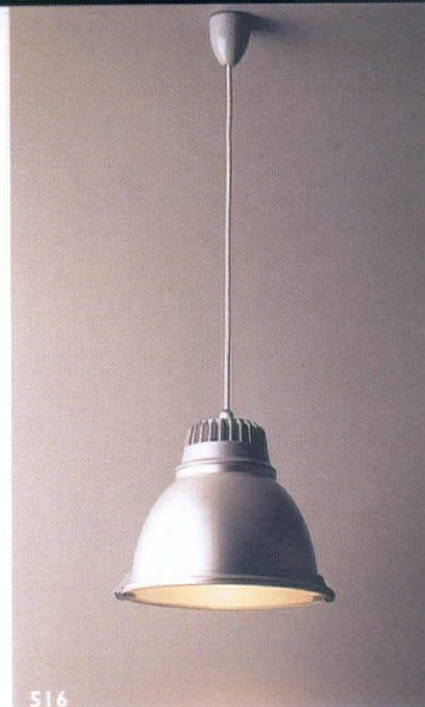
Noral UK

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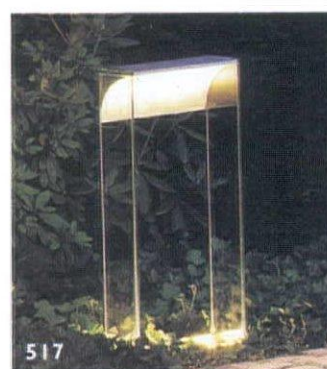
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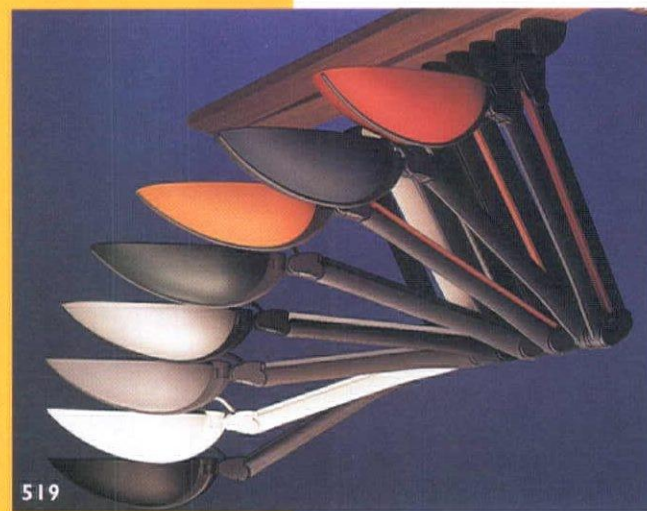
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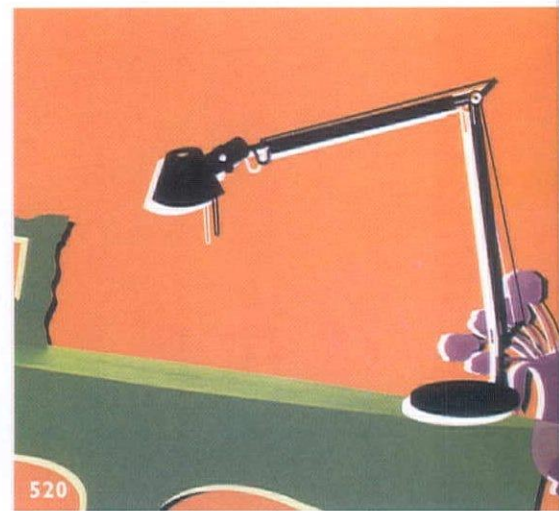
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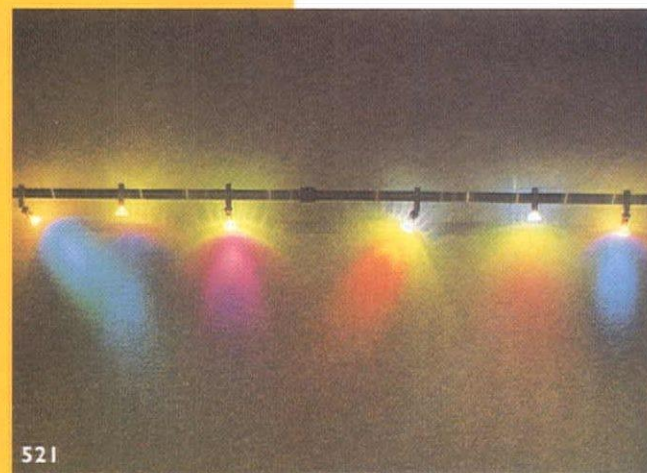
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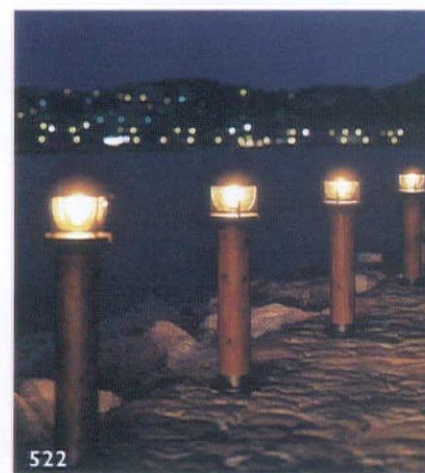
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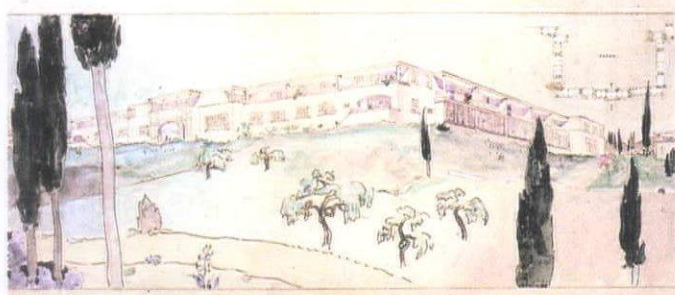
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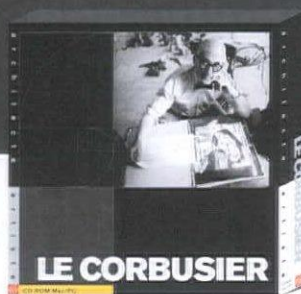
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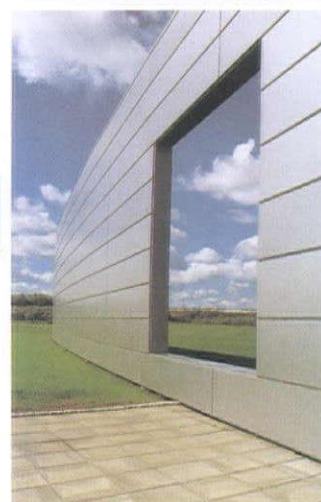
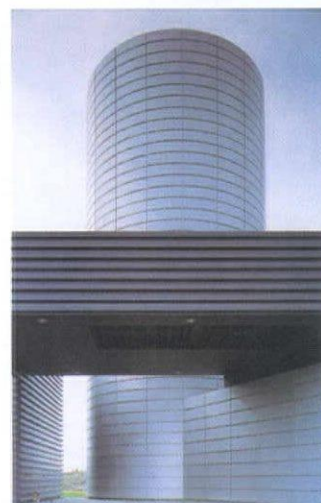
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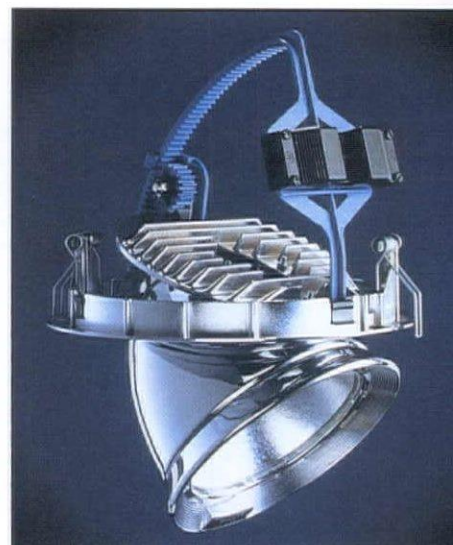
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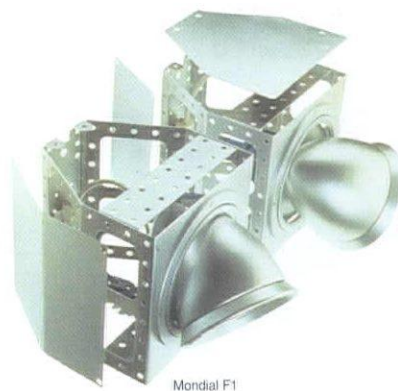
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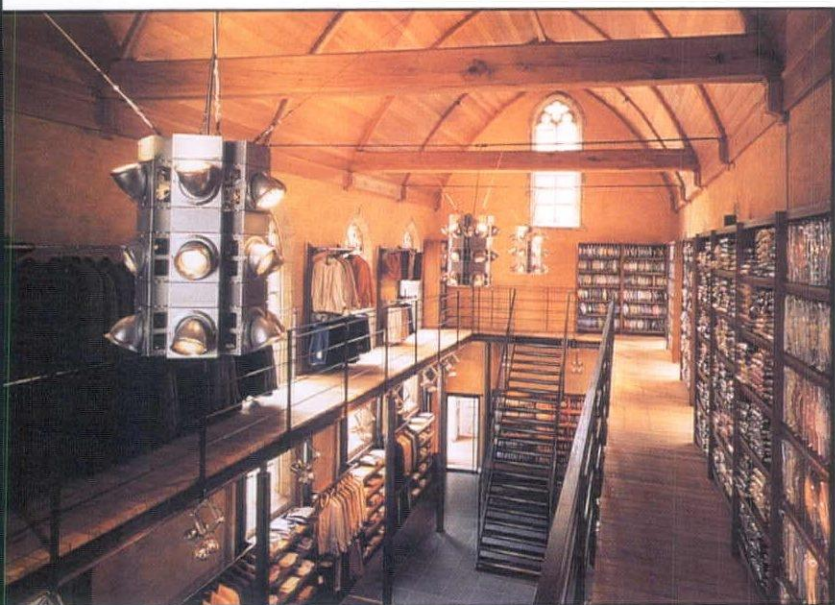
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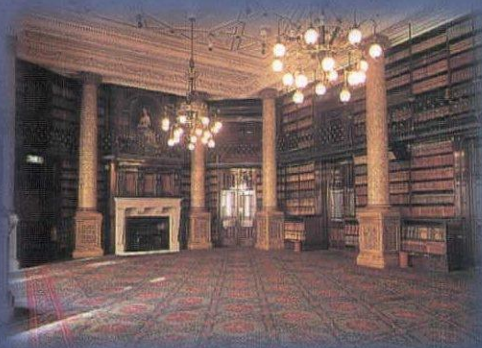
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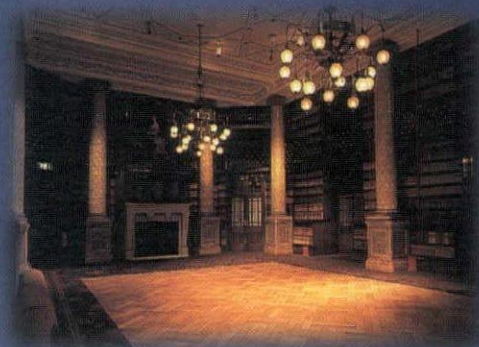
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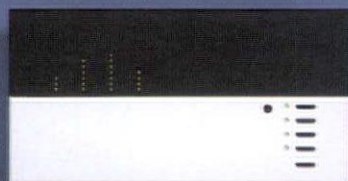
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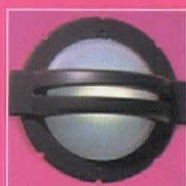
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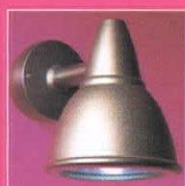
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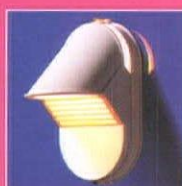
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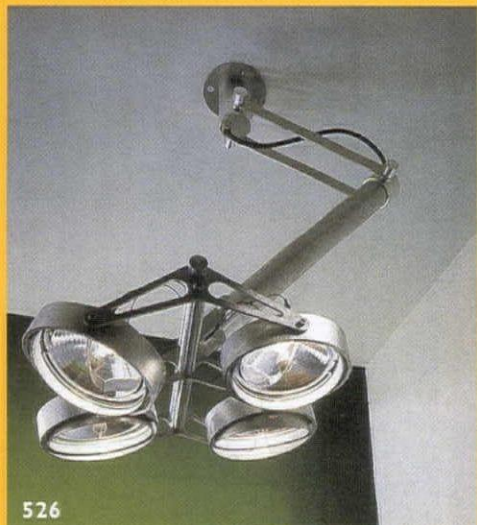
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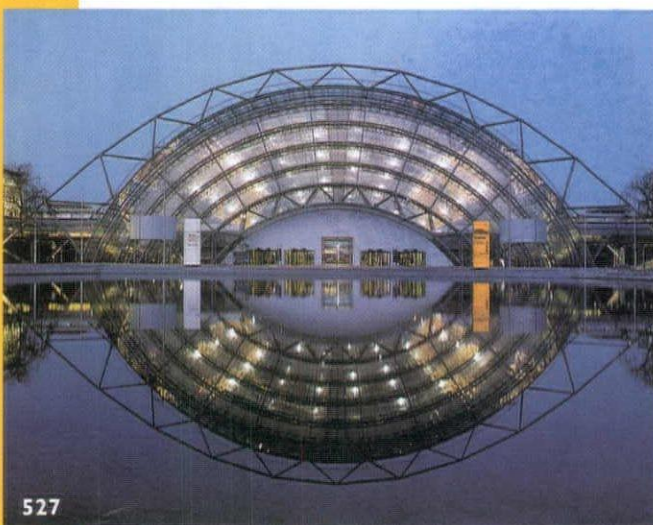
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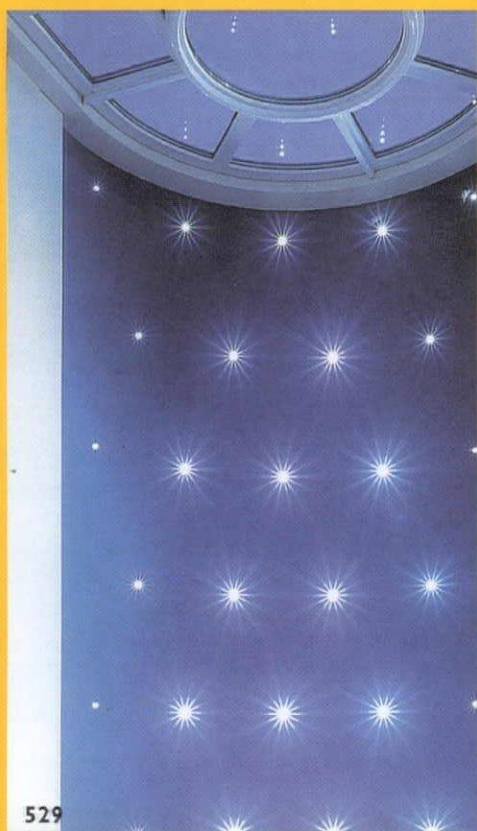
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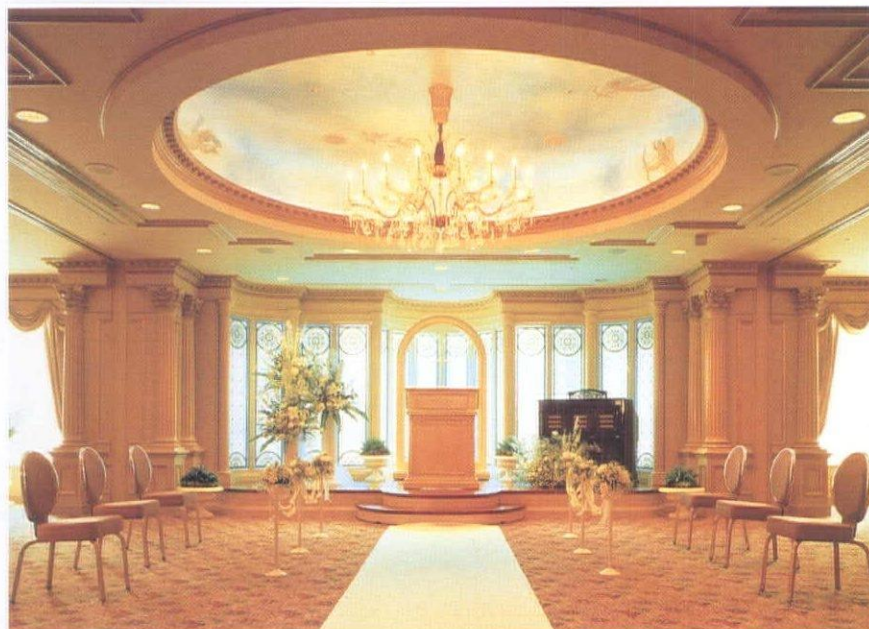
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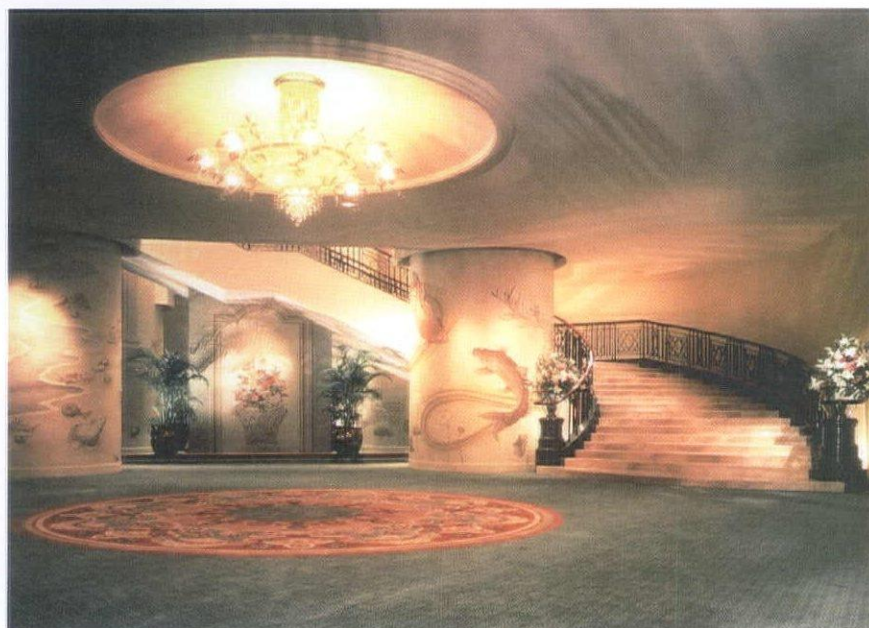
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Lewerentz lessons

**ARCHITECT SIGURD LEWERENTZ:
VOL I PHOTOGRAPHS OF THE
WORK, VOL II DRAWINGS**

Edited by Claes Dymling, Stockholm:
Bygghörlaget, 1997. SEK1004

**SIGURD LEWERENTZ: TWO
CHURCHES**

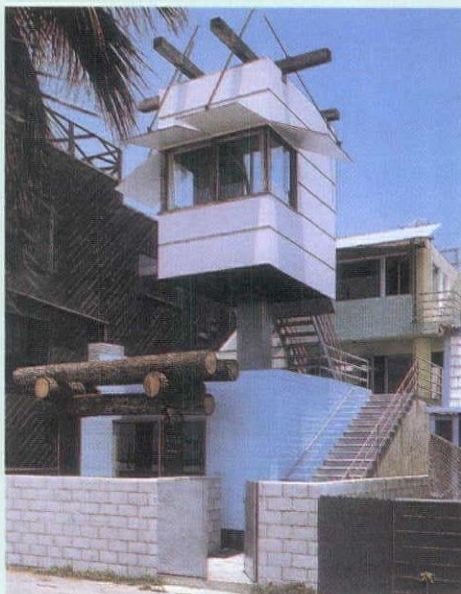
By Claes Caldenby, Adam Caruso, Sven Ivar
Lind, Stockholm: Arkitektur Förlag, 1997.
SEK198

When Alvin Boyarsky and AA Publications published *Sigurd Lewerentz 1885-1975: The Dilemma of Classicism*, a silkscreen-on-sandpaper cover was used that was so sticky that, to this day, each issue is sold in a polythene wallet. The recently published two-volume *Architect Sigurd Lewerentz: Photographs of the Work and Drawings* and *Sigurd Lewerentz: Two Churches* have no covers at all. The former has its hard backs coated in building paper while the grey card backs of the latter are left 'as found'. The work of no other architect has, surely, inspired such an unusual response from publishers of his work – even in Sweden, the source of much high quality paper and card.

But Lewerentz, himself a Swede, was nothing if not unusual. Once described by the Smithsons as one of the 'silent architects', he neither taught nor wrote. Trained as a mechanical engineer and construction technologist, he followed this up by working in Germany, first for Tessenow and then with Riemerschmid. Returning to Sweden, he studied for a short period at Stockholm's Academy of Art before setting up, with Gunnar Asplund and others, the independent Klara School. After an initial partnership with another fellow student, Torsten Stubelius, he worked on his own.

Such, then, was the architectural training of the architect who played the major role in the formation of arguably the greatest landscape of the century, Stockholm's Woodland Cemetery; who built the masterpiece of Nordic Classicism, the Chapel of the Resurrection; who went through a 'white' period in the '30s before retreating to design and fabricate metal windows and doors; and who, towards the end of a long life, built two great churches whose affinity to ancient forms belied the profound architectural renewal they embodied. His significance was always recognized by a few but it was not until the centenary exhibition and Janne Ahlin's contemporaneous book *Sigurd Lewerentz arkitekt* (a shorter English version of which was published two years later) that he became known to a wider audience.

The new two-volume book from Bygghörlaget is undoubtedly the most comprehensive publication on Lewerentz. The first volume has an illuminating essay by Wilfried Wang; particularly



Architecture Today is a book about outsides (by James Steele, Phaidon Press Ltd, London, 1997, £45). An enormous and lavishly illustrated tome of over 500 pages takes the reader at a quick gallop through today's pluralist scene, from 'European Rationalism' to 'Experimentation in Japan' by way of 'Post Modernism', 'The Classical Revival', 'The New Expressionists' and much else. Relying as it does entirely on presenting images of exteriors, rather than anything more profound (there are no drawings and very few interiors), it is not surprising that the book ends with a celebration of 'World Cities' (Rio, Hong Kong, Singapore and the like) which, architecturally, tend to be collections of object buildings.

The publisher's preference for huge (and often beautiful) coloured pictures at all costs helps Steele's text little, for he does describe with perception and intelligence the planning and working of many of the buildings he shows. While one may disagree with Steele's choice of pigeon holes, and the projects he slots into them, the book could clearly be very useful to students if it were more appropriately illustrated and brought out in a rather less formidable and expensive format.

good on the development of the Villa Edstrand and on the inter-relationship between Lewerentz and Asplund's work. There are also photographs of 25 built works with written descriptions by Caroline Constant and the Swedish Museum of Architecture. The second volume contains reproductions of drawings for 24 of these buildings. Inevitably, one could criticize some of the sub-editing, drawing selection and rather uninspired photography but this would be mere quibbling.

Two churches, is a well produced study of Lewerentz' last churches, St Mark's at Björkhagen, Stockholm and St Peter's at Klippan. Olof Hultin's photography is good but the three essays by the architects Claes Caldenby, Sven Ivar Lind (who worked in Asplund's office) and Adam Caruso are disappointing. Recalling Lewerentz' 'famously laconic' demeanour, Caruso recounts the story of Matisse advising

young painters to cut off their tongues and communicate with paint, brush and canvas. This parallel was drawn some years ago by Colin St John Wilson in a number of essays now summarized in his chapter on Lewerentz in *Architectural Reflections: Studies in the Philosophy and Practice of Architecture*. The latter is still, surely, the most penetrating and best written of all the studies published on this remarkable architect and, together with Ahlin and the splendid new two-volume *Photographs and Drawings*, provides us at last with a reasonably comprehensive basis for the study of his work.

PETER CAROLIN

Getting it in Place

THE FATE OF PLACE: A PHILOSOPHICAL HISTORY

By Edward S. Casey. Berkeley: University of California Press, 1997. \$45

A current advertisement for a telecommunications company carries the simple message: 'Geography is History'. In a world where we can talk face to face with people on the other side of it, where we increasingly inhabit an infinitely extendable and transmutable cyberspace, and where we pay more attention to the virtual than the real, what place is there for 'Place'? It is a question that architects, whose job it is to make places, worry about a good deal. It seems to undermine the basis of architecture as traditionally conceived. So we look to philosophers for guidance. What exactly is this precious thing called Place which we feel we must defend against the forces of global commodification? This book sets out to answer the question.

The basic thesis is that, though the concept of Place has been eclipsed by its modern rivals, Space and Time, it yet remains just below the threshold of consciousness, waiting to be retrieved. We ignore it not because it is hidden, but because it is ubiquitous – a necessary and inescapable condition of the human existence. As Casey puts it on his first page: 'To be at all ... is to be somewhere, and to be somewhere is to be in some kind of place'. What follows is an exhaustive 350 page trawl of all the major Western philosophical traditions in an effort to bring Place to the surface where we can all see it and acknowledge its importance. This is a somewhat laborious process. It is surprising that a plea on behalf of specificity and concreteness should be so short on specific and concrete instances. And when they come, they seem ill-chosen. The Derrida/Tschumi collaborations cited in the short passage devoted to architecture, for example, hardly make a powerful case for a recovery of the primacy of Place. This is a thorough and timely investigation, but its relentlessly abstract arguments make it hard going for non-philosophers.

COLIN DAVIES

Timely tribute

ERICH MENDELSON AND THE ARCHITECTURE OF GERMAN MODERNISM

By Kathleen James. Cambridge: Cambridge University Press. 1997. £45

A follower of the Modern Movement in 1930 would have been amazed to be told that in 1987 Le Corbusier would be fêted as 'Architect of the Century' while Erich Mendelsohn's centenary would pass almost unnoticed, for in 1930 Mendelsohn was the best known German Modernist with the largest office, profuse publications and many important commissions behind him. His Schocken stores and Universum cinema became international models for these building types, he pioneered new methods of construction and made brilliant use of the newly available electric lighting, and he pioneered a dynamic contextualism which has gone strangely unnoticed by the urban design fraternity.

This admirable book is a timely reminder of just how good and inventive Mendelsohn was. It is nicely structured to follow a chronological path while also picking up on a series of topical themes, from relativity to the development of advertising. Kathleen James is a lucid and engaging writer who has unearthed much new material, particularly on the clients and social background, but also on the development of ideas and possible sources. The crucial Expressionist connection seems to be less with painting than with theatre, for example, and Mendelsohn had an intriguing early friendship with Dadaist Hugo Ball. He also had a personal relationship with Einstein and was serious in his attempts to express relativity in the famous tower, which incidentally answered a demanding functional programme. James is good on Mendelsohn's relations with the United States, his connections with Wright and Neutra, and the content of the photo-album he published on his return. But best of all, she outlines convincingly the ingredients of Mendelsohn's subtle urbanism and its relation to new forms of commerce and technology. General histories of the period will in future need a new chapter.

Why has Mendelsohn been so neglected? Most obviously because his career was broken by the Nazis. Deprived of his social and technological base at the then centre of world culture, he had neither clients sympathetic to his progressive ideas nor the means to realize them. He hardly got started in the UK, leaving us only the De la Warr Pavilion and a house. He subsequently built much in provincial Palestine, but conservatively. Arriving in the States in 1941, he found himself marginalized, and built only a few synagogues before his early death of cancer. Mies and Gropius had become

the high-priests of the new Modernist agenda defined by Hitchcock and Johnson as The International Style, and Mendelsohn had made the fatal mistake of putting the phone down on Johnson 10 years earlier. He could claim to be as Functionalist as any of his peers – more than most – but for Pevsner *et al* he was tarred with the brush of Expressionism and therefore not to be taken seriously.

To add insult to injury, most of Mendelsohn's important buildings have been destroyed. I knew of his Jewish cemeteries blown up by the Nazis, but James includes a hitherto unseen photo of the Jewish youth centre in Essen, burned on Kristallnacht. The pioneering stores in Berlin were lost in the war, but Columbus Haus survived only to be burnt in a riot in the early 1950s. The Stuttgart Schocken also survived, but shamefully was demolished in 1960 in favour of a new department store with a new image by Eiermann, his worst work. The Universum cinema fell into disrepair and was disembowelled in the 1970s, its important interior proving as ephemeral as the numerous Odeons which it spawned in the UK. Commercial architecture is perhaps inevitably short-lived, but when key examples in the development of a type are lost, let alone works representative of a major creative talent in as fertile a period as the Weimar Republic, it must be counted cultural deprivation.

PETER BLUNDELL JONES

Take five

THE ENCYCLOPAEDIC DICTIONARY IN THE EIGHTEENTH CENTURY: ARCHITECTURE, ARTS AND CRAFTS

By Terence M. Russell. Aldershot: Ashgate. Five volumes £150

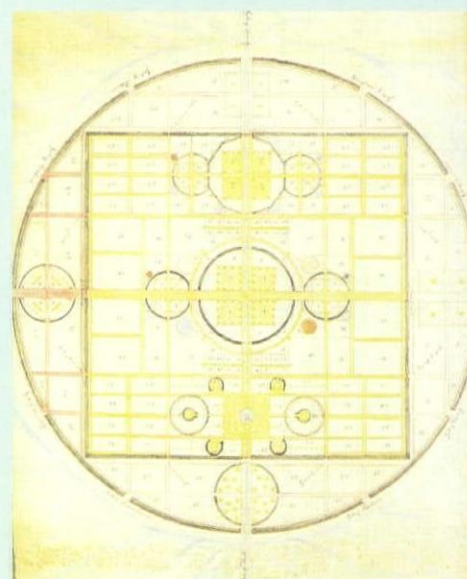
This is an admirable but rather odd publishing enterprise. Terence Russell has immersed himself in architectural texts of the seventeenth and eighteenth centuries (he has spent decades, it seems, compiling architectural indexes) and has composed a series of five books entitled *The Encyclopaedic Dictionary in the Eighteenth Century: Architecture, Arts and Crafts*. They contain a selection of texts which Russell believes to be key documents of the period. Some of the reprinted texts are abstracts from larger works, some are complete texts, some are well known and generally available, others are relatively obscure.

Russell explains the aim of the enterprise by declaring his 'hope that the volumes ... will be of benefit to architects, artists and craftsmen, designers, restorers, preservationists, conservationists, librarians, historians, antiquarians and students' – in fact virtually everybody including, Russell finally adds, 'readers interested in

the development of the English language'.

The reprints include standard works like Sir Henry Wotton's *Elements of Architecture* and extracts on building and gardens from Sir Francis Bacon's *Civil Essay*. It also, more inventively, includes the architectural entries from a number of influential eighteenth-century British dictionaries and encyclopaedias, namely John Harris's *Lexicon Technicum* of 1704-10; Ephraim Chambers' *Cyclopaedia* of 1728, Samuel Johnson's *Dictionary of the English Language* and the *Encyclopaedia Britannica* from 1771. The *Builder's Dictionary* of 1734 is reprinted in full.

Russell does not make clear why he has chosen these texts rather than others, but the choice is reasonable and the radical dilution of a vast body of work down to a few exemplars must always result in a slightly arbitrary collection. More curious is that the selection lacks any real argument. Russell does not, through his selection and presentation of the texts, try to offer new insights into the theory and practice of architecture in the eighteenth century, nor does he throw light on the working methods of eighteenth-century authors and architects. The series is, really, no more than a collection of interesting bits. But, if the volumes appear to lack a convincing *raison d'être*, they are a vastly useful addition to any architectural library. DAN CRUICKSHANK



The City of New Jerusalem or of 'the living God as revealed to the Shakers by the spirit of Adam'. An earthly city, New Lebanon, which was to include Hancock, Massachusetts was to be built as a mirror image immediately underneath the heavenly one and grow to 12 miles square 'as the work of God increases'. From *The Shaker World, Art, Life, Belief* by John T. Kirk (Abrams £45), which examines the superb artefacts as projection of systems of faith, life and work, rather than deracinated objects.

DELIGHT

Photograph: Catherine Slessor



DEFYING ALL CONVENTIONAL NOTIONS OF HORTICULTURAL PRETTINESS, THIS ANCIENT, MINIMAL COMPOSITION OF ROCKS AND GRAVEL IN KYOTO IS IMBUED WITH A CURIOUSLY COMPELLING POWER.

This starkly beautiful Zen garden is one of the purest and most ancient examples of *karesansui* rock and gravel style in Japan. Set within the precincts of Ryoanji (Dragon Peace Temple) in Kyoto, the garden is believed to date from around 1500, when the site was originally developed. Remarkably, it survived a devastating fire which swept through the temple compound in 1797; equally remarkably, it attracted very little attention until the 1930s, when it became a popular subject for black and white photography. Now it is one of the most visited places in Kyoto, with the adjacent viewing veranda often resembling a crowded football terrace.

The garden consists of a rectangular bed of gravel 31m x 15m, surrounded on three sides by a low wall. Set into the gravel are 15 boulders arranged in five groups, yet no more than 14 rocks can be seen from any one position. There are no plants, apart from tiny, delicate lichens on the surface of the rocks.

Defying conventional notions of horticultural prettiness, the garden's austerity and barrenness has a compelling power, and its shape and form suggest many archetypes. Its 2:1 proportions are those of the traditional *tatami* mat, symbol of sleep, repose and the home. The immaculately raked grooves suggest the weave of the matting, or the pattern of rice in a paddy, the waves of the sea, currents of a river or even the movements of iron filings around a magnet. In some complex and mysterious way the rock groupings appear to be locked into one another; to move even one would destroy the coherence of the whole.

The garden's serene abstraction epitomizes the notion of the Zen *koan*, a riddle or paradox designed to provoke the rational mind, but without a straightforward answer. Countless other gardens have been constructed using the same materials, yet none matches the exquisite tension of Ryoanji.

CATHERINE SLESSOR