

More Americans are living behind bars than ever before. From 1980 to 1996, the number of inmates in federal and state prisons more than tripled, from 319,600 to 1.2 million. Prisons and jails now rank as the country's fastest-growing building type, comprising nearly 50 percent of the public construction market. And they can't be constructed fast enough: The average prison now holds 30 percent more inmates than originally intended. Sheriff Jacquelyn H. Barrett of Fulton County, Georgia, for example, reports that her high-rise jail, designed to hold 2,200 people, now holds 4,200, and will have to accommodate 800 more by the end of next year.

In short, the prison of tomorrow may more closely resemble the hospital of today.

More troubling than the changing demographics of prisons is the push to privatize ownership and management of prisons and jails, with too little official oversight. About 27 states have placed some of their detention facilities in the hands of for-profit companies, which typically employ as few guards as possible to cut labor costs. Federal and state officials are moving in the same direction, seeking to design prisons that practically run themselves. New Orleans Sheriff Charles Foti suggested at last month's meeting of the AIA Committee on Architecture for Justice that video technology holds new possibilities for visiting inmates, delivering medical care and education, and even arraigning suspects.

Elderly, sick, and deprived of human contact, the criminal of the future is

Jailhouse Blues

The boom in prison construction raises ethical questions for architects.

For architects, this jailhouse boom presents the almost impossible task of designing humane environments in the face of get-tough sentencing, which is contributing to prison overcrowding. These laws include the "three-strikes" rule recently enacted by the federal government, denying parole to those convicted of a third felony, and truth-in-sentencing laws, which require inmates to serve their full statutory terms without leniency for good behavior.

Not only will architects be required to design larger facilities with more beds, but geriatric units for a prison population that is getting older every year as the result of longer sentences—already, a third of all prisoners are 35 to 54 years old. Healthcare is also an increasing challenge of prison design, as the number of drug addicts increases—now 23 percent of the prison population—along with those afflicted with AIDS, hepatitis, and tuberculosis.

an indictment of our current corrections system, which has turned its back on the dire social problems now plaguing prisons and jails all over the country. Convicts must pay for their crimes, but the government that jails them—and the architects who design their environments—must be held accountable, too, for the increasingly inhuman state of detention facilities.

The profession, especially those few large firms that specialize in prisons, should challenge the current terms for creating ever-bleaker prisons in public forums and debates. Architects have always prided themselves on upholding humanity through design, however gloomy the program. They are now faced with the ethical challenge of ensuring that our criminal justice system creates environments that foster corrections, rather than mere containment.

Deborah K. Dietsch

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Deadline for submissions: **October 31, 1997**

Annual Awards for Visionary Design

Architecture continues the tradition of the P/A Awards to honor unbuilt projects.

The purpose of this awards program is to encourage outstanding work in architecture and urban design before it is executed. Awards and citations will be designated by a jury of distinguished, independent professionals, who will base their decisions on overall design excellence and innovative ideas. Potential entrants are urged to interpret the call for outstanding work as broadly as possible. Entries, however, are limited to specific unbuilt projects that have been commissioned by real clients for execution. Judging will take place in November 1997, and winners will be notified in late November. The winning entries will be featured in the April 1998 issue of *Architecture*.

Jury

James Cutler
James Cutler Architects
Seattle

Zaha Hadid
Zaha Hadid, Architect
London

Dan S. Hanganu
Dan S. Hanganu Architects
Montreal

Carlos Jimenez
Carlos Jimenez Studio
Houston

Sheila Kennedy
Kennedy & Violich Architecture
Boston

Deadline for Submissions: **October 31, 1997**

Entry Form: Annual Awards for Visionary Design

Please complete and submit all parts intact with each entry (see paragraph 12 for instructions). Photocopies of this form may be used.

Entrant:
Address:

Credit(s) for publication (attach additional sheet if necessary):

Entrant phone number:
Entrant fax number:
Project:
Location:
Client:
Client phone number:
Category:

Entrant:
Address:

Project:

I certify that the submitted project was executed by the parties credited and meets all eligibility requirements (1-5). I understand that any entry that fails to meet submission requirements (6-16) may be disqualified. Signer must be authorized to represent those credited.

Signature:

Name (typed or printed):

fees: Subscriber \$100 Non-Subscriber \$135 Entry plus one-year subscription \$135

Awards Editor
Architecture
1130 Connecticut Avenue, N.W., Suite 625, Washington, D.C. 20036
Project:

Your submission has been received and assigned number _____
(Architecture will fill in this number and return this receipt. Please retain it for reference.)

Entrant:
Address:

(Receipt)

Awards Editor
Architecture
1130 Connecticut Avenue, N.W., Suite 625, Washington, D.C. 20036

Entrant:
Address:

(Return label)
Judging will take place in November 1997.
Winning entries will be featured in the April 1998 issue of *Architecture*.

Eligibility

1 Who Can Enter

Architects and other environmental design professionals practicing in the U.S., Canada, or Mexico may enter one or more submissions. Proposals may be for any location, but work must have been directed and substantially executed in offices in those countries.

2 Real Projects

All entries must have been commissioned for compensation by clients with the authority and the intention to carry out the proposal submitted. In the case of design competitions, the only eligible proposals are those the client intends to execute.

3 Architectural Design Entries

Entries in Architectural Design may include only works of architecture scheduled to be completed after May 1, 1998. Indicate the anticipated completion date on Project Facts page (see item 7). Prototypical designs are acceptable if commissioned by a client.

4 Urban Design Entries

Entries in Urban Design must have been accepted by a client who intends to base development on them. Implementation plans and anticipated schedule must be explained in submission.

5 Verification of Client

The jury's decision to preminate any submission will be contingent upon *Architecture's* verification that it meets all eligibility requirements. To that end, *Architecture* will contact the clients of projects selected by the jury for recognition. *Architecture* reserves final decision on eligibility and accepts no liability in that regard.

Submission Requirements

6 Binders

Entries must consist of legibly reproduced graphic material accompanied by adequate explanatory text in English. All entry material must be firmly bound in binders no larger than 17 inches in either dimension (9 by 12 inches preferred). Avoid fragile bindings. Supplementary documents, such as research reports or urban design appendices, may be bound separately to avoid unwieldiness, as part of the same entry. Slides should be submitted only as supplementary material. Unbound material in boxes, sleeves, etc., will not be considered.

7 Project Facts Page

To ensure clear communication to the jury, the first page in the entry binder must list Project Facts under the following headings: Location, Site Characteristics, Zoning Constraints, Type of Client, Program, Construction Systems, Funding, and Schedule. Supply square footages, costs, and specific materials where possible. All project facts should fit on one page.

8 Documenting the Process

Entries should document the design process, as well as its result. Entrants are encouraged to include copies of preliminary sketches, alternative preliminary schemes, information on context and precedents for the design, and excerpts from working drawings.

9 Research Behind Projects

Although *Architecture* is cosponsoring a separate competition for architectural research, we encourage the inclusion of any research performed in support of an architecture or urban design project that is otherwise eligible.

10 No Original Drawings

Original drawings are not required; *Architecture* will not accept liability if they are submitted. No models or videotapes will be reviewed.

11 Anonymity

To maintain anonymity in judging, no names of entrants or collaborating parties may appear on any part of the submission except on entry forms. Credits may be concealed by tape or other simple means. Do not conceal identity or location of projects.

12 Entry Forms

Each submission must be accompanied by a signed entry form (left). Reproductions of the form are acceptable. Fill out the entire form and insert it intact into an unsealed envelope attached to the binder's back cover.

13 Entry Categories

Identify each submission on its entry form as one of the following: Educational (including any campus buildings), House (single-family), Housing (multifamily), Commercial, Cultural, Governmental, Health-Related, Industrial, Recreational, Religious, or Urban Design. Mixed facilities should be classified by the largest function.

14 Entry Fees

An entry fee must accompany each submission. The fee is \$100 for *Architecture* subscribers; \$135 for non-subscribers. (Non-subscribers can choose to subscribe at a special rate of \$35 per year and pay the \$100 entry fee; see entry form.) Make check or money order payable to *Architecture*. Canadian and Mexican entrants must send drafts in U.S. dollars. Fee must be inserted in unsealed envelope with entry form (see 12, above).

15 Return of Entries

Architecture will return entries ONLY if they are accompanied by a self-addressed, stamped envelope. *Architecture* assumes no liability for loss or damage.

16 Entry Deadline

Deadline for sending entries is October 31, 1997. All entries must show a postage date as evidence of being in the carrier's hands by October 31. Hand-delivered entries must arrive at *Architecture's* editorial office (address below) by 6 p.m. on October 31. To ensure timely receipt, *Architecture* recommends using a carrier that guarantees delivery within a few days.

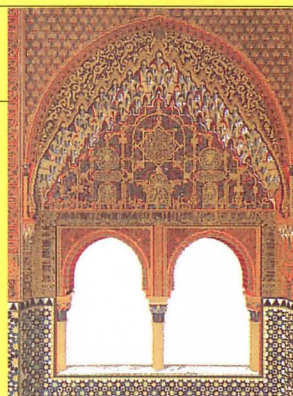
Address entries to:

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Architecture
1130 Connecticut Avenue, N.W.
Suite 625
Washington, D.C. 20036

DEADLINE: October 31, 1997
Strictly Enforced

exhibitions

city	dates	exhibition	contact
Baltimore	through January 18, 1998	A Grand Design: The Art of the Victoria and Albert Museum at the Baltimore Museum of Art	(410) 396-6310
Montreal	October 22- February 1, 1998	Other Soundings: Selected Works by John Hejduk at the Canadian Centre for Architecture	(514) 939-7000
New York	through January 17, 1998	Mastering McKim's Plan and Constructing Low Memorial Library at Columbia University	(212) 854-2877
Pittsburgh	through November 16	Drawing the Future and How to Read an Architectural Drawing at the Heinz Architectural Center, Carnegie Museum of Art	(412) 622-3131
Rotterdam	through November 23	Daniel Libeskind: Beyond the Wall, 26.36° at the Netherlands Architecture Institute	(31) (10) 440-1200
Weil am Rhein	through January 4, 1998	The Work of Charles and Ray Eames at the Vitra Design Museum	(49) (76 21) 702-200



1834 rendering of the Alhambra from Victoria and Albert Museum exhibit in Baltimore

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conferences

city	dates	conference	contact
Boston	November 18-20	Build Boston	(800) 544-1898
Denver	November 24-30	American Institute of Architecture Students Conference	(202) 626-7472
Memphis	October 23-28	American Society of Architectural Perspectivists Annual Convention and Exhibition	(617) 951-1433 ext. 225
Mexico City	October 30- November 2	International Design Conference, sponsored by the AIA Committee on Design	(800) 242-3837
New Orleans	November 13-16	American Institute of Graphic Arts Conference	(212) 807-1990
New York	October 24-25	Curtain Wars: Architects, Decorators, and the 20th Century Interior conference at the Parsons School of Design	(800) 709-4421
	November 4-8	Urban Land Institute fall meeting	(800) 321-5011
St. Louis	October 26-29	Rail-Volution '97 Transit Conference	(800) 788-7097



Architect Elizabeth Wright Ingraham will speak at the AIAS conference in Denver.

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Polychromie Architecturale
Le Corbusier

Le Corbusier designed two color scale collections for wallpaper company Salubra. In the 1930/31 design, Le Corbusier did not simply confine himself to the 43 color tones on which he relied as an architect and painter. Rather, he organized them on 12 sample cards in such a way that three to five colors could be isolated or combined by using a slide band. In 1957/59, the second collection with 20 colors was designed as the mark of Le Corbusier's changing ideas about architecture and painting. The colors were joined on a single color card as a 'clavier'. The collection is a useful tool and at the same time a legacy of purist color theory. The designs can be qualified as artworks themselves. The first volume contains Le Corbusier's historical Prof. Arthur Rugg's (ETH Zurich) examination of the meaning of the Salubra collection for the history of modern architecture and also includes two, never-before-published original texts of Le Corbusier. The second and third volumes feature the Salubra colors themselves. Text in English, German, and French.

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competitions

competition	deadline	contact
Awards for Architectural Research, cosponsored by <i>Architecture</i> and AIA Research	October 15	(202) 828-0993
Concrete Reinforcing Steel Institute Design Awards Competition, cosponsored by <i>Architecture</i>	October 24	(847) 517-1200
Architecture's Visionary Design Awards, continuing the P/A Awards legacy	October 31	(202) 828-0993
Architecture Awards Program, sponsored by the United States Institute for Theatre Technology	November 10	(212) 807-7171
Tilt-Up Concrete Association Achievement Awards	November 14	(319) 895-6911
Brunner Grant, sponsored by the AIA New York Chapter	November 15	(212) 683-0023



1997 Brunner Grant recipients Kent Kleinman and Leslie Van Duzer studied Mies's 1928 Haus Lange and Haus Esters (left) in Krefeld, Germany.

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ROBERT CANFIELD PHOTOGRAPHER

1932 opera house by Arthur Brown, Jr., and Albert Lansburgh (top); proscenium arch regilded; curtain replicated (above).

As a battle raged over the fate of San Francisco's Old Main Library (*Architecture*, September 1997, page 38), the city's ornate 1932 War Memorial Opera House across Civic Center Plaza reopened on September 6, following an \$84.5 million renovation. The overhaul, prompted by damage from the 1989 Loma Prieta earthquake, included the installation of seismic base isolators, restoration of the auditorium, and upgrades of lighting, sound, and stage systems. The design team for the project was led by the San Francisco Department of Public Works' Bureau of Architecture and included theater consultant Auerbach Associates and Skidmore, Owings & Merrill. *N.C.*



JENNIFER KROGH

NEW YORK HOLOCAUST MUSEUM OPENS

After 15 years of incubation, New York City's 30,000-square-foot Holocaust museum finally opened on September 15 along the Hudson River in Battery Park City. The museum's hexagonal, granite-faced volume "serves as a structural reminder of the 6 million Jews who perished during the Holocaust, and embodies the six-pointed Star of David," according to designer Kevin Roche of Kevin Roche John Dinkeloo and Associates.

Three levels of exhibits by designer Douglas/Gallagher examine three phases of Jewish history: the early 20th century in Europe and North Africa, the Holocaust, and the postwar era in America and Israel. The museum's most powerful testament to the Holocaust may not be its evocative architecture or didactic exhibitions, however, but the three hours of videotaped testimonies by survivors. *N.C.*

AIRPLANE MUSEUM TAKES OFF

Foster and Partners designed the new \$13.3 million American Air Museum of Britain as a 70,000-square-foot hangar to house the Imperial War Museum's collection of 21 American aircraft dating back to the First World War. The largest, a B-52 Stratofortress, boasts a sweeping, 61-meter wingspan and a 16-meter-high tail fin. Opened in August in Duxford on a former Allied military base, the museum comprises a 90-meter-wide elliptical shell of precast concrete panels. A 18.5-meter-high window-wall overlooks the museum's airfield, where planes from the collection are flown each day. *N.C.*



NIGEL YOUNG

Foster and Partners' American Air Museum in Britain

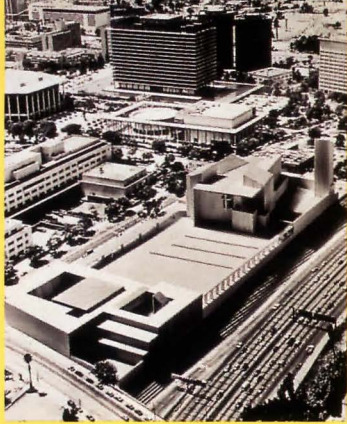
American Air Museum's elliptical concrete shell houses 21 aircraft.



L.A. CATHEDRAL PROCEEDS

Spanish architect José Rafael Moneo's design for the Cathedral of Our Lady of the Angels, in collaboration with executive architect Leo A Daly, was unveiled at a September 21 groundblessing ceremony in Los Angeles. The controversial church—located at the intersection of Grand Avenue and the Hollywood Freeway—was originally to be built on the site of the historic St. Vibiana's Cathedral. The earthquake-damaged, 120-year-old cathedral became a cause célèbre last year when Roger Cardinal Mahoney, Archbishop of Los Angeles, proposed to demolish it to make way for a new church. Mahoney managed to tear down the cupola in 1996, before local preservationists forced him to look elsewhere for a site.

Built on a plinth, the new complex rises like an acropolis, with a 45,000-square-foot office building and community center and a 23,000-square-foot residence. The concrete, copper-roofed cathedral is T-shaped in plan, with more than 2,500 seats



LEO A DALY

L.A. Cathedral complex sits on plinth along Hollywood Freeway.

located in the 275-foot-long nave and in two transepts flanking the high altar. Side chapels open onto an ambulatory lit by alabaster curtain walls. The complex is scheduled to open in 2000.

Meanwhile, the Los Angeles Conservancy continues to lobby local developers with the nine proposals it solicited from local architects for adaptive reuse of the abandoned cathedral. "Preserving the cathedral is still our number-one priority," maintains L.A. Conservancy Executive Director Linda Dishman, who adds that the undetermined fate of St. Vibiana's shouldn't sully Moneo's design.

Local architect John Kaliski, who designed one of the Conservancy's proposals, concurs: "The two issues are separate now." *Ned Cramer*



Pritzker Prize-winning Italian architect Aldo Rossi, 66, died in Milan on September 4, as the result of injuries sustained during a car crash earlier that week. The following tribute is written by University of Southern California Professor Diane Ghirardo, who translated Rossi's landmark book, The Architecture of the City (1966), and wrote an essay in his 1991 monograph Aldo Rossi: Architecture 1981-1991.

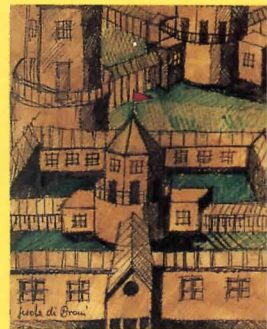
ALDO ROSSI 1931-1997

Aldo Rossi always brought the intimate and monumental together in his drawings and designs. For him they represented essential companions of architectural thinking; even as a child, domestic objects such as coffeepots evoked fantastic architectures for him. The rituals and dramas of everyday life unfolded through architecture, while what he called "urban artifacts" were the result of human activity. In buildings such as the Carlo Felice Theater in Genoa (1983) and Turin's Casa Aurura (1984), Rossi expressed the intersection of public and private by repeatedly and ingeniously nesting one within the other through motifs and materials. Recent projects such as the Landsbergerallee (now under construction in Berlin) and the Scholastic headquarters in New York City fill in urban areas with attention to the existing fabric rather than to personal stylistics.

Rossi's ideas, transmitted through his teaching, his drawings and buildings, as well as in his seminal books, *The Architecture of the City* and *Scientific Autobiography*, powerfully affected the world of architecture from the 1960s until today. They reflect the spirit of Rossi beyond his buildings, a melancholy Lombard with an impish sense of humor and a gift for storytelling. His narrative ability could transform a story of everyday life into a zesty tale through the adroit selection and embroidery of details. This capacity sprang from an almost childlike sense of wonder at the world.

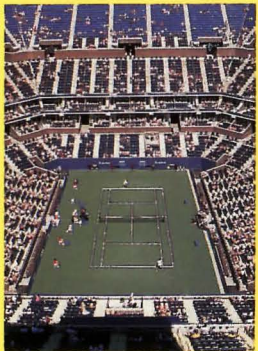
Rossi's interests ranged from the writings of Johann Wolfgang Goethe to those of Raymond Chandler, from the paintings of Edward Hopper to the anonymous figures of Christian saints. Originally, Rossi dreamed of being a film director; when his career took a different turn, he still nourished a great love of movies. One of his most delightful traits was that he took neither the world nor himself too seriously. Much of his charm derived from this openness to experience and his infectious good humor, which also nourished his poetic genius.

At his funeral, a priest spoke of Rossi's search for a lost clarity. Such research illuminated not only architecture, but a way of life: He understood that family and friends mattered far more than work. It was possible for him to find pleasure in both, and to transmit that joy to us.



1978 sketch of Rossi's Broni, Italy, elementary school

TENNIS ANYONE?



STEVE GOTTILIER

Rossetti Associates' Arthur Ashe Stadium

Patrick Rafter's and Martina Hingis's unexpected U.S. Open victories last month took place in a brand-new venue—the 23,000-seat Arthur Ashe Stadium in Queens, built on the former site of the 1939 and 1964 New York World's Fairs in Flushing Meadows-Corona Park. Birmingham, Michigan-based Rossetti Associates designed the octagonal, brick-clad stadium to supplant the adjacent, outdated, 20,000-seat Louis Armstrong Stadium as the primary home of the United States Tennis Association's annual summer tournament. The Armstrong Stadium will be scaled down to seat 10,000 and is scheduled for play in the 1998 U.S. Open. **N.C.**

THE BUZZ

SmithGroup is on a buying binge. In September, the A/E firm merged its subsidiary **SHG** (formerly **Smith Hinchman Grylls**) in a stock swap with San Francisco-based **Stone Marraccini Patterson (SMP)**. The deal, effective January 1998, echoes last year's merger of SHG with Washington, D.C.-based **Keyes Condon Florance**.

San Francisco's Jewish Museum is on the lookout for another architect to design its new building after parting ways with **Peter Eisenman** in June. **Studios, Enrique Norten**, and **Eric Owen Moss** have been shortlisted from a group that also comprised **Morphosis, Hodgetts + Fung, Koning Eizenberg**, and **James Cutler**. **Frank Gehry** was also approached about the job, though his participation is reported to be less likely.

Meanwhile, Eisenman has teamed up with **Dakota Jackson** to collaborate on the furniture designer's new showroom in Los Angeles's Pacific Design Center. And **HOK** is developing a feasibility study for Eisenman's expansion and conversion of the ferry terminal on Staten Island to incorporate the Staten Island Institute of Arts and Sciences. HOK is also renovating Manhattan's Javits Convention Center, and was just named architect of record for the federal courthouse in Miami, which will be designed by **Arquitectonica**.

In the wake of one of New York City's greatest police scandals, **Smith-Miller + Hawkinson** is designing a museum for New York's Finest in the Cunard Building. **Jung/Brannen Associates** is renovating Philadelphia's historic Midtown Theater into the 400-seat

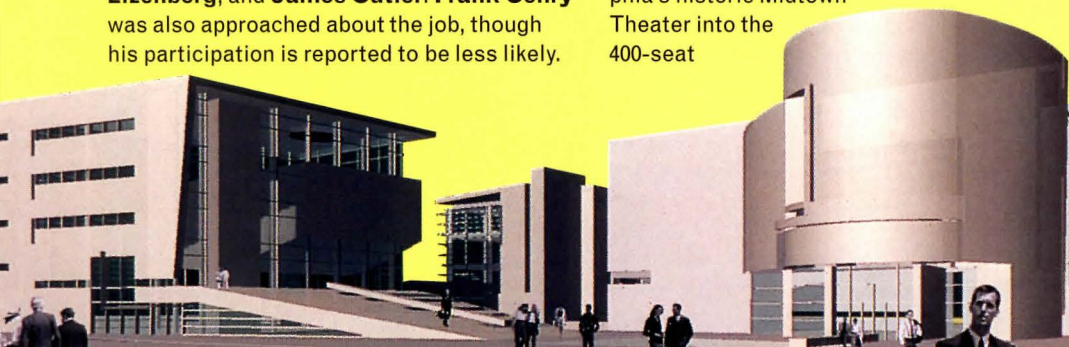
American Music Theater Festival's Harold Prince Center.

America's stadium addiction is catching on abroad: **Devine deFlon Yaeger Architects** of Kansas City is designing the arena for the 2000 Olympics in Sydney, Australia, with local firm **Cox Richardson Architects**. In Geneva, **Ellerbe Becket** is designing a 26,500-seat soccer stadium. And last month, **Peter Pran** and **Dan Meis** of **NBBJ** bested **Helmut Jahn, Arup Associates, Nicholas Grimshaw**, and **Toyo Ito** in the competition to design the 2002 World Cup soccer stadium in Seoul, South Korea.

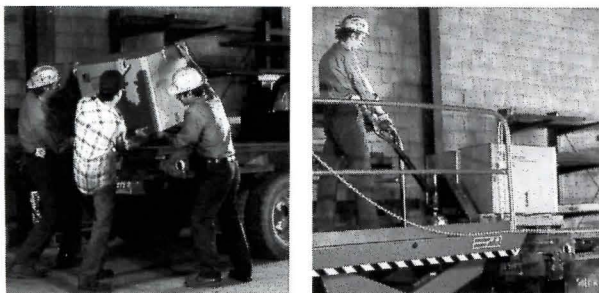
In another Seoul competition, **Dworsky Associates** won the commission for the 526,000-square-foot Songdong Civic Center with local associate architect **Mooyoung Architects**. The project is the first of several civic centers to be built in the South Korean capital. Another major Asian commission, a 1.9 million-square-foot terminal at the Manila airport, was recently awarded to **Skidmore, Owings & Merrill**.

After weathering nearly 50 major earthquakes, **Frank Lloyd Wright's** 1925 Ennis

Dworsky Associates' Songdong Civic Center



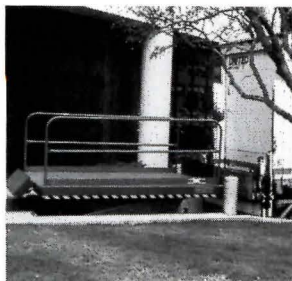
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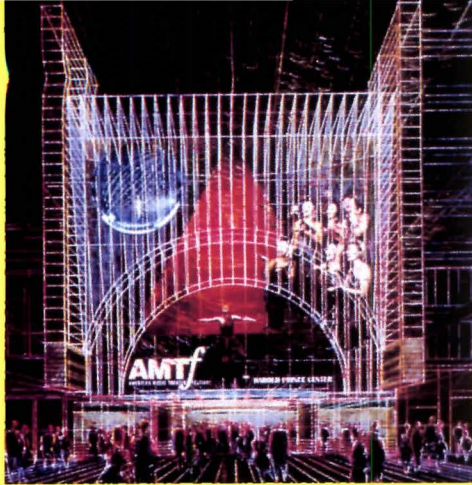
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Jung/Brannen Associates' Harold Prince Center

Brown House in Los Angeles will be restored by the **John Ash Group**.

Despite cuts in federal spending on the arts, the **Cooper-Hewitt National Design Museum** is developing the National Design Triennial, an invitational exhibition which debuts in 1999. The Triennial will bolster the Whitney Biennial's fine arts display with architecture, graphics, and industrial design. Architects under consideration for inclusion in the exhibition include **Richard Gluckman** and **Tod Williams and Billie Tsien**.

At a ceremony held on October 1 in Chicago's Shedd Aquarium, an eclectic group of designers received the 1997 Chrysler Award for Innovation in Design: architects **Elizabeth Diller** and **Ric Scofidio**; graphic designer **Ed Fella**; engineer **Chuck Hoberman**; industrial designer **Lisa Krohn**; aeronautic engineer **Burt Rutan**; and architect and artist **Allan Wexler**.

Two years after the demise of **The Architects Collaborative (TAC)** (*Architecture*, December 1995, pages 117-119), Boston architect **Chan Krieger & Associates** has completed the renovation of TAC's former headquarters in Cambridge. In addition to upgraded interiors, HVAC, and lighting, the most significant change to the Harvard University-owned, concrete-framed building is a new lead-coated copper entrance canopy suspended by steel cables. At another Cambridge institution, the Massachusetts Institute of Technology, **Frank Gehry, Fumihiko Maki, Pei Cobb Freed & Partners, Bohlin Cywinski Jackson, Ellenzweig, and Scogin Elam Bray** are competing to design a new computer sciences center.

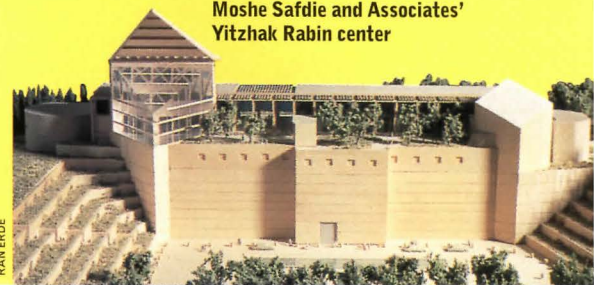
The state of Connecticut is reportedly

suing the former director of the Greater Hartford Architecture Conservancy, **Michael J. Kerski**, for pocketing agency funds to pay for personal expenses. The conservancy closed down in July, due to overwhelming debt.

Swiss architect **Peter Zumthor** recently won two major commissions in Germany: the Swiss Pavilion at Expo 2000 in Hanover and a medieval art museum in Cologne that will incorporate the remains of the Gothic church of St. Kolumba.

Ground has broken on **Moshe Safdie and Associates'** Yitzhak Rabin Memorial Archive and Museum atop an abandoned power station in Tel Aviv, Israel. The 8,000-square-meter complex will house a museum of Rabin's life, a library, archives, an auditorium, and a research institute, and is scheduled to be completed by 2000.

Moshe Safdie and Associates' Yitzhak Rabin center



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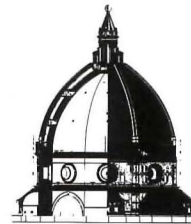


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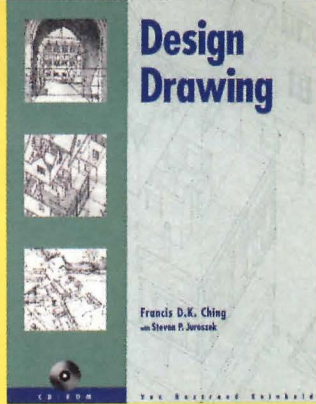
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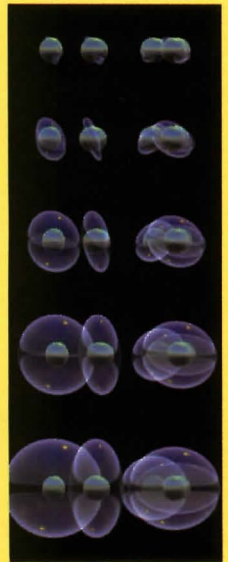
Since the CD-ROM's introduction to the personal computer market in 1984, pundits have anticipated an electronic revolution in the publishing industry. And they're still waiting. The content of most disks differs only slightly from books. Rather than trying to rival books, many of the most successful CD-ROMs are released as accompaniments to the printed word, as evidenced by a trio of new architecture-related CD-ROMs. They incorporate animation, sound, and video to expand concepts outlined on paper.

Design Drawing (Van Nostrand Reinhold): Written by Francis D.K. Ching with Steven P. Jurszek, *Design Drawing* is the latest installment in Ching's invaluable series of architectural primers. The CD-ROM supplements the book of the same name, and shows, through step-by-step, real-time examples, how to set up and execute the drawing techniques detailed in the book, such as perspectives, axonometrics, and orthographics. Such demonstrations are easier to understand than their printed counterparts—making the disk a valuable accompaniment to the book.

Design on Disk

New CD-ROMs supplement words and drawings with motion and sound.

Animate Form (Princeton Architectural Press): This CD-ROM accompanies a new monograph by architect Greg Lynn that introduces chaos theory to a profession described by the author as "the last refuge for members of the flat earth society." Lynn eschews current "static" architecture for more dynamic designs that literally diagram the impact of natural and abstract forces on a building. The architect's written explanations of his calculus-based philosophy won't be easygoing for readers with rusty math skills, but graphically dazzling, animated clips on the CD-ROM clearly illustrate the iterative transformations from which Lynn derives his final designs (right). *The Animate Form* CD-ROM surpasses the printed word, thanks to its seamless blending of electronic medium and content.



Le Corbusier Architecte|Artiste (Fondation Le Corbusier and Infinitum Productions): Elegant Modernist graphics, a jazz soundtrack, and video clips of Corbu showing off his Paris apartment make this stand-alone CD-ROM an accessible and entertaining overview of the master's life and work. It can be viewed with French text or in a spotty English translation. But this rich collection of more than 3,000 images, culled from the archives of the Fondation Le Corbusier, reproduces poorly on computer screens. Architectural drawings, in particular, are difficult to read. As a visual reference source, the CD-ROM can't compete with print publications such as the classic *Oeuvre Complète*. Ned Cramer



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Since its launch in 1994, Britain's National Lottery has quickly assumed the status of a beneficent national institution. Created by the former Conservative government as a means of channelling resources to traditionally underfunded areas such as the arts, it is now transforming the British cultural landscape through an ambitious and wide-ranging program of public development.

By 1999, the lottery will have dispensed around \$9.6 billion, with a significant portion of that funding spent on design and construction services. Architects are among the immediate beneficiaries, with an estimated 25 percent of all new design work in the U.K. currently being generated by lottery-funded projects. It hasn't quite reached the stage of "lottery lunacy" as the *Washington Post* rhetorically observed last year, but a recent survey by the Royal Institute of British Architects (RIBA) reveals that because of the lottery, the profession feels more optimistic about future commissions than at any time during the last five years.

Money raised from the twice-weekly lottery is divided among the Arts Council, Sports Council, National Lottery Charities Board, National Lottery Heritage Fund, and the Millennium

London's Gamble

National lottery profits are financing London's new cultural infrastructure for the 21st century.

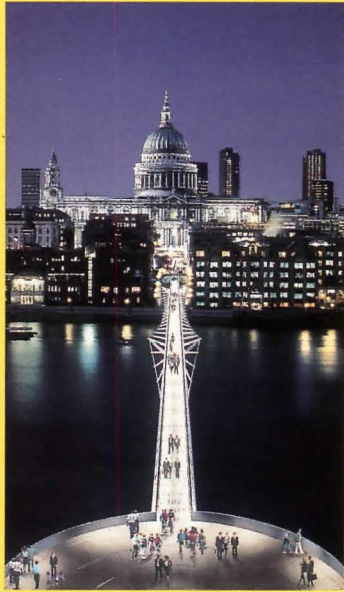
Commission. These organizations distribute funding to five areas: charities, the arts, sports, historic preservation, and celebrations of the millennium. Each distribution arm receives around \$416 million per year, and makes awards based on a fixed proportion of a project's capital costs. The Millennium Commission provides half the construction budget of preservation and millennial schemes; 65 percent for sports projects; and 75 percent for the arts.

Around \$1.4 billion in lottery profits is being channeled into the building industry alone. Taking into account the balance that the applicant must raise, this gives a total revenue of around \$2.08 billion—or between two percent and three percent of the annual value of construction in the U.K. By 2000, it is estimated that 15 percent of all new construction will be funded through lottery profits.

Inspired by the prospect of easy funding, many projects are being whisked through the design process in a rush to be presented to the sundry commissions. Exemplary architecture has always depended on enlightened patronage, and it is widely acknowledged that inexperienced, overburdened, and hurried clients do not make



for good buildings. Plans for major institutional buildings, such as Michael Wilford and Partners' Lowry Center in Salford, predate the lottery, and so have benefited from long incubation periods during which the building programs were fine-tuned by architects, developers, and clients. Many schemes applying for funding, however, are not as well-thought through because clients simply wanted to push to get the funding, regardless of design quality. This dash for cash was compounded by the prospect of political change before the U.K.'s general election earlier this year: Many feared that the new Labor administration might change the distribution policy; to date, however, it has not.



Building schemes receive backing from a variety of distribution bodies, as in the case of Wilford's Lowry Center, which is in many ways a model of successful lottery funding practice. So far, the project has obtained \$102 million of its \$203 million budget from the Arts Council, Millennium Commission, and Heritage Fund. An additional \$93 million has been secured from other sources, including the University of Salford and Salford City Council. The remaining five percent will come from private sources.

The same approach is found in the new National Center for Popular Music in Sheffield, designed by Nigel Coates and Douglas Branson and due to be completed in 1998. Four sleek, futuristic pods, linked by public galleries, will contain exhibitions on pop history, the recording and production process, acoustics, and temporary displays of pop memorabilia. The Arts Council has provided \$17.6 million of the building's \$24 million budget.

Branson Coates's scheme illustrates how a younger generation of architects are now getting the chance to design large-scale public projects. Unlike France, Britain has no formal competition system for public buildings so it can be difficult for emerging practices to break through. One lesson that is becoming clear in

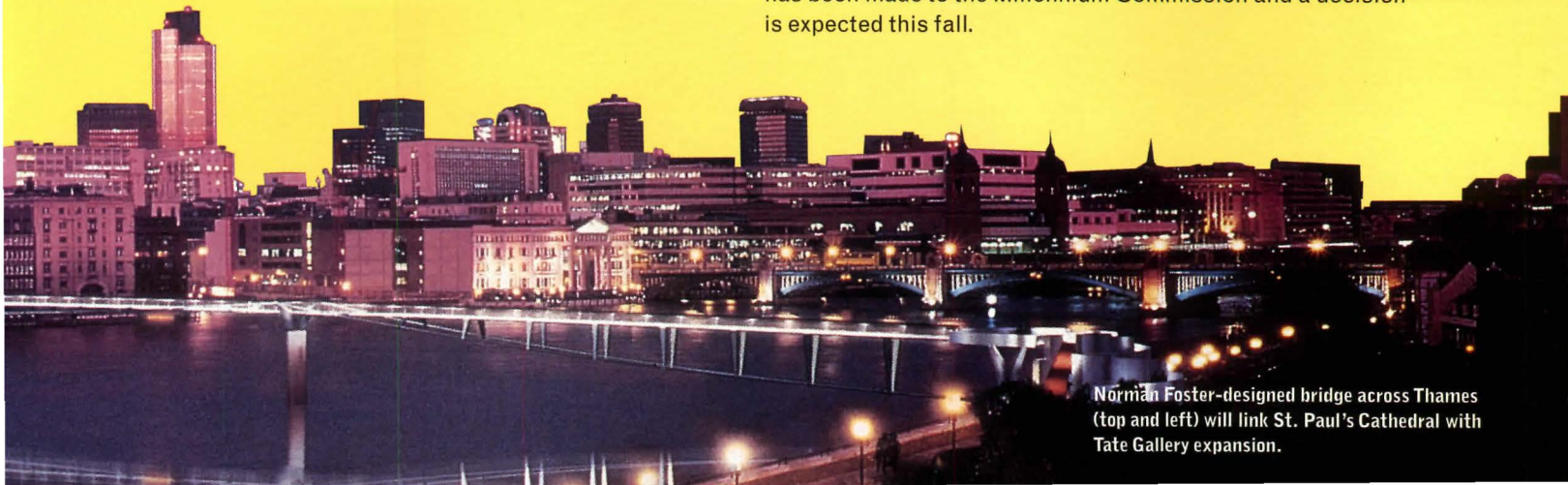
the lottery funding process so far is that it is essentially reactive—unlike, for example, the vigorous spirit that propelled the French *grands projets*. Distribution agencies in the U.K. have nothing to do with the development process because they are unable to solicit specific applications; instead, clients select architects to develop their schemes. Sometimes, these architects are chosen based on their previous track record, but not all the work is going to the usual suspects—in fact, many young practices are getting the chance to design their first major buildings, relates Rory Coonan, former head of the Architecture Unit at the Arts Council.

Another up-and-coming firm that has won a major commission through the lottery funding process is London-based Caruso St. John, designers of the jewel-like Walsall Art Gallery. The competition-winning scheme secured \$25.2 million from the Arts Council, following an initial \$8 million from other European sources.

Despite attempts to nurture development in smaller cities and towns throughout the U.K., London is still claiming the largest share of lottery funding by far, an aspect that the new Labor government is keen to address. Among the heavyweight projects currently in the works for London is the new Tate Gallery at Bankside by Swiss architects Herzog and De Meuron, a new pedestrian bridge and the renovation of the British Museum by Foster and Partners, and a ferris wheel along the Thames designed by David Marks and Julia Barfield.

The new Tate will be inserted into the heroic, industrial carapace of Giles Gilbert Scott's Bankside Power Station, its 160-meter-high turbine hall radically transformed to house the country's most important collection of modern art. A key visual element of Herzog and De Meuron's powerfully elemental scheme is a "light beam"—a glazed, one-story-high insertion running the length of the building, creating an extra floor at roof level. A café, restaurant, and members room will be located within this dramatic new space. Funding from the Millennium Commission and the Arts Council will comprise a large portion of the project's \$208 million cost.

Linking the new Tate with St. Paul's Cathedral and the City of London on the north side of the Thames will be Foster and Partners' new footbridge (below). Designed in collaboration with the distinguished sculptor Anthony Caro, architect Norman Foster describes the footbridge as "an absolutely minimal intervention, like a razor blade." It is the first new Thames crossing since the Tower Bridge opened in 1894 and London's first entirely pedestrian bridge. An application for funding of the \$16 million project has been made to the Millennium Commission and a decision is expected this fall.



Norman Foster-designed bridge across Thames (top and left) will link St. Paul's Cathedral with Tate Gallery expansion.

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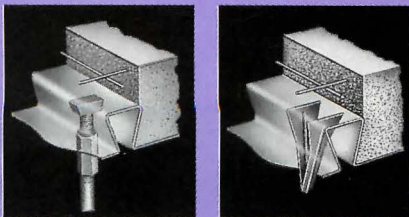
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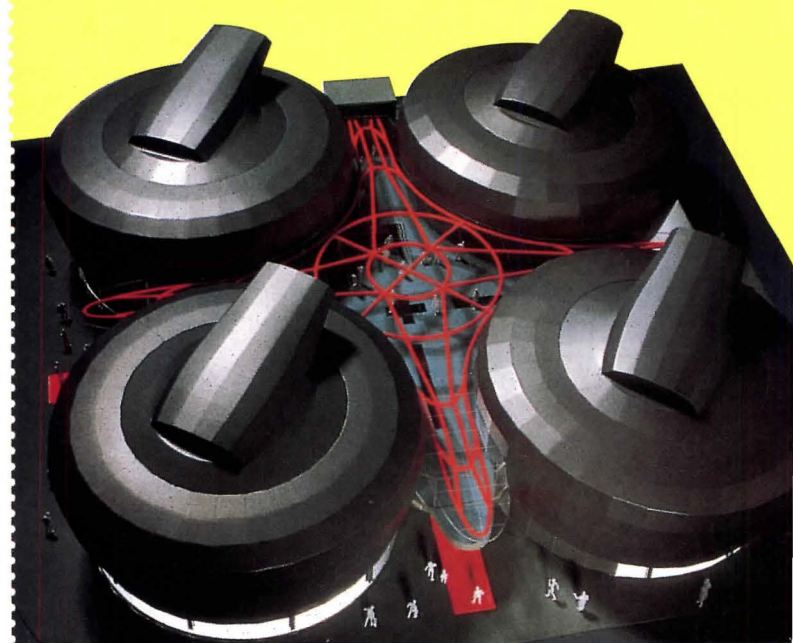
Circle 159 on information card

Foster has also proposed reuse and revival of the British Museum's Great Court. The genesis of the project is the relocation of the bookstacks from the museum's 1857 domed reading room (designed by Sidney Smirke) to the controversial new British Library by Colin St. John Wilson next to St. Pancras Station. The inner courtyard surrounding the reading room will be completely enclosed by a glass roof, and circulation will be rationalized with a grand double staircase that takes visitors up to three mezzanine floors, linked to a bridge leading to the upper galleries of the main museum building. The result is an imposing new public space. Other facilities in Foster's renovated library will include an education center, African art galleries, and a terrace restaurant. More than half of the funding has been obtained so far, including \$48 million from the Millennium Commission. The remainder will be sought from other grant-awarding bodies and private donors. The scheme is due to start construction in 1998 and open in 2001.

Marking the millennium follows a curious British tradition of commemorating historic events, such as the end of the Second World War and Royal Jubilees with festivals—often involving the construction of new buildings for the event. The 1951 Festival of Britain, planned to commemorate the centennial of the Great Exhibition of 1851 and the end of wartime privation, is forever associated with the flowering of British Modernism and still evokes potent architectural memories.

The focus of the imminent millennium celebrations is an ambitious redevelopment of the Greenwich peninsula, a tract of polluted industrial wasteland symbolically bisected by the Prime Meridian. A master plan by Richard Rogers Partnership aims to create a sustainable, mixed-use residential quarter, interspersed with a network of public spaces and parks—an attempt to make a permanent contribution to the site after 2000.

Dominating the peninsula's north end will be the showpiece Millennium Experience, housed in the world's largest dome. The source of much debate over escalating costs, which are currently in the region of \$1.2 billion, the project will be overseen by Labor politician and Member of Parliament Peter Mandelson. The grandson of Herbert Morrison, director of the Festival of Britain, Mandelson has become known as the "Dome Secretary."



Lottery is helping to fund projects by young architects such as Caruso St. John, who designed Walsall Art Gallery (right), as well as Nicholas Grimshaw's Eden Center (below) and Branford Coates's National Center for Popular Music (facing page).



Enclosed by a vast membrane roof supported by an intricate network of cables, the 50-meter-high dome is conceived as a bold new landmark for London.

The Millennium Commission's agenda also includes a number of technological schemes, such as the Eden Project, designed by Nicholas Grimshaw and Partners. Located in a former clay pit near St. Austell in Cornwall, the project aims to demonstrate the possibility of sustainable development through biodiversity.

A series of biomes (glass houses) recreating examples of the world's ecosystems

are melded into an amorphous, organic form, like a giant greenhouse, which appears to evolve from the rock face of the pit.

A grant of \$59.2 million was awarded by the Millennium Commission earlier this year,



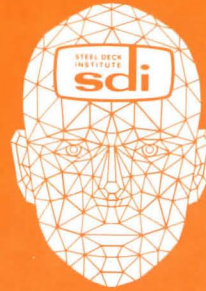
out of total project cost of \$169.6 million. The rest of the Eden project funding will be made up from private and institutional donors, coupled with funding from other grant-awarding bodies, such as local councils, or even the European Community. Grimshaw is also designing the National Space Science Center, a new educational and research facility linked to the University of Leicester.

The Lottery Commission's funding bodies are detached from national or local political leadership, so the dynamism required to generate and sustain coherent development is often absent. In contrast to the powerful mayors who have led the renaissance of so many European cities, local political leadership has reached a historical nadir in Britain. This may change as the government refines its priorities, one of which is selecting a new mayor for London. Under new leadership, the city may be able to develop a more focused approach to crucial aspects such as infrastructure, transportation, housing, and cultural facilities, at present administered in piecemeal fashion by individual London boroughs. Such political squabbling may be a turnoff to the public, many of whom would likely opt for better transportation infrastructure than a huge dome, if given a choice. (Public opinion on the lottery-funded projects has so far been difficult to gauge, since most projects are still unfinished.)

More importantly for architects is the apparent reluctance of distribution bodies to fund projects deemed "controversial." Notable examples are Zaha Hadid's Cardiff opera house and Daniel Libeskind's extension to the Boilerhouse Gallery at the

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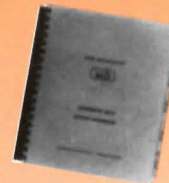
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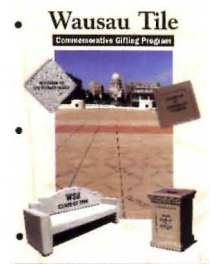
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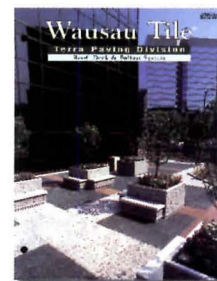
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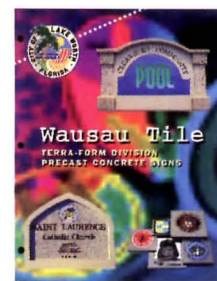
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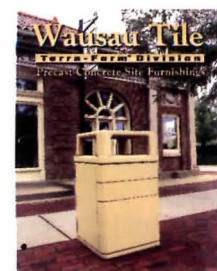
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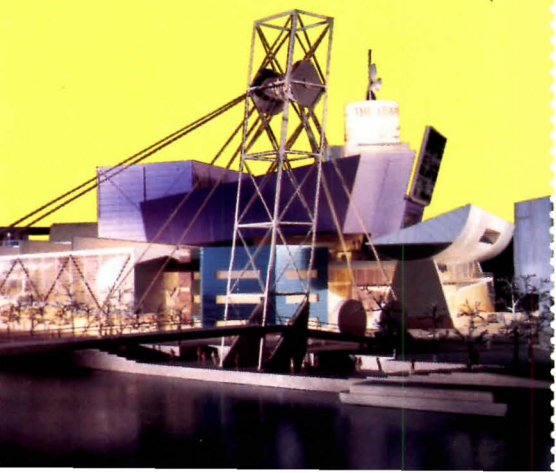


Tensile dome by Richard Rogers (above) covers site in Greenwich. Michael Wilford & Partners' Lowry Center in Salford (bottom) exemplifies lottery funding success.

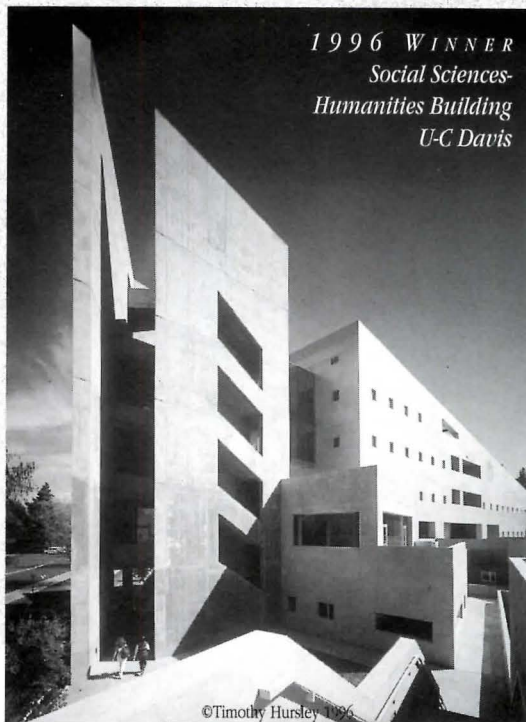
Victoria and Albert Museum in London, both legitimate winners of major competitions and both manifesting a vigorous Deconstructivist sensibility. In Hadid's case, various "technical factors" (leading to repeated demoralizing revisions of the original design), coupled with the Millennium Commission's eventual rejection of an \$80 million bid, contrived to sink a flag-ship project that would have boosted Welsh tourism, investment, and national pride. In Libeskind's case, funding has thus far been denied by the Millennium Commission on the astonishing grounds that the scheme is not "distinctive enough." New funding applications to other lottery funding bodies are likely.

Despite the U.K.'s current climate of political, economic, and architectural zeal, and the radical architectural thinking the lottery funding is encouraging, it seems that traditional British reserve may still prevail over visionary design.

London-based Catherine Slessor is the deputy editor of *The Architectural Review*.



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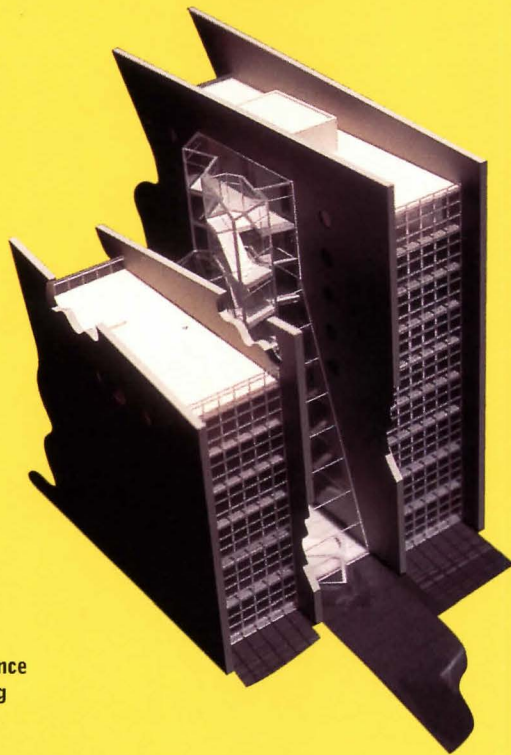
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Fuksas's monument and pool (foreground) and UN Building

Place of Nations Geneva, Switzerland

The 1927 competition to design the League of Nations headquarters in Geneva, Switzerland, summarized the conflict then raging in Europe between the restless, emergent Modernists and their aging, but still influential Beaux-Arts counterparts. The Modernists lost the battle when Le Corbusier's famous entry was disqualified on a trumped-up technicality, making way for a Classical design by a committee of long-forgotten European academics, completed in 1938.

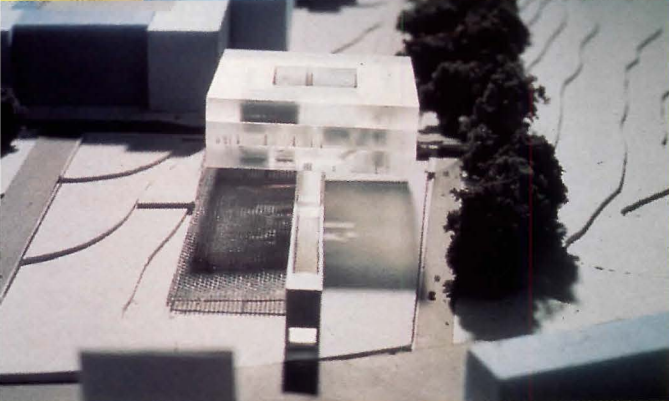
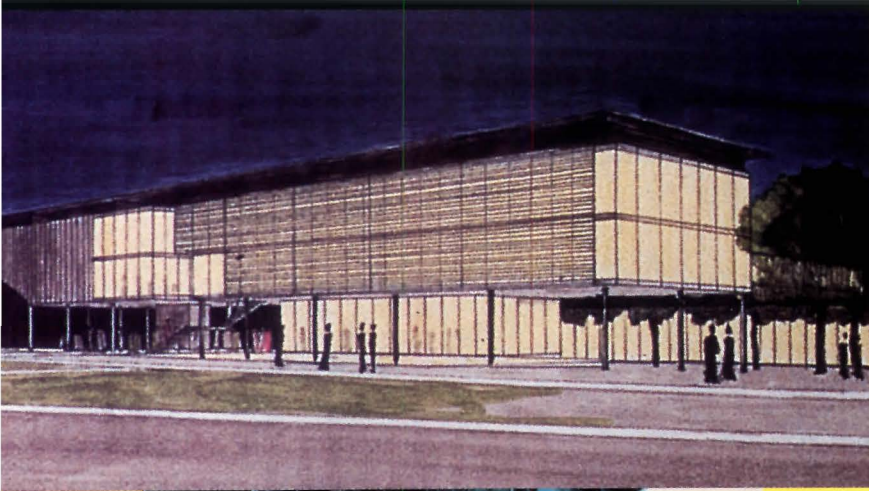
Sixty years later, a new generation of Modernists is upstaging this competition: The conservative complex, which now houses offices of the United Nations (UN), is being expanded by Peter Eisenman, Massimiliano Fuksas of Italy, Sumet Jumsai of Thailand, Rem Koolhaas, Dominique Perrault, and local architects Daniel Baillif and Roger Loponte.

The project is the brainchild of architect Philippe Joye, the head of Geneva's Department of Public Works and Energy, and is intended to house offices for the UN as well as for several international think tanks and political organizations in the city's burgeoning international sector.

In collaboration with the UN, University of Geneva, Swiss government, International Telecommunication Union, and World Intellectual Property Organization, Joye staged an invitational competition to master-plan the extension, called the Place of Nations; Fuksas won, and the runners-up were assigned individual buildings according to the Italian architect's master plan.



New buildings for the Place of Nations include (top to bottom) Baillif and Loponte's Sismondi College; entrance and overall view of Koolhaas's House of Human Rights and Humanitarian Affairs; plan and perspective of Eisenman's library.



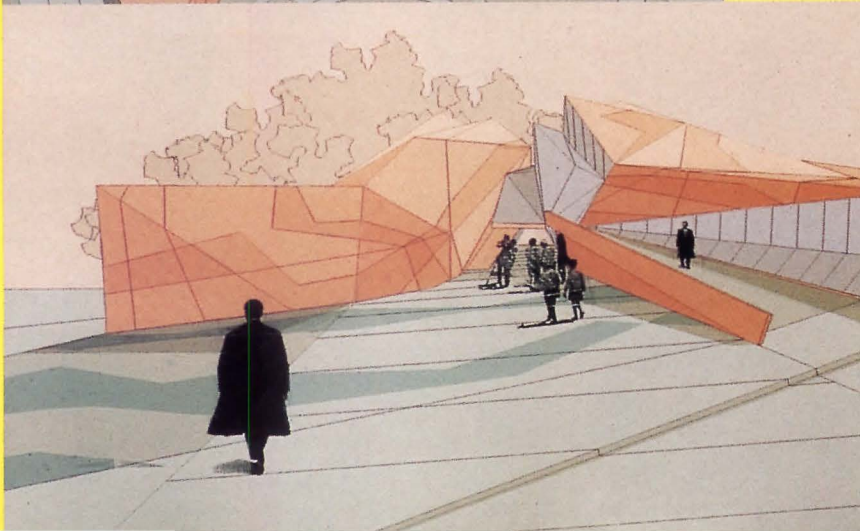
Over the next 30 years, the new complex will encompass Geneva's entire international quarter, but currently concentrates on a large urban block to the south of the old League of Nations headquarters. Fukas proposes covering the block with an enormous pool of water, centered on a 30-by-60-meter wooden platform, to symbolize Lake Geneva and the surrounding forests.

The platform is connected by walkways to the four new buildings that define the east, west, and south edges of the block; the north side of the Place opens onto the axis of the original headquarters. On the east and west sides, Fukas has designed a copper-clad monument to multiculturalism and a 67,500-square-foot office building housing the UN missions of developing countries. Two buildings make up the south side of the Place: Perrault's 58,500-square-foot Security Policy Center, housing a foundation for the study of international security issues, and Jumsai's 51,300-square-foot Academic Institute of Advanced International Studies (AIAIS), a graduate study center of political science and economics.



Several buildings are sited outside the Place of Nations. Koolhaas's 83,200-square-foot House of Human Rights and Humanitarian Affairs for the UN's High Commissariat will be built along the east side of the axis between Fukas's pool and the original League of Nations headquarters. Eisenman's 35,000-square-foot AIAIS library lies to the east of the Place. To the east of

Eisenman's library, the Sismondi College international school will expand into a new 31,300-square-foot building by Baillif and Loponte. Construction of the complex begins in 1999. *Ned Cramer*





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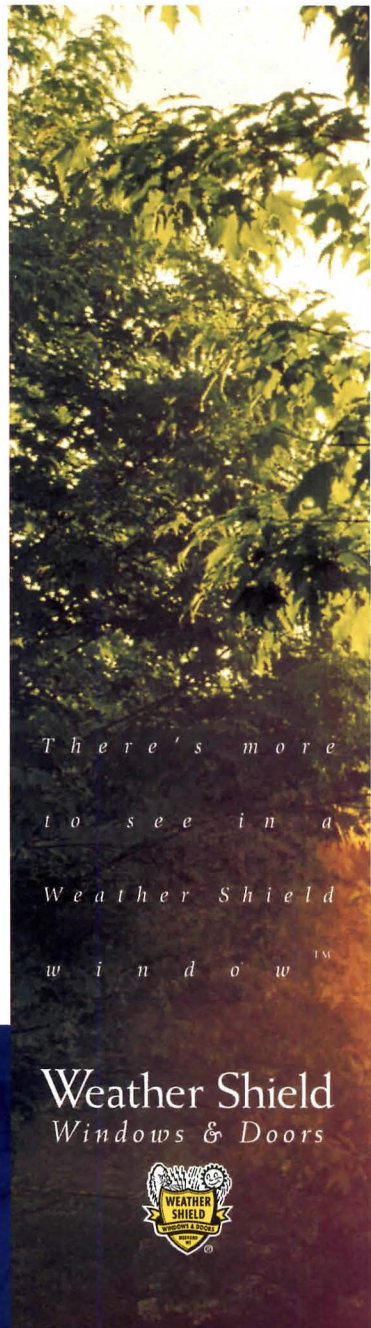
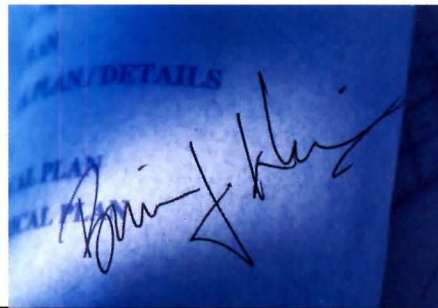
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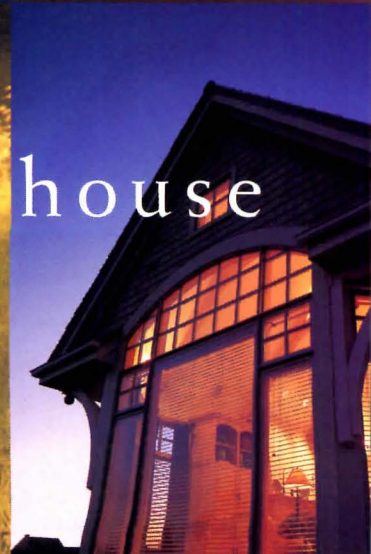


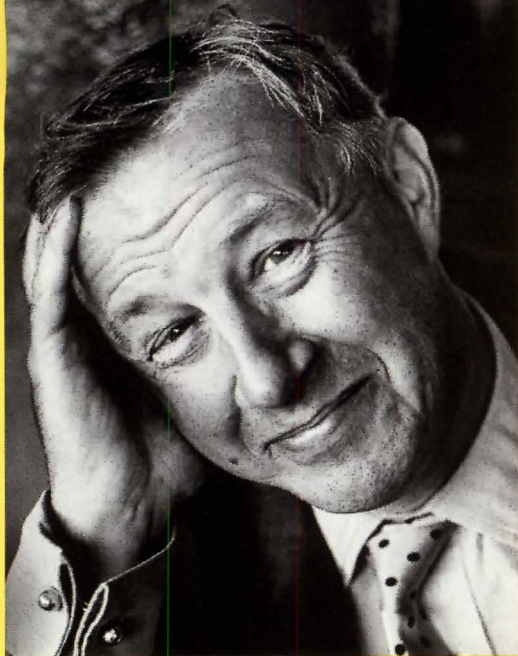
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Britain's Design Knight

Decades before Martha Stewart sold linens at Kmart and taught Americans how to faux-finish their walls, Terence Conran began offering Britons affordable, well-designed furniture and housewares. Today, the 65-year-old Conran heads a \$90 million, 1,800-person conglomerate that owns five Conran Shops in London, Paris, Tokyo, and Hamburg; a dozen restaurants in London; a 45-person architecture, design, and planning firm, CD Partnership; Benchmark, a furnituremaking business; and Conran Octopus, a publishing company.

Knighted by Queen Elizabeth II in 1983, the indefatigable Conran is busier than ever—and reportedly worth \$150 million. In May, he opened the Bluebird Gastrodrome, a Provençal-inspired market and restaurant in London's Chelsea district; he opened another London restaurant, Zinc, in August; and this month, he inaugurates a second Conran Shop in London. Conran will return to this side of the Atlantic in early 1999, with the opening of a retail and restaurant complex under the 59th Street Bridge in midtown Manhattan.

ARCHITECTURE: To what do you credit your staying power?

TERENCE CONRAN: Luck, determination, some bloody-mindedness, and hard work. I've never really had a grand scheme or a five-year plan, but I've seized opportunities as they occurred. Luckily, my hunches have been right more often than they have been wrong. When I first started developing Butlers Wharf [the Thames-side complex housing Conran's headquarters, restaurants, and food stores], for example, property experts told me it was doomed to failure—that people would never come south of the river to eat. Yet our restaurants here are packed every day of the week.

Are you trained in design?

I trained as a textile designer at the Central School of Arts & Crafts in London. But I left before completing my degree to take a job at the Rayon Design Center, where I produced textile designs, worked on a magazine, turned my hand to designing whatever turned up, including an exhibition at the Festival of Britain (1951). During the 1950s, I set up a furnituremaking company called Conran & Company, and then Conran Design Group. It was all pretty hand-to-mouth in the early days: I first got into restaurants as a means of making money to keep the furniture business afloat. The importance of these experiences is that I know how things are made because I can usually make them myself.

What was your goal in opening the first Habitat in 1964?

I opened Habitat because I was frustrated by the failure of existing retailers to sell my furniture with any real success or conviction. I was certain that there was a market for our designs: For the first time, young people had a bit of disposable income, and they were of a generation which didn't always share the taste and values of their parents. The core of Habitat's products was self-assembly furniture



which we designed and made ourselves. By the time I retired as chairman in 1990, there were 59 Habitat stores in the U.K., 29 in France, 16 Conran's in the U.S., and 26 franchise stores around the world. After I left the group, Habitat was sold off; the U.S. stores went into receivership. The European outlets are now owned by the parent company of IKEA.

Tell us about your architecture and design practice.

CD Partnership was established in 1993 by the merger of Conran Roche, my architecture and town-planning company, and a team of interior designers. Today, it's a company of about 45 architects, interior designers, and product and graphic designers.



CD Partnership designed Zinc restaurant in London (far left), including wine labels (left), and is redeveloping ship terminal on Edinburgh's waterfront (facing page).

We work on all Conran Group projects, but also receive commissions from other parties. We've designed an office headquarters in Harlow [25 miles northwest of London], a restaurant in Munich, and a hotel in Vienna. At the moment, we're working on a big terminal at Leith [Edinburgh's port], a department store in Melbourne, and a massive redevelopment in the Roppongi district of Tokyo.

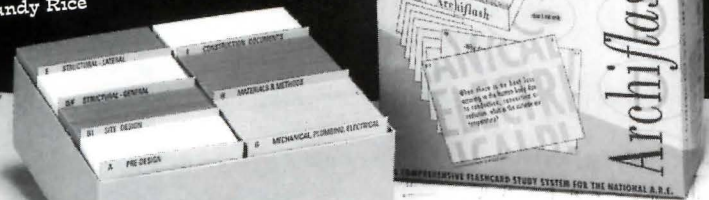
Why did you found the Design Museum in 1989?

The Design Museum grew out of something called the Boilerhouse Room at the Victoria & Albert (V&A) Museum. The Boilerhouse—so-called because it was situated in the museum's basement boiler rooms—was dedicated to putting on exhibitions which examined the roles of industrial design and manufacturing. The project was funded largely by my charitable foundation, and the exhibitions we put on proved very popular—so much so that some of the other V&A directors were rather envious of our success.

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In the 1980s, I was redeveloping Butlers Wharf, and there was the opportunity to do something much more ambitious than the Boilerhouse. The Design Museum made it possible to demonstrate to a very wide public how the art of industrial design can improve the economy and the quality of everybody's lives.

How are your ventures tied together?

Design is at the nucleus of everything we do. I'm not an esoteric, intellectual designer hampered by theory, and I passionately believe that good design can improve people's lives. Although we're a business, our ventures are not done purely as moneymaking exercises. I get a real buzz out of designing something and then seeing other people share in my enthusiasm.

To promote design effectively, I think you need also to be an educator, so that's why books like *The Essential House Book* explain basic architectural principles to the layman, rather than being just decorating or style guidebooks. Because I've been lucky enough to make quite a bit of money in my career, I've been able to be a design patron, too. I can put my money where my mouth is, whether it's funding the

Design Museum or commissioning artists and designers to make things for our restaurants and shops.

I'm a stickler for detail, and having a group of interrelated companies makes it easier to design everything, right down to the cutlery and china and—something we're famous for—the ashtrays.

What do you think of themed spaces?

I visited Niketown when it opened in Manhattan and was very impressed. But on the whole, I'm extremely dubious about themed environments. By their very nature they're ersatz spaces that have little or no regard for the architecture or location of a building. I think they also place too much emphasis on interior design, and not enough on the product being sold within it, whether that's food in a restaurant or clothes or cosmetics in a shop. I recognize the economic imperatives behind global expansion, but I can't say that they thrill me.

What do you think of contemporary British architecture?

It's in a pretty healthy state. When Prince Charles started the whole "monstrous carbuncle" debate about Modern architecture,

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interview

it initially appeared that we were going to retreat to Neoclassical models as the standard of architectural aspiration. But Charles put architecture on the cultural agenda. Newspapers, magazines, and television now treat architecture as a subject worthy of serious consideration, not the preserve of an intellectual elite. I'm hoping the new Labor government will show some guts when it comes to commissioning new projects, and that the money available for projects through the National Lottery will result in some dynamic spaces.

What's your next venture?

This month, we open a new Conran Shop in North London, which will have an 80-seat restaurant on the first floor. Early next year, we'll be opening a rooftop restaurant in the City of London [in a Michael Wilford-designed office block] and an Italian restaurant in Savile Row. Then there's Bridgemarket in Manhattan. We're also part of a consortium working on the redevelopment of the Great Eastern Hotel next to Liverpool Street Station in London.

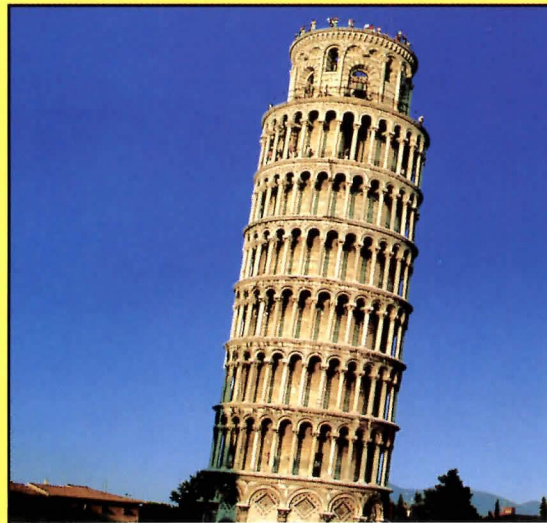
Do you think there is a signature "Conran look" to your designs?

I like design that doesn't shout at you but slips quietly, efficiently, and elegantly into people's homes. Though I'm essentially a Modernist, I'm not a design intellectual. Good design has to have human qualities; it can't be alienating. I'm not Philippe Starck, and never could be, no matter how much I admire his work. I'm more of a Shaker.

With a building—whether it's a site for a restaurant or a Conran Shop—we consider the character of the neighborhood. We favor the use of high-quality natural materials like timber, stone, and marble. And although you can see historical influences, we're not interested in pastiche; instead, we try to create something new and of its time and place. Simplicity, practicality, understated elegance, confidence, and a bit of quirky humor are the elements we try to bring together.



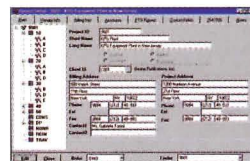
Conran founded Design Museum (above left) in 1989. This spring, he opened Bluebird Gastrodrome (left) in London. Conran Shop (above) is housed in former Michelin garage.



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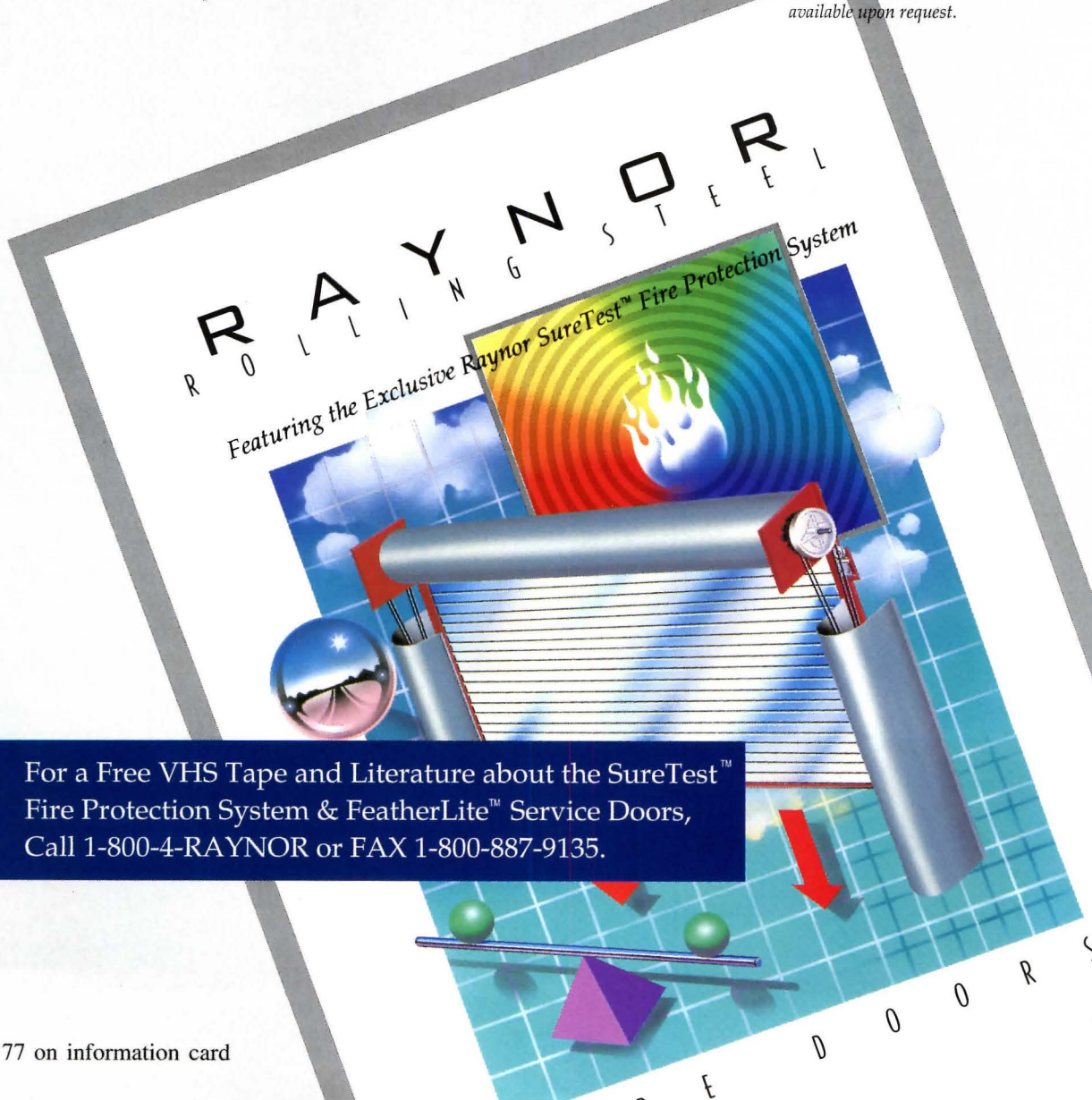
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Cultural exchanges between countries are increasingly valuable in a business world that no longer knows boundaries. But the Japanese Cultural Center in Paris, built on one of the last open spaces along the Seine River in Paris, is bad enough to set back Franco-Japanese relations 100 years. This glass-and-steel interruption on Quai Branly, just west of the Eiffel Tower, looks more like a modern airport or convention center than a stately building fit for Baron Georges-Eugene Haussmann's grand boulevards.

The cultural center is located on the Left Bank of the Seine, an area devoted to culture and education. Modernist architecture should not be excluded from the Left Bank, but in this context, the 22-meter-high cultural center with a silk-screened glass facade is overwhelming. On the Right Bank, in the city's business district, this design may have worked.

Opened to the public last month, the cultural center is the result of an international design competition, held in 1989 and sponsored

Culture Clubbed

The Japanese Cultural Center in Paris spans a corner, but fails to bridge two cultures.

by the Japan Foundation. It was won by Armstrong Associates of London, whose design reflects little more than the skin-deep gloss and polish of the late 1980s.

Instead of reinterpreting Parisian geometries, the six-story center (with five levels below ground) lacks any link to its Second Empire context. Its principal glass-and-steel facade rounds the corner like a stretch of plastic wrap, defined by an almost imperceptibly staggered rhythm of engaged columns offset by thin mullions that fail to break up the facade. This shoddy curtain-wall detailing is interrupted by the scrimlike veil across the attic story that only contributes to the jumbled facade.

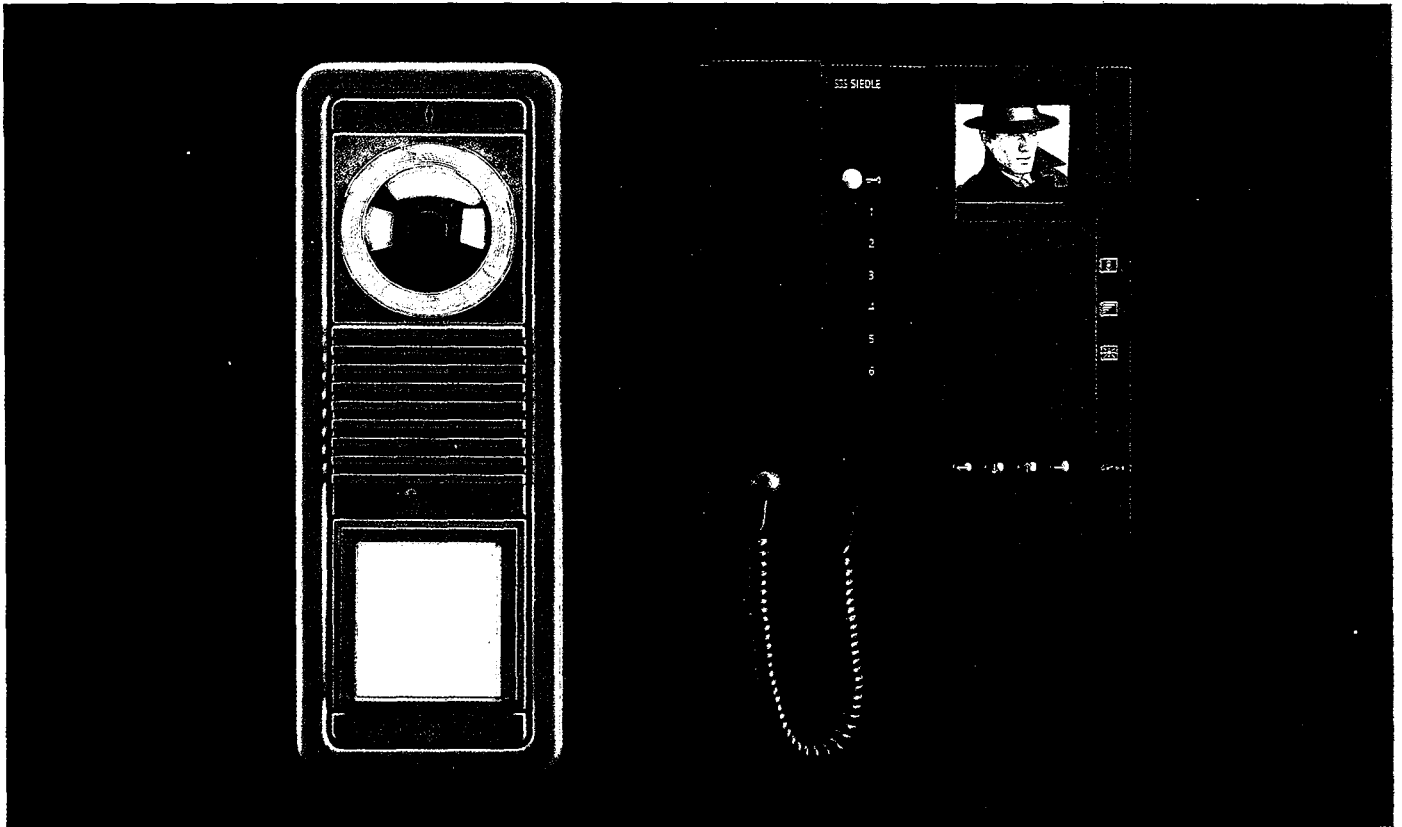
Adding to this clumsiness is the service core at the site's western edge, which represents an inelegant attempt to connect the building to its 19th-century neighbor by introducing larger glass panes that expose the stairwell. Far from reconciling the differences between old and new, this awkward hyphenlike addition only emphasizes the incompatibility of the two structures.

From any angle, the result is disappointing: The horizontal bands of glass and steel stick out amid the stone and brick buildings that so elegantly stand their ground; up close, the building overwhelms the corner.

More significantly, the design fails to communicate the center's mission to showcase Japan's cultural heritage. Given the wealth of design talent in Japan and France, it is a wonder that the jury selected an architect without roots in either country. An architect who grew up and trained in Japan or France may have achieved a building that better demonstrated the spirit of the two countries coming together. *Michael Maynard*



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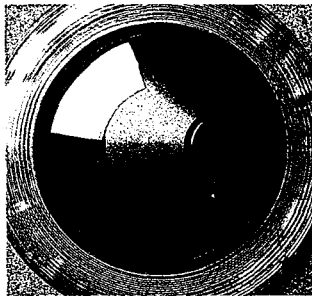
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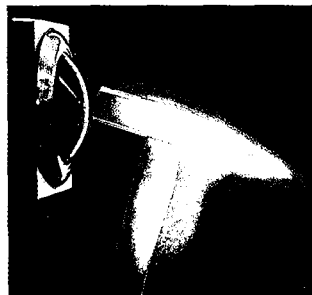
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Susan Maxman

Principal
Susan Maxman Architects
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Alan Plattus

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Deadline for Submissions: **October 15, 1997**

Entry Form: Awards for Architectural Research

Please complete and submit all parts intact with each entry (see paragraph 9 for instructions). Photocopies of this form may be used.

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Architects, environmental design professionals, academics, and students conducting research and working in the U.S., Mexico, or Canada may enter one or more submissions. Research may be focused on any location, but the work must have been directed and substantially executed in the U.S., Mexico, or Canada not more than five years ago.

2 Substantive Projects

Entries may include funded research, reports accepted by clients for implementation, or studies undertaken by entrants who have marketed or applied their results. Applied research, in which existing research findings are used or tested in the field (resulting in new knowledge gained from application), and doctoral dissertations are also eligible. Basis of eligibility as well as the date of the study should be explained in the submission. Architecture may contact any of the parties involved to verify eligibility.

Publication Agreement

3 Providing Additional Materials

If the submission should win, the entrant agrees to make available further information and graphic material as needed by Architecture.

4 Publication

Architecture is granted the first opportunity among U.S. magazines for first publication of the study.

Submission Requirements

5 Project Facts Page

To ensure the jury's clear understanding, each entry must contain a page that lists, in English, the research project facts under the following headings: Project Title; Research Category; Client or Source of Funding; Budget; Start and Finish Dates; Name and Location of Client; Research Setting; Form of Final Products; Basis of Eligibility; Bibliographic References. Ten copies of this page must be submitted.

6 Narrative

Entries must contain a three- to five-page synopsis of the project that includes the following section headings: Purpose/ Objectives of the Project; Research Design and Methods Used in Research; Data and Analysis Procedures; Major Findings and Results; Significance and Uses of Results. Ten copies of the narrative must be submitted.

7 Additional Materials

One copy of supplementary graphic or written material may be submitted in 8 1/2-by-11-inch format and firmly bound in binders. No slides, original drawings, videotapes, or unbound materials will be reviewed.

8 Anonymity

To ensure anonymity in judging, no names of entrants or collaborators may appear on any part of the submission except on entry forms. Credits may be concealed by tape.

9 Entry Forms

Each submission must be accompanied by a signed entry form (left). Reproductions of the form are acceptable. Fill out the entry form and insert it intact into an unsealed envelope labeled "Entry Form" to be included with the submission.

10 Entry Fees

Entry fees must accompany each submission. Fee is \$120. Make check or money order payable to Architecture. Canadian and Mexican entrants must send drafts in U.S. dollars. Fee must be inserted in unsealed envelope with entry form (see 9, above).

11 Return of Entries

Architecture will return entries ONLY if they are accompanied by a self-addressed stamped envelope. Copies of project facts and narratives may not be returned. Architecture assumes no liability for loss or damage.

12 Entry Deadline

Deadline for sending entries is October 15, 1997. All entries must show a postage mark as evidence of being in the carrier's hands by that date. Hand-delivered entries must arrive at Architecture's offices by 6 p.m. on October 15. To ensure timely arrival, Architecture recommends using a carrier that guarantees delivery within a specified number of days.

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EURO MODERNISTS

In 1995, the Museum of Modern Art in New York City mounted an architectural exhibition called "Light Construction." The show articulated how Modernism is being reinterpreted

through experimentation with surfaces and materials, yielding seemingly weightless buildings of breathtaking transparency and luminescence. This issue expands MoMA's thesis, featuring European examples of the architecture of lightness. Architects from Austria, France, Germany, the Netherlands, Spain, and Switzerland are enriching the Modernist tradition with new energy and regional sensitivity.



Baumschlager & Eberle Studio
Lochau, Austria

Austrian architects Carlo Baumschlager and Dietmar Eberle discovered an overlooked client niche when they established their practice in Lochau, a town on Lake Constance, in 1984. The unpretentious pair found that many young professionals, such as teachers and social workers, had more time than money on their hands and were willing to invest sweat equity in their own houses. Enlisting the labor of their clients necessitated using a low-tech, cost-sensitive strategy.

Forty-two-year-old Baumschlager and 45-year-old Eberle responded with very concrete principles: making

assemblies accelerate construction. Within the mixed messages, wood tethers their Modernism to local traditions, and the glass and aluminum acknowledges the contemporary commercial vernacular. In a province with many church cupolas, copper is a familiar material.

Applying notions of participatory building, the architects extend their dialogues from clients to building authorities and consultants—not to mention the other architects in the 15-person office, with whom they cultivate daily round-table discussions. Sifting designs through many viewpoints rationalizes the

THE AUSTRIAN DUO OF CARLO BAUMSCHLAGER AND DIETMAR EBERLE

ALPINE

RATION

building volumes compact; keeping interiors and facades neutral; separating structure from enclosure; and minimizing the disturbance to a site. They became as attentive to the local ecosystem of materials and labor as they were to the region's ecology. Their interest in the pragmatics of construction resonated within the context of the Germanic rationality dominant in Vorarlberg, their province at the western tip of Austria, where most buildings are constructed in wood.

In designs that often hybridize wood and industrial materials, Baumschlager and Eberle underscore the simplicity common to industrial and hand-built construction: Both idioms have an honesty supported by uncomplicated geometries. The architects believe metal panels and bright colors have the same directness as rudimentary vernacular forms and materials. "In a particular situation we use whatever approach best suits the problem," says Eberle. "Tradition is not a formal question, and Modernism is not a technological question—both are a way of thinking."

Baumschlager and Eberle use wood even in larger buildings with expanses of glass and aluminum, as hung facades because of the wood's thermal isolation properties and affordability, and because the prefabricated

building process and has resulted—even in larger commissions—in buildings of great transparency. The pragmatic rationalism of their working process has deepened with their use of computers, with which they built up a large library of details that they modify as necessary. "Not every detail has to cause a sensation," remarks Baumschlager.

The city of Vorarlberg, whose sprawl resembles Los Angeles's, offers a loosely structured context whose relatively uncomplicated bureaucracies accommodate and even encourage building. The region, a high-tech industrial zone and center of commerce, is also prosperous and unlike Graz, the other architecture-intensive area in Austria, Vorarlberg is not yet institutionally overbuilt. Building near the shores of Lake Constance over the past decade, the architects have realized about 150 projects in an increasingly wide range of building types that now includes office, community, college, and industrial buildings. Although the more recent buildings—erected not by clients, but by contractors—are more formally self-conscious, they are still stamped with the simplicity and clarity on which Baumschlager & Eberle founded their practice and pragmatic esthetic.



Dietmar Eberle and Carlo Baumschlager

ADAPT MODERN FORMS TO REGIONAL TRADITIONS. By Joseph Giovannini

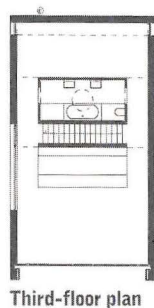
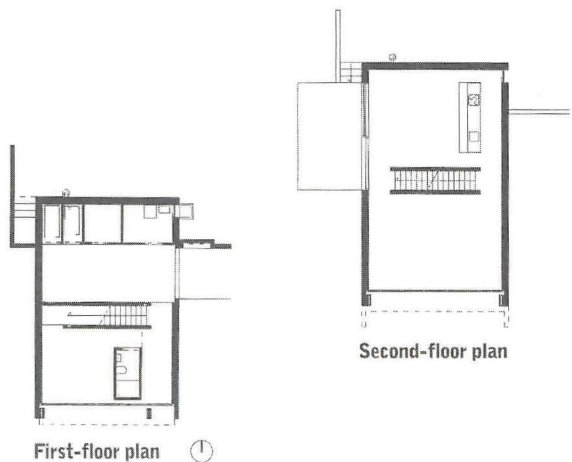
ALISTS

Baumschlager & Eberle's headquarters for an electronics company in Dornbirn (below) typifies the firm's interest in the articulation of building volumes differentiated by color and material.





Second-level living area of house (above) is flanked by windowed doors opening onto valley view. Cantilevered floors of poured concrete structure (bottom) create stepped profile and protective overhangs.



Third-floor plan

Second-floor plan

First-floor plan



BÜCHEL/GEIGER HOUSE VADUZ, LIECHTENSTEIN

Site was destiny for this compact, 140-square-meter house in Liechtenstein: Baumschlager & Eberle responded to the massif in the backyard by creating a house that looks like a chunk of rock that has fallen from the cliff into a garden of old fruit trees. "Because the surroundings are so powerful, we wanted to create a very direct and strong house," asserts Eberle. "We wanted to make a punctual moment—like a statue or a tower—and we thought that concrete would be an answer to the rock."

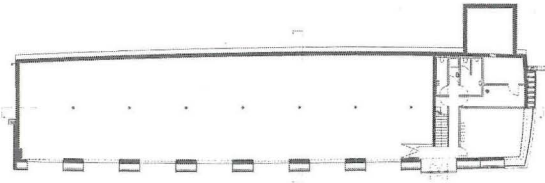
As in many of their projects, the architects devised a very compact footprint. The entrance, garage, and study are located on the ground floor of a solid, three-sided concrete box that cantilevers toward the valley view on the upper two floors; the living and dining rooms are on the second floor, and the bedroom is on the third. The south-facing wall, fronting the view, is glazed; the architects thrust the interiors toward the view by stepping the building's profile: "The movement of the house is toward the windows," explains Eberle. The floor-to-ceiling window panels open, and with fixed railings, the adjacent interiors virtually become balconies. The stepped section creates an overhang that protects each floor against the sun and rain.

The architects use the central stairwell as a vertical element to subdivide the interior box simply, front to back: A wet core for the kitchen on the second floor and bathrooms on the third parallels and reinforces the stairwell as a spatial divider. Almost no interior partitions are necessary because this service core organizes and divides the interior spaces (for example, closets separate two bedrooms on the third floor). The owners contributed sweat equity by painting their house and completing some woodwork.

CLIENTS: Christian Büchel and Andrea Geiger
ARCHITECT: Baumschlager & Eberle Architects, Lochau, Austria—Carlo Baumschlager, Dietmar Eberle (principals), Elmar Hasler, Nic Wohlwend (project architects) **ENGINEERS:** Bruno Rissi (structural); Gasser + Messner Engineering (mechanical); Andreas Hecht (electrical)
GENERAL CONTRACTOR: Spreiter **COST:** \$357,000
PHOTOGRAPHER: Eduard Hueber, Arch Photo



Exterior vitrine (far left) serves as principal source of illumination for showroom. Curved section profile (left) is determined by frames of laminated spruce. Trucking docks (below) are accommodated by sloping site.



Floor plan



FURNITURE SHOWROOM HERGATZ, GERMANY

Located on a highway in a rural area of southern Germany, this bowed, free-standing showroom is an abstract cousin of Robert Venturi's duck: For a manufacturer of contemporary wood furniture, Baumschlager & Eberle created a self-advertising roadside image that embodies the crafted care and conceptual originality of the client's furniture. Piers puncturing the vitrine of the south facade reveal ribs structuring the whalelike shape, whose walls, roof, and sides form the continuous wood surfaces of a monolithic volume. The porous wood surfaces of the larch-clad exterior walls allow water to drain through to an impermeable membrane, and create a continuity between roof and wall.

The gently arched exterior envelops

a clear-span, barnlike space inside. The walls and ceiling of the hull's interior form a continuously curved surface that is, like the exterior, clad in larch, a native pine of the region. The greater part of the space is used as a display and sales area; two stories of offices and meeting rooms are clustered at the higher end. The concrete floor of the showroom forms the ceiling of a storage depot on the ground floor, a level below, where a bank of garage doors opens to a rear service lot.

Conceptually, the building is simultaneously subtle and simple, with an exterior shape that takes on the regularly changing curves of its supporting ribs. As in many of their projects, the architects endowed a basically straightforward industrial building

constructed in inexpensive materials with a visual poetic achieved through a deft manipulation of the structural supports. The solution characterizes several projects in which the architects strive for a direct correspondence between interior and exterior shapes, especially in projects that warrant expressive exteriors.

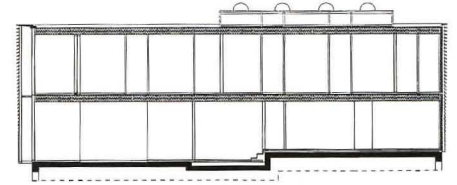
CLIENT: Bernd Altenried **ARCHITECT:** Baumschlager & Eberle Architects, Lochau, Austria—Carlo Baumschlager, Dietmar Eberle (principals), Oliver Baldauf, Michael Ohneberg (design team) **ENGINEERS:** Plankel (structural); Gasser + Messner Engineering (mechanical); Andreas Hecht (electrical) **GENERAL CONTRACTOR:** Zeh + Lang **COST:** \$818,000 **MODEL PHOTOGRAPHER:** SFH Photostudio **PHOTOGRAPHER:** Eduard Hueber, Arch Photo

KERN HOUSE LOCHAU, AUSTRIA

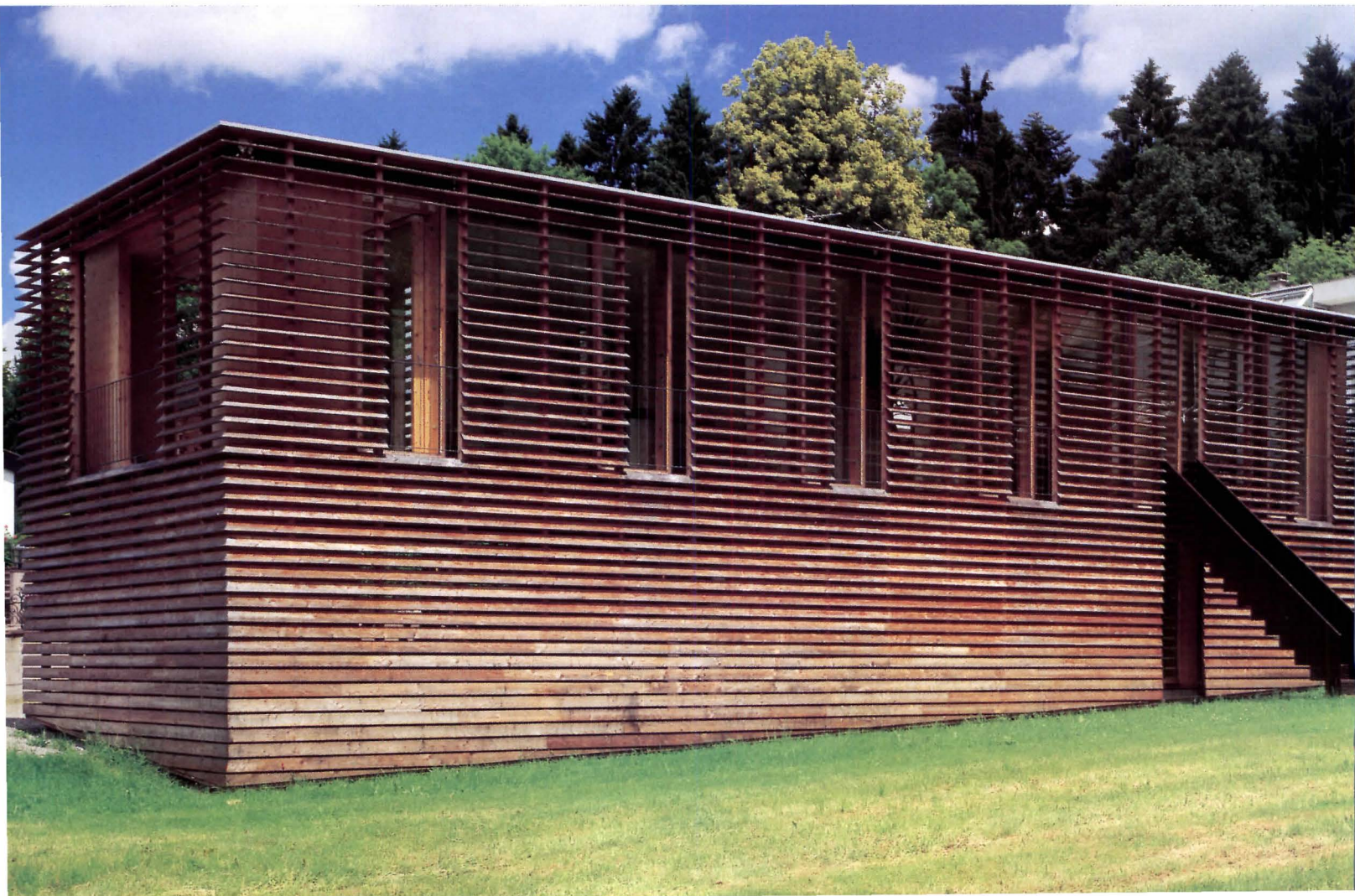
Unlike Asia, which has a tradition of courtyard houses, houses in Europe have a detached relationship with the outside. "Especially here in the mountains, the relationship is one of a view—into the landscape, down to the river, into the valley, to the mountains," points out Eberle.

For a hillside property overlooking Lake Constance, the architects optimized the view of the lake by elevating the two bedrooms, kitchen, and living and dining areas above a 17-by-9-meter base containing the entrance, a guest room, and garage. "The idea was to bring all the client needs for living to one floor, and to organize for this floor a wonderful view to the lake," says Eberle.

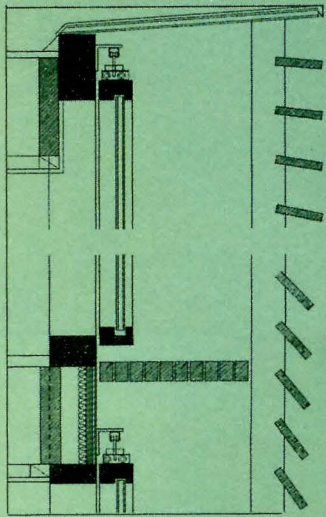
The architects glazed the south and west facades, which open onto the lake; to protect the interiors, they created a light, ground-to-roof, wall-to-wall brise-soleil of wood slats, punctured by regular openings. At the basement level, the distance between the exterior slats is narrow; but the distance gradually increases so that on the second floor the brise-soleil is more transparent to the view. "The higher you are, the better you see out to nature," Eberle explains. The wooden screen also protects the glass walls from water in the rainy climate of western Austria, while the expansive glass panes maximize light in the tall interiors.



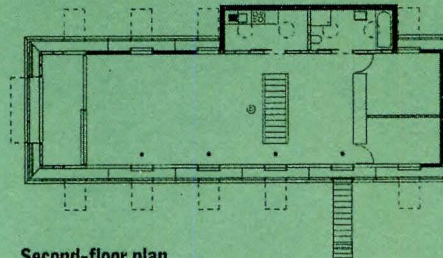
East-west section



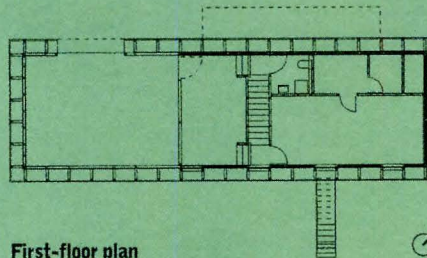
One-story wing containing kitchen and bath (facing page, top) projects from two-story main volume of house. Exterior is clad in 2-inch-wide slats of larch wood (facing page, bottom and below left), which act as brises-soleil and screen operable windows. Open plan is divided by entrance stair (below).



Wall section



Second-floor plan



First-floor plan

CLIENT: Sabrina Kern **ARCHITECT:** Baumschlager & Eberle Architects, Lochau, Austria—Carlo Baumschlager, Dietmar Eberle (principals), Rainer Huchler (project manager) **ENGINEERS:** Eugen Schuler (structural); Andreas Hecht (electrical) **CONSULTANT:** (carpentry) **GENERAL CONTRACTOR:** Hubert Hartmann **COST:** \$232,000 **PHOTOGRAPHER:** Eduard Hueber, Arch Photo

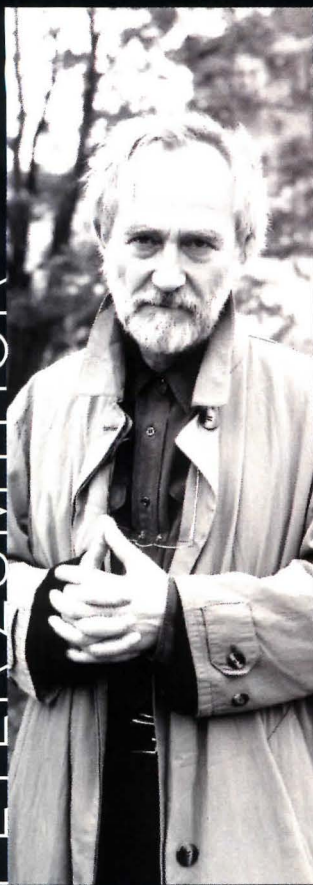
The background of the entire image is a grid of numerous small, rectangular light boxes. Each box is illuminated from within, creating a soft, glowing blue light. The boxes are arranged in a regular pattern, and the overall effect is a textured, shimmering surface. The lighting is slightly uneven, with some boxes appearing brighter than others, and there are some faint, out-of-focus lights visible in the background behind the grid.

LIGHT BOXES

BY RICHARD INGERSOLL



DECEPTIVELY SIMPLE, A PAIR OF BUILDINGS
BY SWISS ARCHITECT PETER ZUMTHOR RADIATE
MYSTERIOUS, LUMINOUS ENERGY.



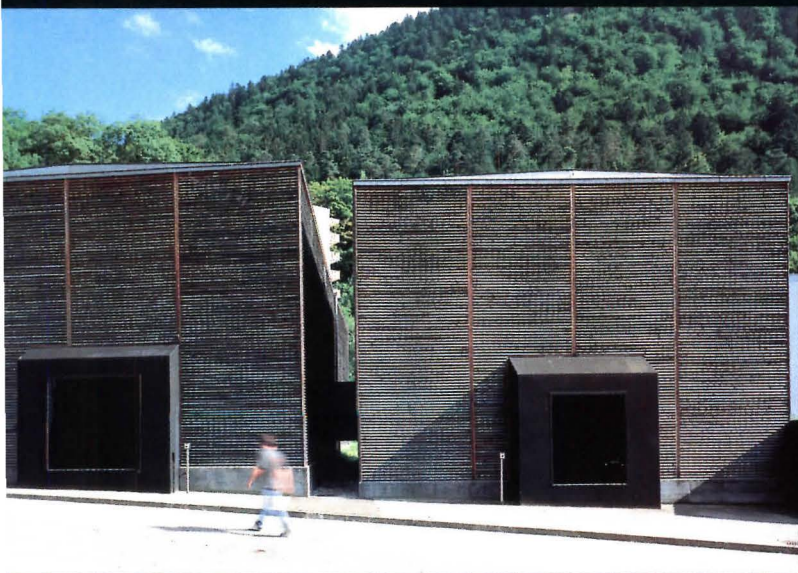
Peter Zumthor is not yet a household name among architects, due to his minimal production and his reluctance to publish his work. With the completion of a health spa in Vals, Switzerland, and an art museum in Bregenz, Austria—extraordinary works that seem destined to represent the age—the Swiss architect's aloofness can no longer be maintained. Like Zarathustra, the hermit protagonist of Friedrich Nietzsche's *Thus Spake Zarathustra*, Zumthor has come down from the mountain with a challenge for those who are skeptical that architecture can transport one toward the spiritual. Deceptively simple—cubes, oblongs, cylinders—the 54-year-old architect's buildings cannot be captured in photographs; their true essence comes from the experience of textures, the play of light, the celebration of craft, and the kinesthesia of their spaces.

Born in Basel in 1943, Zumthor received his most important training as an apprentice woodworker with his father. The special fit of details in his buildings, such as the meticulously assembled shingles on the round chapel at Sumvitg (facing page), relates to his artisan's background. One of his greatest satisfactions as a young cabinetmaker was listening to the sucking sound of a perfectly fitted cabinet door as it snapped closed.

Zumthor received some formal architectural training from a crafts school in Basel and later at the Pratt Institute in New York City, but most of his knowledge of architecture was learned on-site in the remote canton of Graubünden in eastern Switzerland, where he settled in the late 1960s. He first served as an architect on the local historic preservation commission, and later as a surveyor of housing developments, and then established his own practice in 1979 in the small farming village of Haldenstein.

ARCHAEOLOGICAL MUSEUM

CHUR, SWITZERLAND / 1983

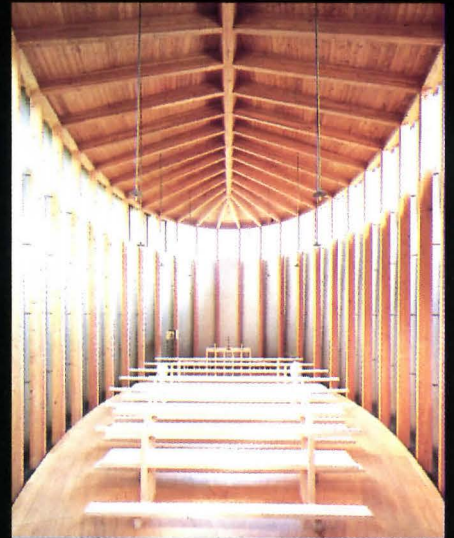


Inspired by wooden vernacular of Graubünden region, Zumthor designed pair of slatted enclosures for viewing Roman ruins (left). Gaps between wooden planks allow light and air to penetrate boxy enclosures. Grid-encased, elevated metal catwalks provide visitors access to archaeological site (above).



CHAPEL

SUMVITG, SWITZERLAND / 1989



Zumthor's buildings display an obvious respect for local typologies and show clear regionalist sympathies, as seen in his barnlike studio (1986) and permeable wooden sheds (facing page) enclosing a Roman archaeological site in Chur (1983). But his uncanny use of materials, such as the shed's thin louvers, make familiar forms seem delightfully strange.

The architect's new buildings at Vals and Bregenz form a single creative effort, like substance and shadow. The thermal spa, sunk into a mountain, extols the chthonic; the museum, rising above a lake, invokes the ethereal. Each work goes to extremes to eliminate the superfluous, yielding the paradox of an architecture of pure materials and continuous space that is at once impossibly simple yet wrenchingly mysterious.

These buildings bring to mind Thomas Mann's *The Magic Mountain*, not only because the novel is set in the same alpine region, but because it describes a place removed from the world, where the body is more present and the secrets of mortality more accessible. At Zumthor's baths in Vals, the solid preponderance of banded rock, through which water, light, and bodies must discretely filter, is as uncompromised as the Bregenz museum's crystalline shell, where light and human passage are diffused by the placement of monolithic concrete planes within a glass box. In each case, Zumthor provokes a confrontation with material and spatial essences, inducing a liminal condition that leads away from the world into a timeless, contemplative void.

Cylindrical, shingle-clad chapel, bermed into alpine hillside, recalls silos of eastern Switzerland (above left). Exposed timber-frame interior of tear-shaped worship space at top of drum reveals Zumthor's carpentry roots and his careful approach to craft (above).

THERMAL SPA VALS, SWITZERLAND

Vals is a small village at the end of a remote valley in eastern Switzerland, dotted with stark log barns and gushing waterfalls. The town can be reached only by a perilously curving road. Several mid-rise, egg crate-style hotels were built there in the 1960s

to accommodate tourists who came to ski in the winter and to take alpine hikes and healthy plunges in its mineral spa in the summer. Inevitably, the competition from more easily accessible resorts led to the slow decline of Vals's tourist trade, and the town was forced to acquire the bankrupt hotels.

In the late 1980s, the town council began to discuss economic strategies for rejuvenating its tourist trade; Zumthor, known locally for his work in Chur, was approached for ideas in renovating the thermal baths. When the clients saw the architect's first drawings for the building, which disappears into the hillside like the stone terraces of nearby farms, they were not convinced that the architecture would attract business. After constructing a model from the same green-hued stone later applied to the real construction, the architect succeeded in conveying the power of the eerie interior, a marvelous top-lit grotto, rich with primordial associations.

Large square openings in south facade frame outdoor pool on main level; windows on ground floor enclose rest spaces and baths.

North face of rectilinear bath house, clad in locally quarried gneiss, is bermed into hillside.

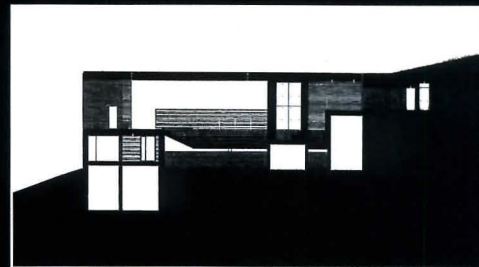




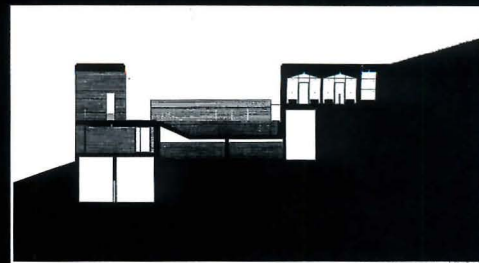
Circulation spine along south flank of main floor connects rest areas (left) filled with Zumthor-designed chaises longues. Glass door at end of corridor leads to outdoor pool.

Zumthor's ideal of limiting the palette to "stone and water" has become the marketing slogan of the spa, and the success of the project is evident from observing the nearly cultish demeanor of the bathers as they move from pool to pool, and from reports of a 140 percent increase in business since the opening of the spa in January. The building is finished in gneiss, a metamorphic rock that settled into thin strata rich in fossils and minerals, after exposure to the same heat and pressure that affects the chalybeate waters of the baths. The gneiss was quarried locally and cut almost like lumber into three standard depths, stacked in alternating foot-wide planks in deference to the material's natural striations. Like the boulders embedded in the concrete walls of Frank Lloyd Wright's studio at Taliesin West, the bands of gneiss are not treated as applied cladding, but integrated into the reinforced concrete of the walls and floors. The composite walls carry the monolithic concrete plates of the roof and the internal plumbing conduits. The precision of the perfectly aligned stonework and the virtue of its depth, revealed at the corner joints, command the respect reserved for the craftsmanship of ancient buildings.

In plan, the building is organized around a rectangular outdoor pool and a square interior pool. Around the pools, smaller blocks containing baths and showers are placed in a fractured pinwheel pattern. The interior spaces are dark and labyrinthine, like the Egyptian temples of the Upper Nile. One enters the baths through a black concrete tunnel from an adjacent hotel to the north,



North-south section through outdoor pool



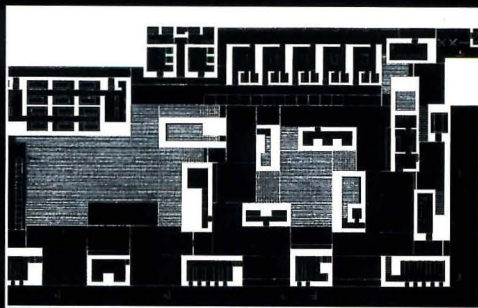
North-south section through outdoor pool and baths

Square openings in concrete ceiling slab filter colored light into stone chamber (facing page). Chambers containing tubs and showers surround main indoor pool (right). Narrow staircase (below right) descends from vestibule to pool level.



to a forking path that leads to the entrance hall, lined by brass nozzles that pierce the concrete retaining wall and drip the therapeutic mineral water. The space opens onto a gigantic cavern supported by massive, stone-lined blocks and flickering with light reflecting from the pools and narrow light troughs in the ceiling.

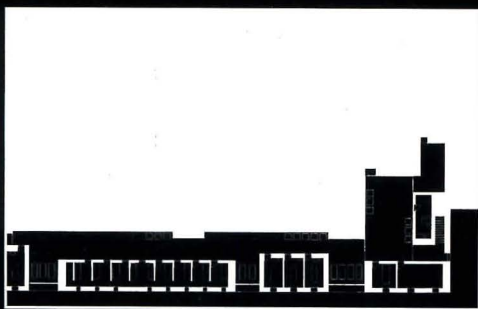
A gently stepped ramp leads down to the pool level; the surrounding walls eventually reveal themselves to be watery chambers, perhaps a veiled homage to the *poché* corners of Louis Kahn's Trenton Bath House (1954). One room is equipped with showers that have the force and temperature of an alpine waterfall. The others contain a pool at warm bathtub temperature; a narrow pool with unbearably cold water; a great brass nozzle



Main-level plan

hanging like an udder from the ceiling and brass drinking cups chained to a cylindrical railing; and couches and ambient music. The small pool at the bottom of the stairs leads to a concealed channel that opens up to a 10-foot-square chamber with gurgling hydromassage jets. Small apertures in the concrete walls create naturally heated resting spaces fitted with Zumthor-designed chaises made from steel frames.

The body must be trusted to find its own way through the baths in Vals, responding to the varying degrees of temperature and the flow of water, following the bands of stonework through the labyrinth, and stopping in the spaces where it finds comfort.



Ground-level plan

THERMAL BATH AT VALS
VALS, SWITZERLAND

CLIENT: Community of Vals, Switzerland ARCHITECT: Atelier Peter Zumthor, Haldenstein, Switzerland—Peter Zumthor (principal), Marc Löliger (project coordinator), Thomas Durisch, Rainer Weitschies (project team) ENGINEERS: Jürg Buchli, Casanova + Blumenthal (structural); Schneider, Meierhans + Partner (mechanical); IBG Graf (electrical) CONSULTANTS: Stadlin Building Technologies (acoustics); H. Freymuth (lighting) GENERAL CONTRACTOR: Franz Bärtsch COST: Withheld at owner's request PHOTOGRAPHER: Christian Richters







ART MUSEUM BREGENZ, AUSTRIA

Museum is wrapped in translucent glass panels mounted on steel armature connected to concrete structure (facing page and above right). Daylight penetrates skin to illuminate galleries through interstitial voids above ceilings (section).

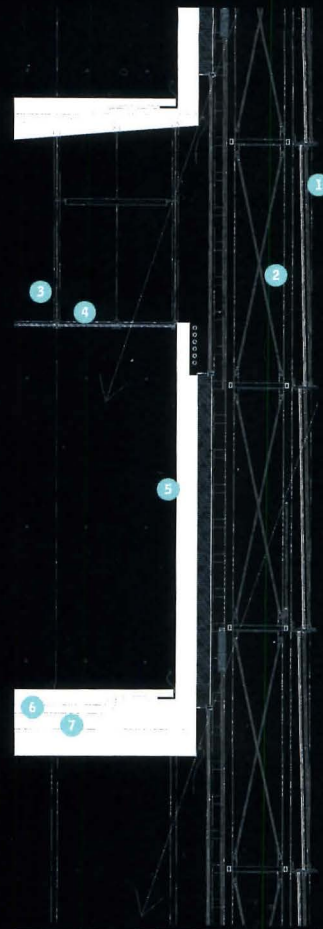


Known for its opera festivals, Bregenz, a border town on the shores of Lake Constance, is expanding its cultural horizons with a new art museum. Zumthor won the commission through an international competition sponsored by the Austrian

Ministry of Culture, proposing essentially a big, empty box for an institution that will only stage temporary exhibitions. The offices, library, café, and bookshop were initially to be housed in an existing building on the site, but it was demolished and replaced with a new auxiliary wing, also designed by Zumthor, that forms a small plaza with the new museum.

Located in the heart of the city next to the municipal theater, the museum is an evanescent addition to the city's fabric, at once alien and ingratiating. Nearly a perfect cube, it is sheathed in hundreds of overlapping, etched-glass panels held by steel clamps in a canted position like shingles, so that none of the surfaces touch. Here, the curtain wall has finally been liberated from any dependency on internal structure, and air freely circulates between the concrete internal structure and the self-supporting, 3-foot-wide steel scaffolding to which the museum's diaphanous wrapper is attached. The smoky translucency and skewed angulation of the glass panels make the cube a volatile presence: It constantly changes during the day according to the light, at times even seeming to evaporate; at night, it becomes a radiant lantern, illuminated by artist James Turrell's temporary lighting installation.

Like a silky chrysalis surrounding an emerging animal, the blurr-



Exterior wall section

- 1 translucent glass panels
- 2 steel frame
- 3 ceiling support cable
- 4 translucent glass ceiling panels
- 5 concrete wall
- 6 concrete floor slab
- 7 under-floor air duct

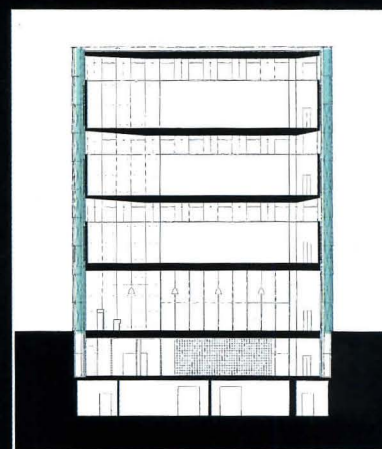
ness of the glass shingles gives only a hint of the internal organization of the building and likewise promises the reciprocal condition of not being able to see out from the inside. Many fingerprints are left on the first row of panels as people peer through the gaps in the skin to solve the mystery of the building's anatomy.

Inside, the power of the space offers a sense of sublime detachment from the world. A subtle pinwheel is generated by the placement of three formidable concrete planes that make up the primary structure. Their lengths vary from 7 to 15 meters, and each of them conceals a service element: elevators, stairways, and exposed air-system ducts. While the concrete exhibits the waxed patina of Louis Kahn's museums, the building's spatial organization recalls the work of Ludwig Mies van der Rohe.

The upper galleries are completely enclosed by concrete walls and a ceiling made of translucent glass panels. Here begins a structural enigma: If there are no windows, where does this natural top-lighting come from? The answer lies in the section, which resembles that of a modern lab or hospital with interstitial service floors. These 8-foot-deep mezzanine light-traps have reflective ceilings that rake down toward the middle, receiving filtered light from the perimeter. They are also equipped with artificial lighting, electric conduits, and air-return ducts. The diffused daylight that penetrates the hermetic envelopes of the galleries is not only sufficient for viewing exhibitions without extra lighting, but provokes different emotional reactions according to the sky's mood.

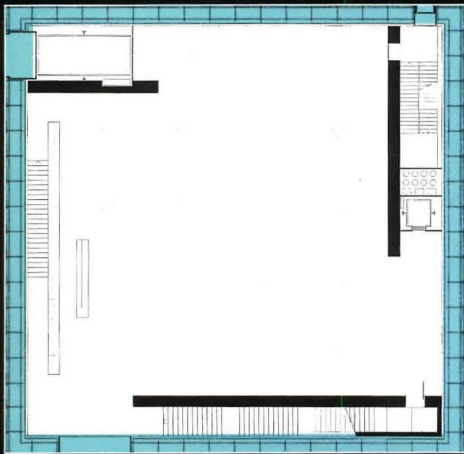
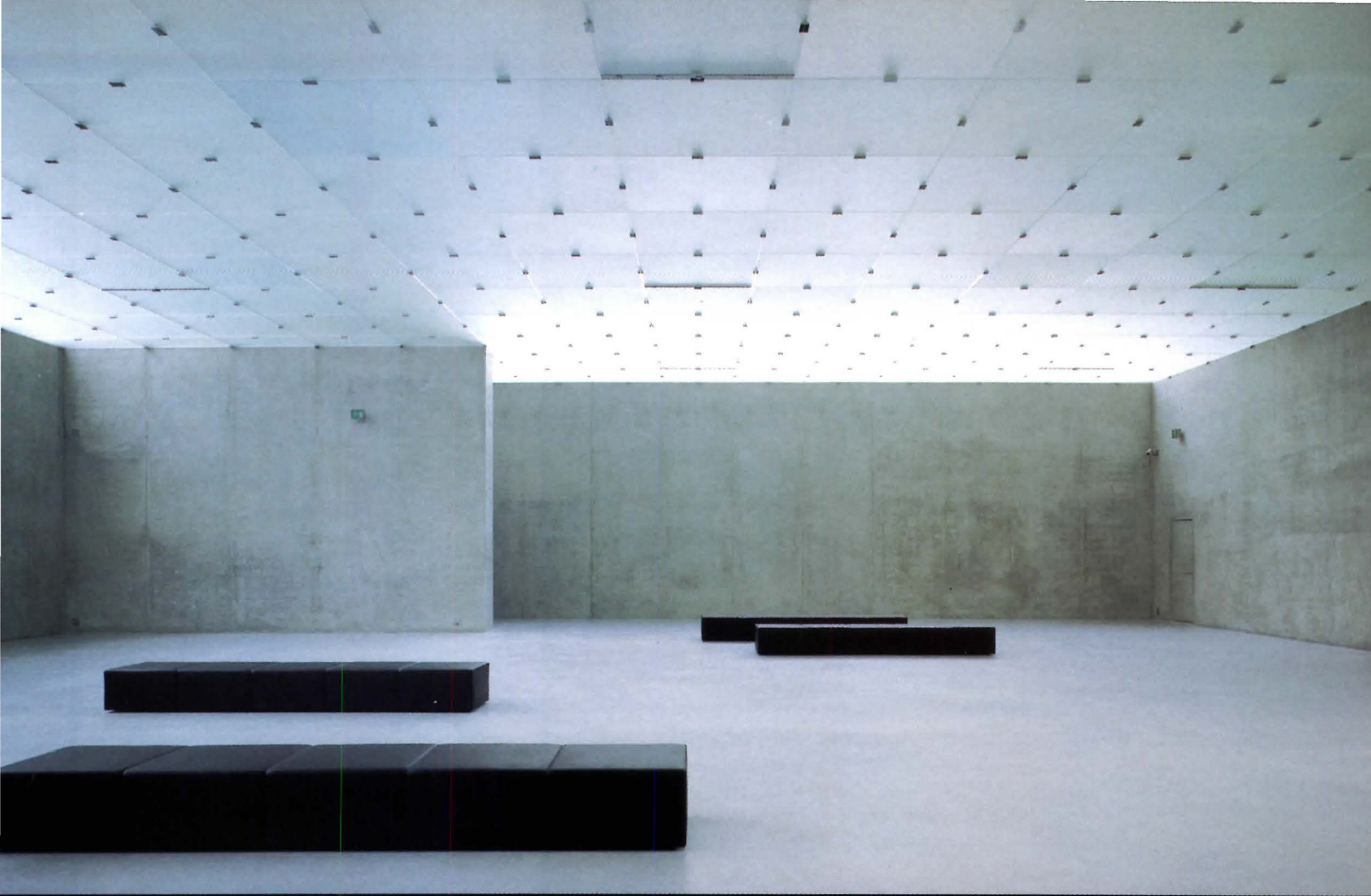
As with the stony labyrinth at Vals, Zumthor's museum transports the body away from the everyday world by swathing it in a mysterious crust of glass and steel.

Polished concrete floor and industrial pendant lights embellish stark ground-floor lobby (bottom left). Narrow staircase to basement level is inserted between concrete wall and steel armature that supports exterior glass skin (bottom). Section (below) reveals floor slabs cantilevered from concrete pylons at perimeter; perimeter walls rest on floor slabs.

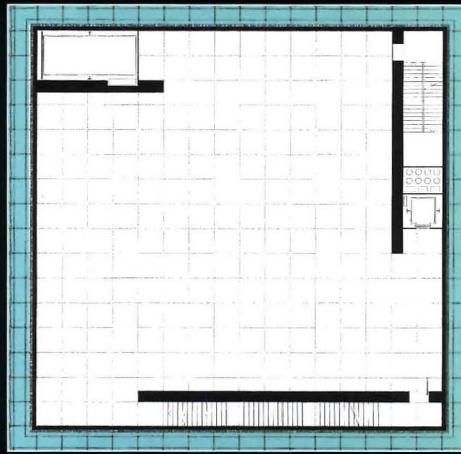


East-west section





Ground-level plan



Typical gallery plan

Typical gallery is defined by concrete walls and glass-paneled ceiling, which admits daylight through 2-meter-deep interstitial space between floor slabs (top and left).

CLIENT: The Province of Vorarlberg, Austria **ARCHITECT:** Atelier Peter Zumthor, Haldenstein, Switzerland—Peter Zumthor (principal), Daniel Bosshard, Thomas Kämpfer (project coordinators), Roswitha Büsser, Katja Dambacher, Thomas Durisch, Marlene Gujan (project team) **ENGINEERS:** Robert Manahl (structural); HKL, VG Residential Technologies, MG Plumbing, Meierhans + Partner (mechanical); Gmeiner/Bell (electrical) **CONSULTANTS:** Stadlin Building Technologies (acoustics); H. Freymuth (lighting); Grundbauberatungs (geotechnics); Steinschaden Technical Bureau (safety); Ernst Wälchli (glasswork); Josef Mahlknecht (cost estimating) **GENERAL CONTRACTOR:** Siegfried Wäger **COST:** Withheld at owner's request **PHOTOGRAPHER:** Christian Richters

A SLEEK ARCHAEOLOGICAL MUSEUM BY PARISIAN ARCHITECT CHAIX MOREL

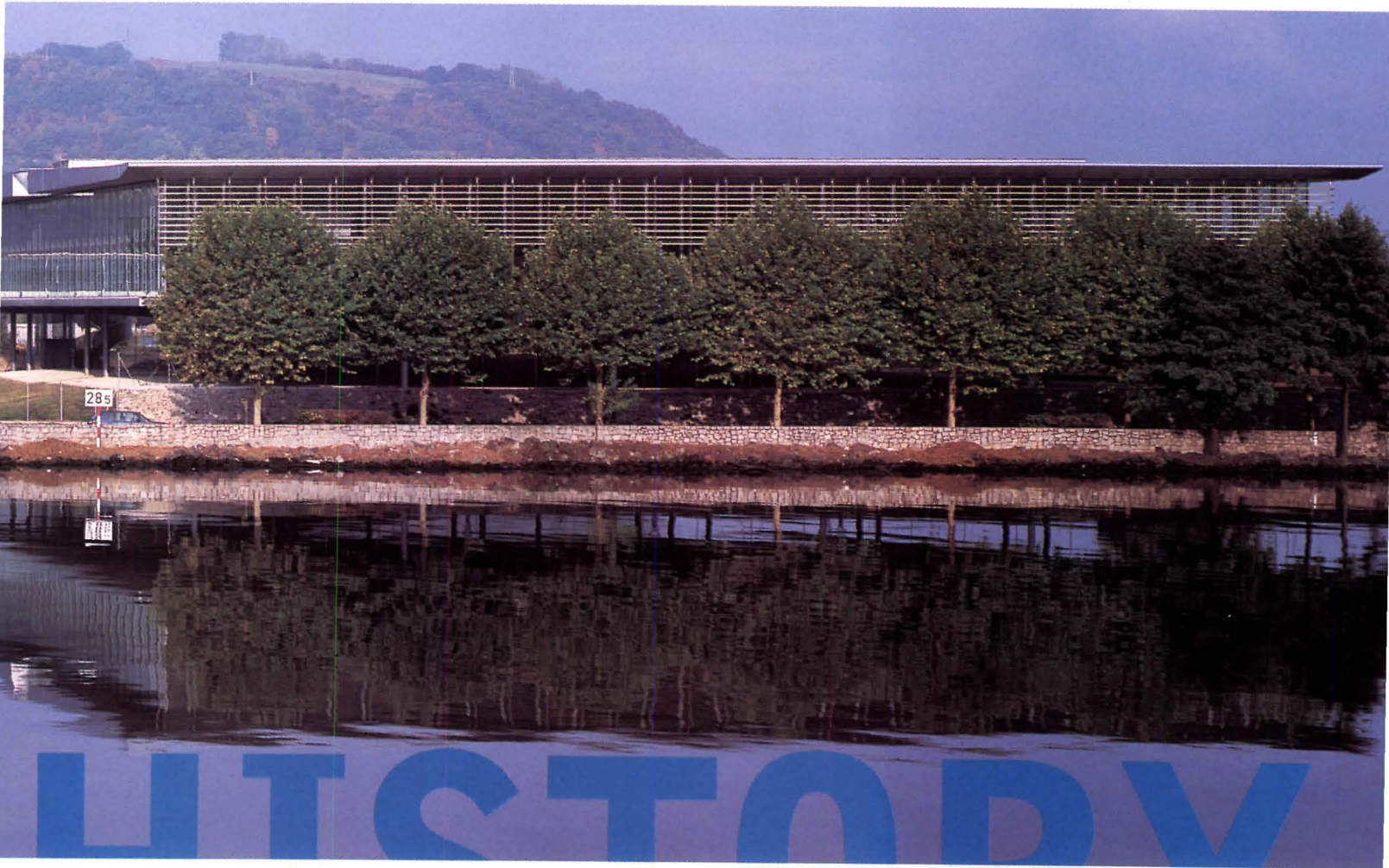


DEGGING

Museum (center) is located on bank of Rhône.



STRADDLES ROMAN RUINS ALONG THE RHÔNE RIVER. BY RAUL A. BARRENECHE



WTSTORY

R



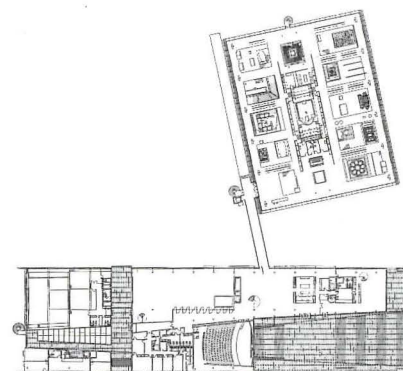
Block containing permanent exhibition galleries hovers over ruins of Roman-era house on metal *pilotis*. Elegant, fritted glass-clad brises-soleil are tensioned between delicate steel cables to shade interiors.

A GRAND, OUTDOOR STAIRCASE AND COLONNADE ARE HALF-HEARTED

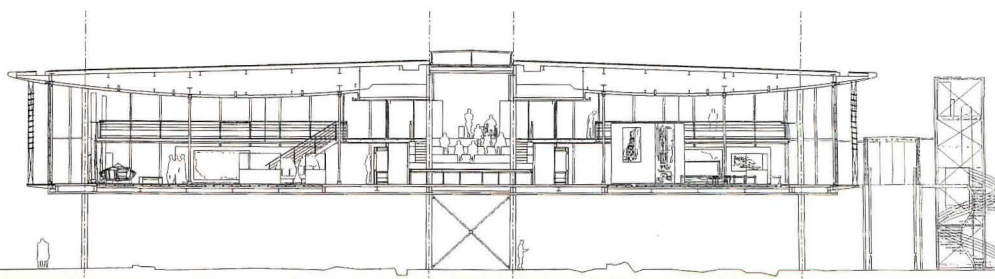
Throughout the south of France, monumental Roman ruins like the Pont du Gard outside Nîmes stand as Classical landmarks in the picturesque landscape of the Midi. Lately, French architects have taken to housing Roman artifacts from local digs in temples of high Modernism, such as Henri Ciriani's Arles Museum of Archaeology (*Architecture*, September 1995, pages 114-117). A more recent example is located in the village of Saint-Romain-en-Gal, 30 kilometers south of Lyon in the foothills of the Alps. Here, a new archaeological museum

designed by architect Chaix Morel and Associates abuts and hovers over the remnants of a 3rd-century merchant's house.

Parisian architects Philippe Chaix and Jean-Paul Morel, both 48, are known for streamlined, monolithic buildings, including a research center for Renault in Guyancourt and a concert hall at Parc de la Villette in Paris. The duo similarly designed the Saint-Romain museum as a pair of sleek, transparent boxes, tenuously joined by a glazed footbridge. These crystalline volumes along the west bank of the Rhône



First-floor plan



East-west section

Permanent exhibition galleries (facing page) expose mosaics to daylight. Overwrought steel stairs (facing page, left) lead to suspended catwalks wrapping exhibits (facing page, right).



Monumental granite staircase ascending from river bank slices through entry block in bold, urban-scaled gesture. Concrete colonnade frames entry plaza and stair.

ARCHAEOLOGICAL MUSEUM

SAINT-ROMAIN-EN-GAL, FRANCE

CLIENT: General Council of the Rhône **ARCHITECT:** Chaix Morel and Associates, Paris—Philippe Chaix, Jean-Paul Morel, Remy Van Nieuwenhove (project architects), Olivier Boiron, Nelly Breton, Dieter Feichtinger, Denis Germond, David McNulty, Sylvie Merle (project team) **ENGINEERS:** Ingerop (structural); INEX (mechanical) **CONSULTANTS:** Peutz & Associates (acoustics); Arcora (metalwork); Agibat (concrete); Margaret Gray (graphics) **GENERAL CONTRACTORS:** Campenon Bernard, Lamy, Maia Sonnier **COST:** \$24.5 million **PHOTOGRAPHER:** Luc Boegly/ Archipress

ATTEMPTS TO LINK THE BUILDING TO THE HISTORY OF ITS COLLECTIONS.

River are a stark contrast to the town's jumble of Romanesque campaniles and tile-roofed, ocher buildings.

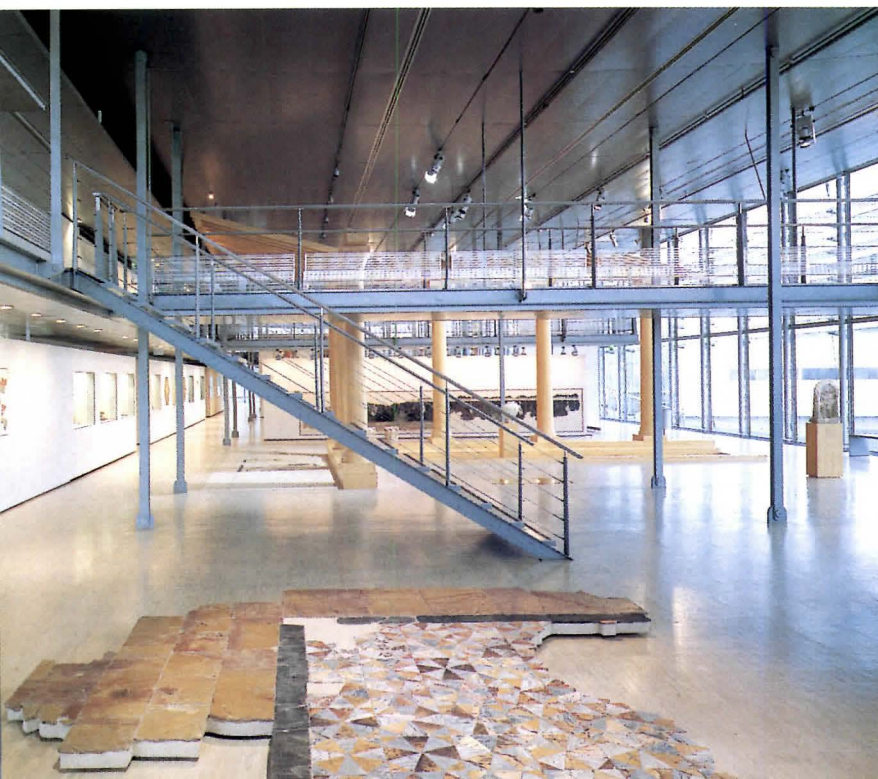
The larger box houses temporary galleries, conservation labs, offices, and a curator's apartment. The smaller block contains permanent galleries within a double-height hall, and is perched delicately above the ruins on metal *pilotis*. There is no doubt about the Modernist pedigree of this glass pavilion, with its open plan, perimeter columns, and transparent skin.

In deference to the building's collection

of Roman artifacts, Chaix Morel added vaguely Classical gestures to their otherwise Modern composition. An oversized staircase, framed by an abstract colonnade, slices through the larger of the two rectangular volumes. These half-hearted attempts to link the building to the history of its collections appear isolated and gratuitous, and seem foreign to Chaix Morel's typical machined vocabulary.

In the permanent galleries, a quiet palette of metal, concrete, and wood is overpowered by metal catwalks and railings

whose overwrought details create an uneasy dialogue between the architecture and artifacts. More successful is the narrative of its curatorial process. Mosaics and architectural fragments are excavated from the site underneath the exhibition hall, researched and preserved in the labs next door, and eventually displayed inside the gallery—a few feet above the spot where they were unearthed. As Chaix and Morel describe their building: "This is a museum of the site, of living ruins. It's always in the process of becoming."



SISTEM

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ADFE

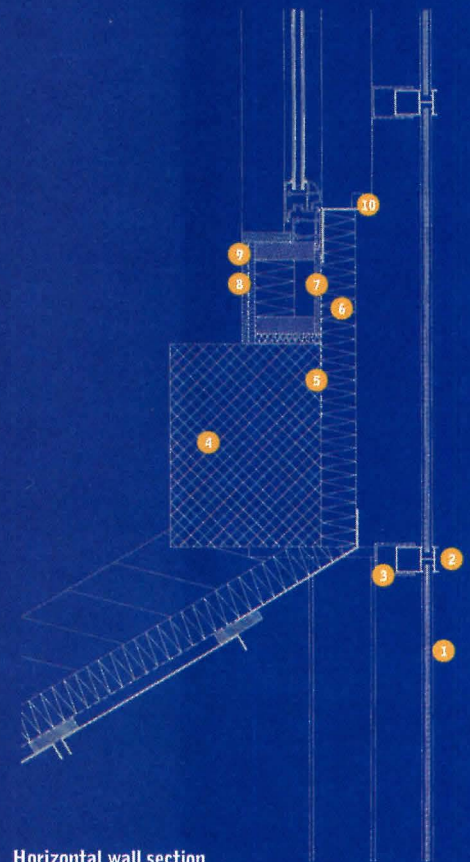
Dutch architect Erick Van Egeraat veils the existing shell of a school with a shimmering glass enclosure.

By Reed Kroloff





- 1 8 mm clear glass
- 2 aluminum mullion assembly
- 3 aluminum curtain-wall clip
- 4 concrete column
- 5 waterproofing
- 6 75 mm insulation
- 7 12 mm plywood panel
- 8 vapor barrier
- 9 10 mm plasterboard panels
- 10 aluminum flashing



Horizontal wall section

Van Egeraat positioned aluminum-framed curtain wall 15 centimeters from face of school. Uniform 12-meter height of curtain wall further distinguishes it from building behind, whose height varies (left).

In Holland, all major new building proposals are subject to review by panels composed primarily of design professionals. These panels can't hire or fire an architect, but they can recommend that the city council not approve a project, and the councils usually go along with their decisions. It was thus a humiliating shock to Utrecht's building department when its own plan for the new School of Fashion and Graphic Industry was rejected last year by that city's design review panel.

Frustrated, the head of the building department turned for help to Rotterdam-based Hypermodernist Erick Van Egeraat, whose design of the University of Utrecht's Economics and Management building had been well-received by the city.

Freestanding fiberglass-clad pavilion (right) houses auditorium within glass-roofed corner atrium that marks school's entrance. Curtain wall glazing is removed at corner, revealing auditorium as independent building (bottom).

Because of tight budgets and the advanced stage of the original building design, Van Egeraat couldn't change the poured-in-place concrete structural system proposed for the bland, three-story building. He also had to accept its existing program, and was only allowed to tinker with the plan and fenestration. "It was a true Frankenstein saga," recounts the 40-year-old architect, "an attempt to breathe life and soul into a largely inert body."

Van Egeraat's solution, completed in June, was to build the school more or less as initially proposed, and then wrap it in a transparent curtain wall to emphasize its independence from the original design. The architect's glass veil puts everything on display, proving Frank Gehry's dictum that buildings are more interesting while under construction.

The school's structure, its rough concrete and plywood sheathing, its staccato rhythm of prefabricated windows, and its fiberglass insulation are all clearly visible behind the glass scrim clipped to the facade. In one deft gesture, Van Egeraat thus reveals the

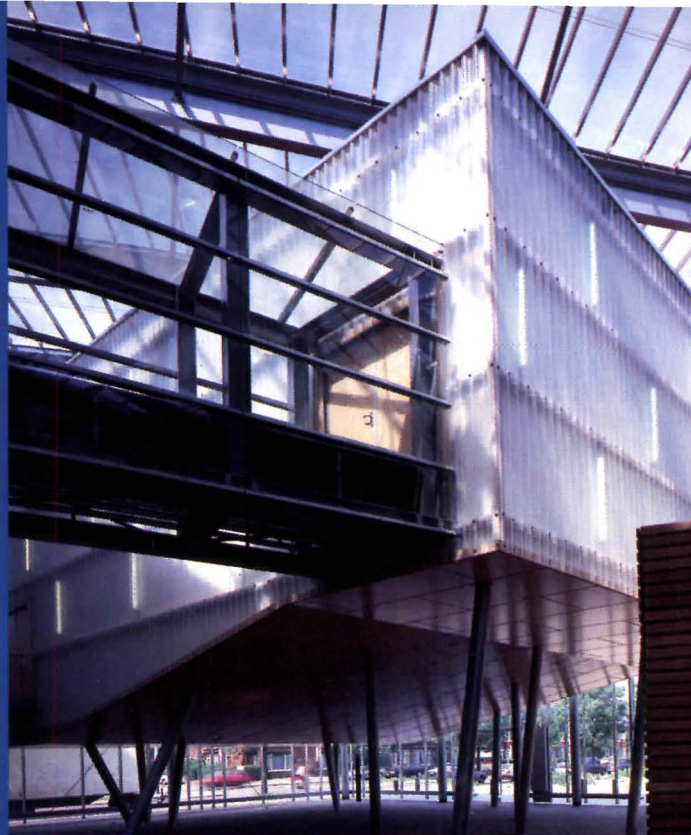
unfortunate hand he was dealt and transforms it into a fascinating explication of the construction process. The simultaneity of the glass as protective, yet revealing clothing also provides a wry commentary on the seductive text of fashion design. Behind the skin, the irregular distribution of windows and exposed building materials creates a second, and strange, tapestry.

At its northeast corner, the building breaks open to reveal a glass-topped, outdoor atrium. Within the atrium, an elevated, fiberglass-wrapped auditorium lurks like a great, glowing spider on spindly steel legs (top right).

The auditorium is the only part of the complex Van Egeraat designed without the structural and material restrictions of the original scheme,

and it shares kinship with the invading biomorphic forms of his earlier work with Mecanoo, such as at the National Netherlands Company in Budapest (*Architecture*, November, 1995, pages 66-73). Here, the arachnid addition makes sense: What better a place for nature's greatest spinner than in a school of fashion?

SCHOOL FOR FASHION AND GRAPHIC INDUSTRY
UTRECHT, THE NETHERLANDS
CLIENT: Municipality of Utrecht **ARCHITECT:** Erick Van Egeraat Associated Architects, Rotterdam, the Netherlands—Erick Van Egeraat (principal), Ard Buijsen, Maartje Lammers, Boris Zeisser (project team) **ENGINEERS:** Strukton Engineering (structural); Sweegers & de Bruijn (mechanical, electrical) **CONSULTANT:** Lichtveld Buis & Partners (acoustics) **GENERAL CONTRACTOR:** Strukton Projecten **COST:** Withheld at owner's request **PHOTOGRAPHER:** Christian Richters

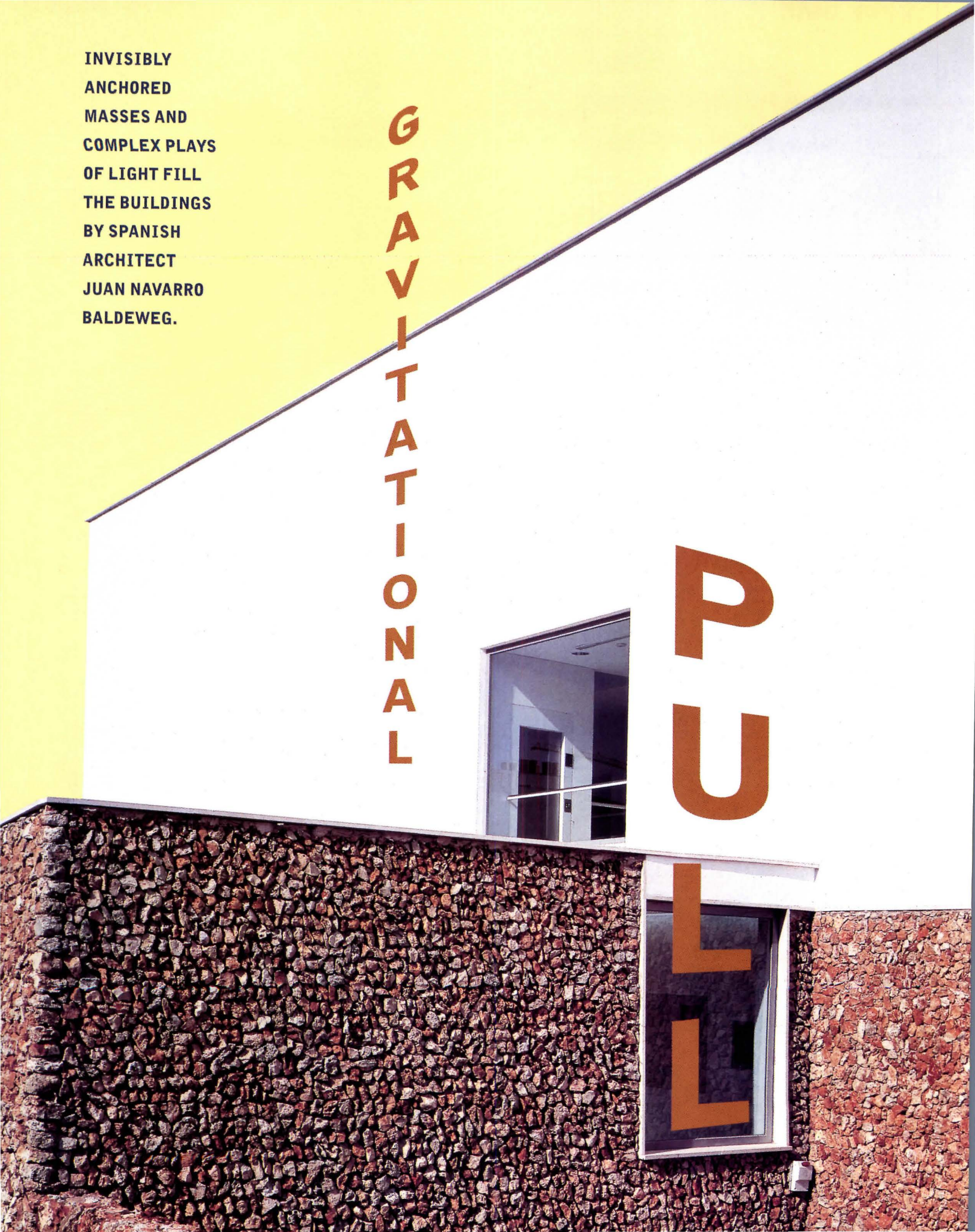


INVISIBLY
ANCHORED
MASSES AND
COMPLEX PLAYS
OF LIGHT FILL
THE BUILDINGS
BY SPANISH
ARCHITECT
JUAN NAVARRO
BALDEWEG.

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Juan Navarro Baldeweg was already established as one of Spain's finest painters when he achieved recognition as one of its most talented architects. In 1982, Navarro Baldeweg completed his first building, the Rain House, a project that brought him international acclaim. The modest dwelling, built for his brother, is located near Santander on Spain's rainy northern coast, where the architect was born in 1939. Critics and architects were instantly enamored by the building's diminutive volume, tautly wrapped in stone and zinc panels and windows that fold over the edge of the roof to keep occupants always aware of the frequent rainfall outside.

In the 15 years since the completion of the Rain House, Navarro Baldeweg has bested some of his country's leading architects in competitions for public buildings throughout Spain. These elegant structures, all of exquisite composition and refinement, include a social center (1988) and a library (1992) in Madrid; a hydrology museum in Murcia (1988); a ravishing but unbuilt congress center for Cadiz (1988); a conference center in Salamanca (1992); and regional government offices in Merida (1995). Over the past five years, the Madrid architect has also won invited competitions in other European countries, including an entertainment center in Blois, France (1991), and a conference center in Salzburg, Austria (1992).

Navarro Baldeweg currently teaches full-time at Madrid University, where he earned a Ph.D. in architecture in 1969.

Spanish painter and architect Juan Navarro Baldeweg distills regional building traditions into Modern forms. He applied local stone and stucco to the planar volumes of the Mahon courthouse (facing page).

He has also held visiting professorships in the United States at the University of Pennsylvania, Yale, and Princeton—where his latest building, an addition to the Woolworth Center for Music, was completed last month. Sensitive and poetic, the 58-year-old architect now runs a quiet, eight-person office in El Viso, a leafy, residential section of Madrid, near the home of his better-known contemporary, José Rafael Moneo.

Navarro Baldeweg's colorful, abstract paintings and serene buildings make manifest the presence of such ambient natural phenomena as gravity, light, rain, and wind. For all the beauty of his works, the architect's primary goal is to draw attention away from the physical attributes of his buildings and make viewers open up to the imagined or actual perceptions of nature.

His buildings respond so sensitively to contexts with local materials and traditional massing as to seem an inevitable part of them. Yet each building is also part of a series that reworks an imposed formal device to exploit apparently mutual contradictions. For instance, the heavy, concrete dome of the Salamanca Congress Center's auditorium seemingly floats on the light that floods down and around it. Gravity seems suspended, bringing it to heightened attention, while light becomes so tangible as to seemingly buoy up the massive dome. Like many of his works, the building provokes a similarly contrary response of simultaneous exuberance and hushed sobriety.

In his most recent projects, Navarro Baldeweg is exploring new expressive formal devices, including steel-and-concrete structural frames that form canopies of skylights in the newly completed Villanueva de la Cañada cultural center (pages 114-117), two-directional brise-soleils, as in the government center in Merida, and angularly fragmented, collagist compositions as in the Princeton music school addition (page 112). Their most distinctive features are elements that admit and modulate light from opposite directions.

Navarro Baldeweg is a dreamer who both yearns and yet can barely stand to bring his exquisite works into the real world, where they might be defiled by meddling bureaucrats and insensitive users. Whatever forms he explores—even familiar elements such as domes and walls of stone or brick—his buildings still convey a sense of abstractness, even lightness verging on immateriality. This magic, nearly tangible light and atmosphere is characteristic of what the architect always seeks through the extreme formal refinement of his work. "I want to create an equilibrium where strength of geometry mitigates against, and detaches from us, the weightiness of material," Navarro Baldeweg asserts. "With formal perfection, architecture becomes more invisible and less oppressive, so that one feels free to be fully oneself."

MUNICIPAL COURTHOUSE
MAHON, SPAIN



MICHAEL MORAN

WOOLWORTH CENTER
FOR MUSIC EXPANSION
PRINCETON UNIVERSITY, NEW JERSEY

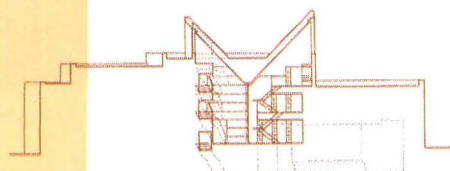
Juan Navarro Baldeweg's music school extension at Princeton University—his first building outside Europe—is added to a 1963 concrete and brick building by Moore & Hutchins. In contrast to the older school, the new 45,000-square-foot building is a collagist composition of brick and concrete.

Like Alvar Aalto, Navarro Baldeweg suppresses the building's structure and expresses the surfaces of its masonry skin. The existing building, which houses classrooms, offices, and practice rooms, and the extension, containing a library and rehearsal hall, are connected in a new lobby, crowned by sharply angular light monitors, also reminiscent of works by Aalto.

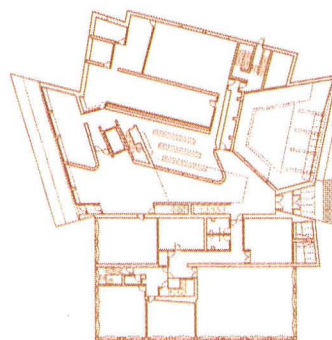
Light monitors (top) above music school addition illuminate library. Precast concrete and brick skin on east facade (left) echoes cladding of original building to south.



MICHAEL MORAN



North-south section

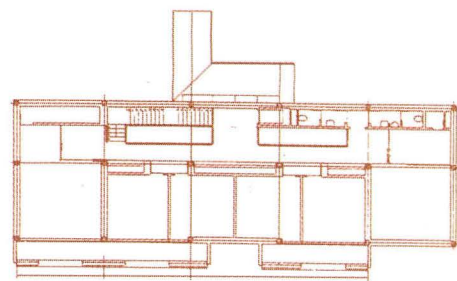


First-floor plan

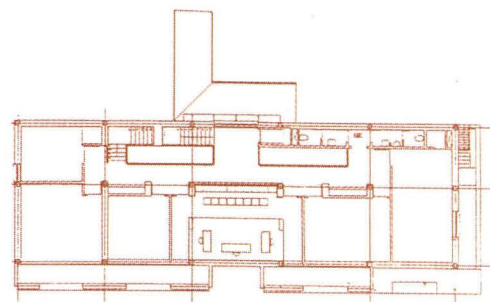


The regional courthouse on the outskirts of Mahon, a town on the Mediterranean island of Minorca, is designed by Navarro Baldeweg to achieve a formality and sense appropriate to the building's civic function. By screening the two upper floors with aluminum louvers, the architect makes the 16,800-square-foot building appear to consist of two tall stories rather than three. The resulting ambiguous scale of the courthouse is typical of Navarro Baldeweg's buildings.

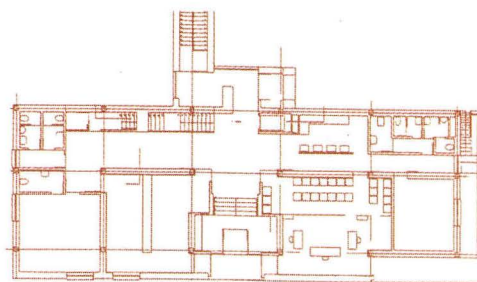
The plan of the courthouse is not the most rational; it seems driven by the building's external appearance. On the ground floor, a small courtroom and public registry flank an entry hall at the western end of the building. Another courtroom is placed above the entrance, at the center of the second floor. Filling out the rest of the compact plan are lawyers' offices on the top two levels. Roof-mounted monitors bring daylight down into all three levels of the building.



Third-floor plan



Second-floor plan

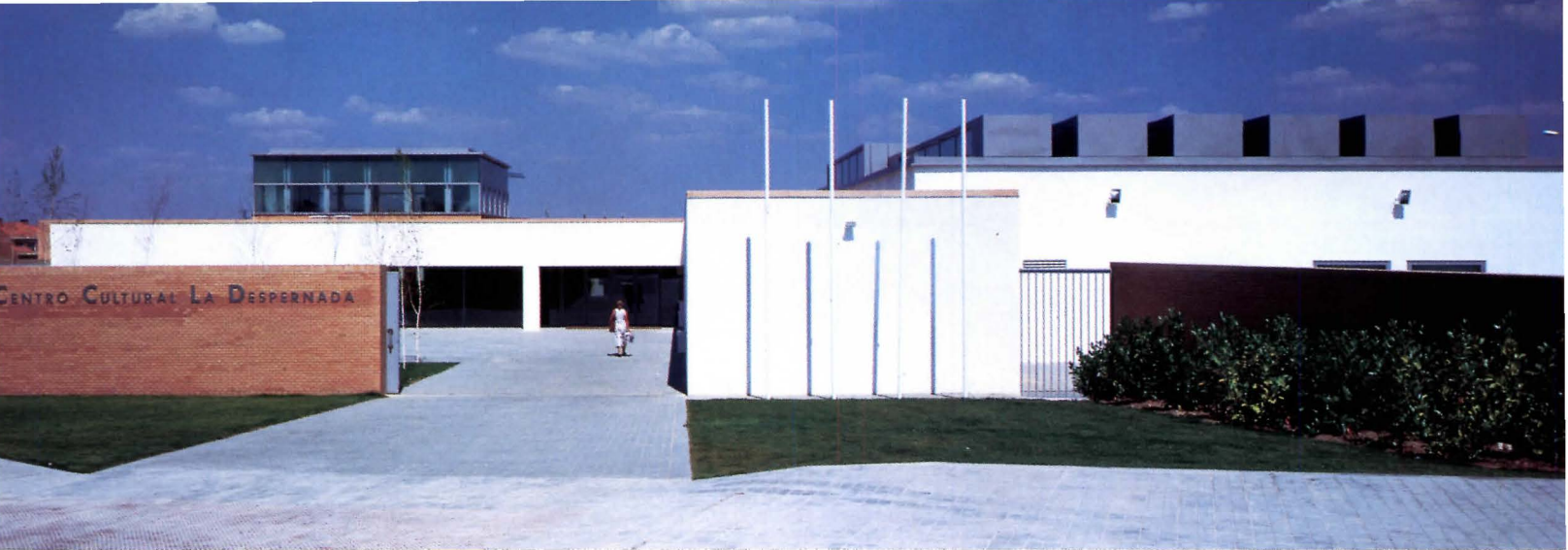


First-floor plan

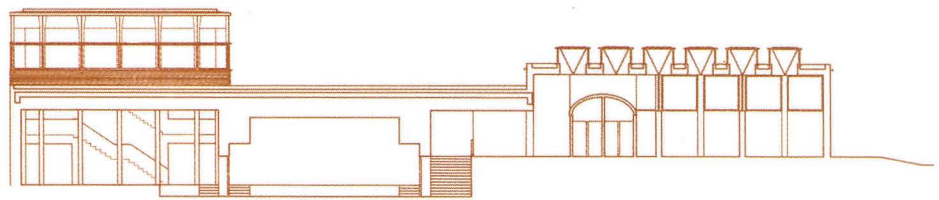
Aluminum louvers of courthouse's front facade (top) screen sunlight from top two floors. Skylights atop corridor illuminate building's core (facing page). Stone base,

concealing staircase, anchors stark east facade (below) and draws on local building traditions. Square windows frame circulation zone at rear.





CULTURAL CENTER
VILLANUEVA DE LA CAÑADA, SPAIN



North-south section

When the Villanueva de la Cañada cultural center was commissioned in 1992, the adjacent roads and park did not yet exist. So Navarro Baldeweg designed the 30,000-square-foot building as a self-contained, serene, and spreading island, stretched long and low along one edge of the site, outside this suburb of Madrid. Only a belvedere library rises in an opposite corner, overlooking the park. The parallel light monitors that crown much of the roof and the slightly temple-like raised pavilion are recurrent formal devices in Navarro Baldeweg's work.

Like the Mahon courthouse, the cultural center exploits local traditions; here, Navarro Baldeweg looks to typical Spanish patios enclosed by white plastered walls, edged by courses of brick. This brick trim is a typical detail in Villanueva de la Cañada, which started as one of the "Villages of Reconciliation" built by General Francisco Franco in the 1940s, after the Spanish Civil War. It is now growing rapidly as a suburb

Cultural center is entered through courtyard (top). Library, wrapped in glass clerestory, terminates northeast corner (below).





Defined by simple, stuccoed walls, entrance court at northwest corner recalls traditional Spanish patios.

of the capital. The cultural center, one of a series built simultaneously in small towns around Madrid, serves the expanding population and local schools with galleries, studios, a wood-floored gymnasium, and a multipurpose hall for martial arts and fencing.

In plan, the low-slung building is shaped like a squat, truncated T. Within the short stem of the T (on the north side of the building), an entry foyer leads to a sunken 300-seat auditorium and a three-story library wrapped in a double-height clerestory. The 75-meter-long bar to the south is divided into $2\frac{1}{2}$ -meter-wide bays divided by a series of triangular steel-and-concrete beams. Within this zone are an exhibition gallery, workshops, classrooms, and a pair of gymnasium, and the multipurpose sports hall.

These spaces are crowned by a series of slender light monitors formed by inverted triangular beams that span 15 meters between each pier. Sheets of glass extend between the tops of the V-shaped beams and metal channels, allowing contrasting plays of north and south light to flood the interiors. Above the exhibition hall, Navarro Baldeweg changed the sectional profile of the monitors: He kept the south side of the beams opaque while extending the glazing on the north side of the beams to provide softer, more controlled light in which to display artwork.

East facade is framed by brick-enclosed patio (left) and library (right).

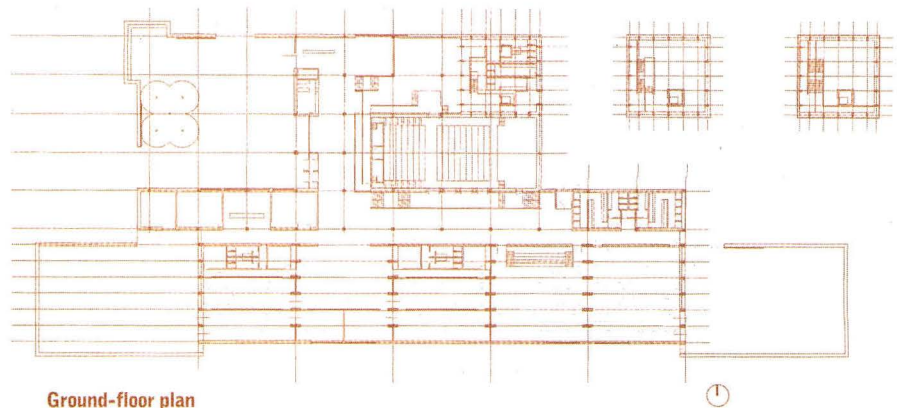


At the east and west ends of the building, grassy patios wrapped on three sides by brick walls create outdoor recreation spaces; by placing patios at the building's periphery instead of its core, the architect creates serenely static spaces based on the courtyards of Spanish tradition. A third landscaped patio at the northwest corner of the building, connecting the head and tail of the T-shaped plan, creates a forecourt to the cultural center.

Though the building is almost entirely a single story in height with few changes in level, the stairs and ramp down to the hall—like those leading up to the library—are conspicuously displayed. This circulation introduces a sense of verticality that emphasizes the action of coming together in the hall and retreating to the library.

But the most noticeable aspect of the building is the serene framework it provides for the varied activities housed within it. This quiet architecture is a product of Navarro Baldeweg's precise composition and proportions, but most especially of the pervasive presence of the monitors as an overhead datum. The monitors are continuous above different rooms, and remain apparent through square windows between the tops of the piers dividing the rooms. This visibility emphasizes their role as a unifying horizontal datum—like the surface of the water appears to an underwater diver. The play of ever-changing light admitted through the glazed portions of this canopy brings the spaces luminously alive, yet also evokes the feeling of being in a silent, submarine realm.

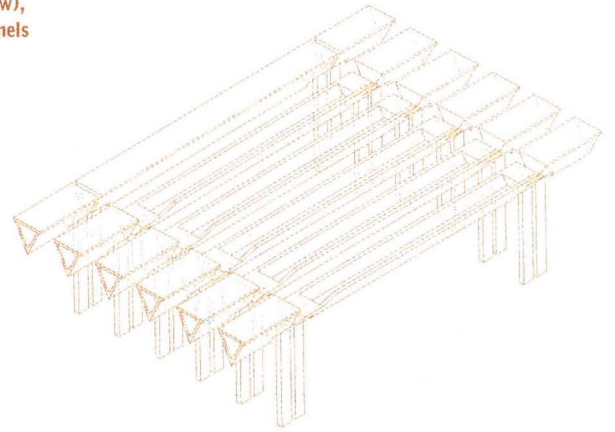
Two-meter-wide bays, capped by V-shaped light monitors, define classrooms (below) and practice rooms (facing page, top). Stairs lead to loftlike upper levels of library (facing page, center left). Adjoining staircase to library, sunken interior forecourt leads to auditorium (facing page, bottom).



Ground-floor plan



Roof structure is composed of V-shaped steel channels topped by concrete slabs and supported on concrete piers (axonometric, right). In exhibition gallery (below), skylights between concrete channels admit only north light.



CULTURAL CENTER,

VILLENUEVA DE LA CAÑADA, SPAIN

CLIENTS: Town Council of Villeneuve de la Cañada; Regional Government of Madrid **ARCHITECT:** Juan Navarro Baldeweg, Architect, Madrid, Spain—Juan Navarro Baldeweg (principal), Jose Maria Churtichagas, Alejandro Climent, Christopher Guest, Joaquin Lizasoain, Andrea Lupberger, Joaquin Riveiro, Veronica Scortecchi (project team) **ENGINEERS:** Juan de la Torre (structural); Energaire (mechanical); Jogull (electrical) **CONSULTANTS:** F. Monoplex (metalwork); Lorenzo Cubillo Barrero (carpentry); Aluceyma (aluminum); Getafe Paving (concrete); Cristalcolor (glass); J. Ibarra (painting); Otis (elevator); Faber Installations (fountains); Servman (fire safety) **GENERAL CONTRACTOR:** Mixed Structures and Buildings **COST:** \$3.2 million **PHOTOGRAPHER:** Duccio Malagamba, except as noted

IT TAKES A



Architect Berthold Penkhues treats a small history museum in Korbach, Germany, as a miniature version of the medieval town.



New limestone-clad galleries cozy up to historic houses beneath Gothic church spire (facing page). Chimney-shaped light monitors lend domestic scale to massive gallery blocks (left).

G E

By Raul A. Barreneche

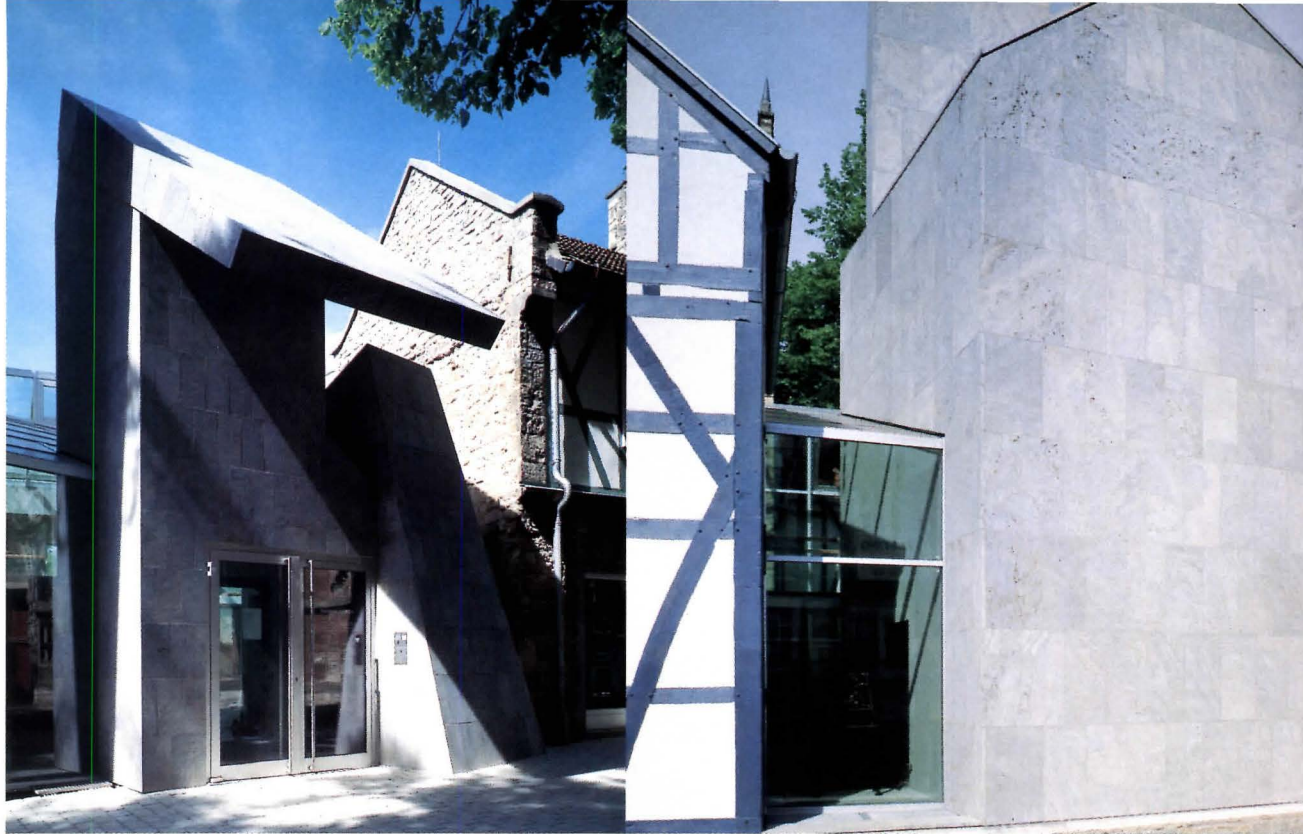
Like many small towns in Germany, Korbach, 90 miles east of Düsseldorf, pays tribute to its regional heritage by displaying local agricultural implements, costumes, and industrial machinery in a history museum. In 1991, the village of 25,000 held a design competition to expand its museum, which had been housed within a cramped, medieval stone structure since its founding in the 1920s. Berthold Penkhues, a 42-year-old architect based in nearby Kassel, won the competition. Penkhues's highly sculptural, collagist scheme combines his European urbanistic sensibilities with a formal inventiveness honed during a stint in Frank Gehry's studio.

Penkhues studied architecture at Kassel University in Germany and later worked in the office of Josef Kleihues before pursuing a masters degree at the University of California, Los Angeles (UCLA). After graduating from UCLA in



Bavarian limestone-clad galleries wrap southern edge of site along Stechbahn (above).





1986, Penkhues went to work in Gehry's office, where he served as project architect on the Vitra Museum in Weil am Rhein. In 1989, he returned to Kassel to establish his own office. Penkhues's built projects (most of them won through competitions) include several houses, a fire station in Kaufungen, a retirement home in Jena, and a tribunal labor court in Erfurt.

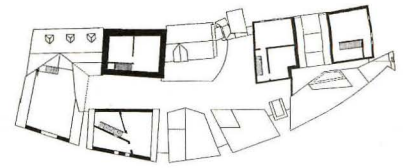
Though historic preservation is not Penkhues's specialty, local guidelines required him to incorporate the museum's 15th-century limestone structure and four adjoining timber-framed, 18th-century houses into his new addition. Onto this collection of historic buildings, Penkhues grafted a collage of five semidetached exhibition spaces that abstract the town's simple stone and timber dwellings, with similar massing and details.

The 19,000-square-foot museum addition fills a curving, wedge-shaped site among Korbach's tiny, winding streets. To the north is the 14th-century St. Kilian's church; to the south, the Stechbahn, a major thoroughfare. Penkhues sandwiched the museum's entrance between a pair of existing three-story, half-timber houses on the north face. This stocky little frontispiece is punctured by a pair of plain glass doors, set into a thick angular limestone block and capped by an angled stone canopy. The diminutive scale of this entrance composition is respectful of its neighbors, but clearly distinguishes itself from the historic fabric by crouching away from the buildings on either side. Yet the diminutive size and standard detailing of the front doors detracts from the overall strength of Penkhues's gesture: The doors are more appropriate to a shopfront than to a public institution.

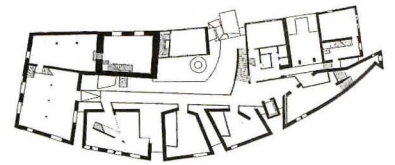
Angled limestone canopy (above left) frames new entrance to museum. Glazed corridor between historic house and new gallery (above) recalls scale of medieval alleys.

Chamfered stone-wrapped light monitors illuminate new galleries.

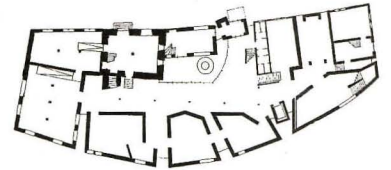




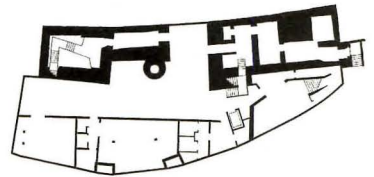
Third-floor plan



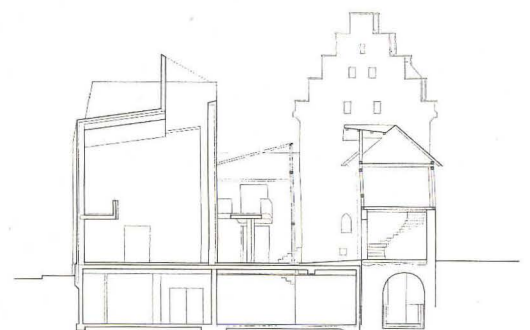
Second-floor plan



First-floor plan



Basement-level plan



North-south section



Skylights provide daylight to galleries and inject views of surrounding city (left). Above mezzanine level connecting galleries, sloping glass roof encloses interior street (right). Central passageway overlooks existing house at northeast corner of museum (bottom right). View from central street into new gallery reveals trapezoidal light well (facing page).

In contrast, the two-story south elevation along the Stechbahn achieves a strong civic presence befitting the building's function, with its imposing, abstract stone-clad blocks set atop a stone plinth. Even on this public face, Penkhues injects a bit of the neighborhood's domestic scale: Angular roof lines that echo the surrounding gables are capped by chimney-shaped light monitors.

The taut limestone-clad blocks of the new galleries wrap around the old half-timber houses; inside, they deform to create irregular trapezoidal volumes facing onto an interior "street" to create what Penkhues calls "a little town at the foot of St. Kilian's." Penkhues formed the internal passageway by glazing over the residual space between the new blocks and the existing historic houses with a series of angular skylights. Narrow corridors between the gallery blocks, capped by sloping skylights and terminating in glass walls, re-create the intimate scale of Korbach's tiny alleys.

This idiosyncratic assemblage evokes the spirit of German Expressionist architects such as Hans Scharoun, while the building's fractured forms and fluid spaces recall early Gehry. Penkhues also lets the museum's physical context actively shape his building: In the galleries, finished in generic whitewashed walls and parquet floors, the architect reminds visitors of their surroundings by thrusting carefully framed views of the city into otherwise neutral spaces. Such moves reinforce the fact that the museum doesn't respond to its setting by simply replicating Korbach's quaint houses and tiny streets; it also engages the town in a provocative dialogue between old architecture and new.

KORBACH MUSEUM
KORBACH, GERMANY

CLIENT: City of Korbach **ARCHITECT:** Penkhues Architects, Kassel, Germany—Berthold Penkhues (principal), Siegfried Wendker (project manager), Peter Becker, Antje Niebergall, Annika Saenger, Kathrina Schneider, Johannes Wettengel **ENGINEERS:** EHS Engineers (structural); Bruelheide Engineers (mechanical, electrical) **CONSULTANTS:** Kiefer-Reul-Teich, Rolf-Günther Mebus (stonework) **GENERAL CONTRACTOR:** J. Batterman, Stadler **COST:** \$5 million **PHOTOGRAPHY:** K. Ortmeyer/Architekturphoto



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**THE
MULTINATIONAL
REPORT**

AMERICAN ARCHITECTS ARE SHAPING SKYLINES
AROUND THE WORLD.

Architecture's first annual survey of the top 50 U.S. firms practicing overseas reveals who's earning the top fees, as well as today's hottest markets and the best prospects for the future.

Global Expansion

American architects find eager clients around the world, but the multinational marketplace is prone to change overnight.

By Bradford McKee

American architects have a history of high-profile foreign commissions, from Frank Lloyd Wright's Imperial Hotel in Tokyo to Louis Kahn's capital complex in Dacca, Bangladesh. But nothing can match the current pace for American practitioners working abroad, as *Architecture's* first annual ranking of the top 50 multinational architecture firms reveals.

Droves of American architects began flocking to foreign shores in the early 1990s, mainly for survival's sake, as the construction industry sunk into a deep depression at home. The timing was lucky: Long-stagnant economies in developing countries worldwide started to stir and gain impressive strength. Modern technologies propelled once-backward countries in Asia to realize their vast wealth of natural resources. The toppling of totalitarian regimes in Eastern Europe brought bricks-and-mortar capitalism to its moribund cities. And almost everywhere, trade laws were loosening to fuel global economic expansion.

As a result, the current world market proves rich with opportunity, even glory, for U.S. architects. The American construction industry exports about \$2.5 billion worth of services every year, a figure that has tripled over the past decade. Nonetheless, our survey affirms that practical challenges abound. To start, making profits is tough. Clients overseas are drawn to American architects for their fancy technology, but clients' fees don't always match their vision, and exchange rates often decimate meager earnings. Politics, cultural differences, and local laws and codes (or lack thereof) often cloud otherwise straightforward design procedures. And go-go markets can fall flat overnight, as firms working in Thailand have unfortunately learned in recent months upon the collapse of Bangkok's financial markets. Meanwhile, new markets heat up almost as quickly, such as in the Philippines, where stabilizing democracy and the opening of massive free-trade ports undergird explosive growth in the Makati financial district of Manila.

Architecture's Top 50 survey results, compiled by Counsel House Research of Reston, Virginia,

are the first to quantify and forecast the most important trend in U.S. architecture at the end of the 20th century. The survey identifies the biggest players venturing abroad by ranking them according to the number of architects they employ; it also reveals who collects the biggest fees, and who has the most (and maybe too much) work abroad.

HOK dominates

The overwhelming leader among American multinational architects is Hellmuth, Obata & Kassabaum (HOK) based in St. Louis. HOK easily outstrips all other top multinational firms in terms of its number of architectural staff—926, of which 396 are registered architects—and foreign fees, which at \$75 million (of HOK's \$250 million in total fees) are nearly twice that of the nearest contender, Skidmore, Owings & Merrill.

Murphy/Jahn Architects in Chicago tops the list of firms with the highest percentage of work overseas. Ninety-five percent of its commissions lie outside the U.S., with about 75 percent in Germany, homeland of principal Helmut Jahn; slightly more than half of this work consists of corporate office buildings. Murphy/Jahn is also designing the new Bangkok International Airport and the 1.6 million-square-foot YTL office and hotel tower in Kuala Lumpur, Malaysia. The Chicago firm, however, isn't finished in the U.S. "While we feel that both Europe and Asia will continue to be viable markets," maintains Production Director Sam Scaccia, "the work domestically should progressively improve."

Right behind Murphy/Jahn in terms of foreign focus is Kohn Pedersen Fox Associates (KPF), which concentrates on Asian office buildings; 61 percent of KPF's work is abroad. Wimberly Allison Tong & Goo, steeped largely in hotel and resort work, has 60 percent of its work outside the U.S., as does Pei Cobb Freed & Partners, popular among corporate clients, and a first choice among museums as well.

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For these firms, competition in foreign markets is becoming an ever-greater worry. Observes KPF Managing Principal Robert Cioppa, American architects have to watch the growing strength of independent local firms, competition from other European and Asian firms, and "undercutting" fees accepted by fellow American architects offering low-ball bids simply to get work.

The types of services U.S. architects offer overseas are diverse, but still mainly confined to architecture (12 percent of the average multinational firm's work abroad), interior design (3 percent), and engineering (2 percent). Services such as facilities management and graphic design make up only small portions of total international fees (less than 1 percent each) whereas in the U.S. market, one-fourth of services fall outside pure design, from planning and programming to construction management. Moreover, U.S. architects often find their role restrained in Asia, where they typically limit their work to schematics and design development before handing off projects to local counterparts for completing construction documents and supervising sites.

A firm's ratio of international work to total work provides a key vital sign to its stability. Many principals prefer to see their foreign portfolios stay below 40 percent at any given time; Five of the Top 50 have more than half their work abroad.

Variety of projects

American firms have their hands full designing a wide variety of projects. Most firms—85 percent—are serving private-sector clients; 27 percent are working for government entities (page 133). Currently, corporate office and hospitality projects dominate the dossiers of U.S. architects. But change is on the horizon: Thirty percent of architects surveyed report finding the greatest growth in retail and mixed-use projects. "A growing middle class in third-world countries is spawning enormous opportunities in shopping centers," notes John W. Cole, principal of Arrowstreet in Somerville, Massachusetts. Retail is followed in projected growth by urban planning projects and entertainment and sports facilities. Only 13 percent of architects report "increasing" opportunities in corporate office buildings, and only 7 percent see hospitality as a growth market.

Surprisingly, the country where most U.S. architects report working currently is the United Kingdom, probably because many major U.S. firms—HOK, SOM, and KPF, for instance—have opened

offices in London to serve clients across Europe. As for demand according to regions, the greatest expectations reside in China, which is currently experiencing 12.9 percent economic growth—owing to a more liberal monetary policy than in the past—and whose population is rapidly turning more urban (though only 29 percent of China's people live in cities today).

Cultures collide

As intriguing as these new markets seem, they are fraught with difficulties for U.S. architects. The biggest problems American architects report facing relate to differences in communication and culture in foreign countries, cited by 27 percent of respondents to our survey.

Firms are likewise daunted by the cost of doing business overseas, as 21 percent of survey respondents report (page 134). Decent fees can be elusive, and collections can become even more so, as 11 percent of firms indicate. "Payment for services performed is always a problem," laments Patrick McDermott, chief operating officer of Omaha-based architect Henningson Durham & Richardson, whose foreign work lies mainly in Mexico, "with respect to both amount and ability to collect."

Profit margins and architects' energies are further squeezed by the expense of traveling back and forth between home offices and foreign destinations, cited by six percent of respondents. The alternative—living abroad—is no less a strain. "Housing and general living expenses [in Asia]... are expensive compared to the U.S.," laments Gensler Chairman and CEO M. Arthur Gensler, Jr. "There is also a lack of understanding about the value that design can provide."

Now that firms have found their way to foreign shores, they are focusing more intensely on quality control—a concern cited by 9 percent of respondents—making sure they can maintain high standards when translating and working with trade contractors overseas who are untrained in American construction methods.

Architects from the U.S. "should be very alert that construction and material standards are not standards in the usual sense," cautions Richard Green, chairman of The Stubbins Associates in Cambridge, Massachusetts. "It is possible to work very effectively and profitably in foreign markets," Green concludes, "as long as there is a sensible business arrangement with local partners who can be trusted."

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THE MULTINATIONAL REPORT

Which multinational firms employ the most architects?

RANK	FIRM	CITY	NUMBER OF EMPLOYEES	TOTAL ARCHITECTS	TOTAL REGISTERED ARCHITECTS
1	HELLMUTH, OBATA & KASSABAUM	St. Louis	1,790	926	396
2	SKIDMORE, OWINGS & MERRILL	Chicago	750	414	226
3	GENSLER	San Francisco	1,127	410	220
4	ELLERBE BECKET	Minneapolis	773	352	145
5	NBBJ	Seattle	616	346	230
6	HKS ARCHITECTS	Dallas	363	271	153
7	DMJM/KEATING	Los Angeles	1,481	252	143
8	RTKL ASSOCIATES	Baltimore	518	246	174
9	THE HILLIER GROUP	Princeton, New Jersey	364	239	128
10	PERKINS & WILL	Chicago	394	233	122
11	LEO A DALY	Omaha	715	216	121
12	WIMBERLY ALLISON TONG & GOO	Newport Beach, California	278	213	117
13	CANNON	Grand Island, New York	400	189	115
14	CALLISON ARCHITECTURE	Seattle	328	188	98
14	ZIMMER GUNSUL FRASCA PARTNERSHIP	Portland, Oregon	260	188	104
16	SMITH, HINCHMAN & GRYLLS	Detroit	557	181	78
17	HENNINGSON DURHAM & RICHARDSON	Omaha	350	156	109
18	FANNING/HOWEY ASSOCIATES	Celina, Ohio	300	152	88
19	KAPLAN MCLAUGHLIN DIAZ	San Francisco	194	145	71
20	KOHN PEDERSEN FOX ASSOCIATES	New York	201	144	69
21	PERKINS EASTMAN ARCHITECTS	New York	160	125	59
22	HAINES LUNDBERG WAEHLER	New York	260	123	73
23	ARROWSTREET	Somerville, Massachusetts	148	109	57
24	ANSHEN + ALLEN ARCHITECTS	San Francisco	155	105	66
24	STUDIOS	San Francisco	140	105	36

RANK	FIRM	CITY	NUMBER OF EMPLOYEES	TOTAL ARCHITECTS	TOTAL REGISTERED ARCHITECTS
26	SPILLIS CANDELA & PARTNERS	Coral Gables, Florida	250	103	41
27	PEI COBB FREED & PARTNERS	New York	154	102	51
28	PAYETTE ASSOCIATES	Boston	136	95	44
29	THE PHILLIPS GROUP	New York	157	88	35
30	ALBERT KAHN ASSOCIATES	Detroit	330	85	57
31	BRENNAN BEER GORMAN ARCHITECTS	New York	140	84	33
32	SWANKE HAYDEN CONNELL ARCHITECTS	New York	180	82	57
33	ELKUS MANFREDI ARCHITECTS	Boston	102	74	43
34	MURPHY/JAHN ARCHITECTS	Chicago	85	71	27
35	GWATHMEY SIEGEL & ASSOCIATES	New York	80	65	37
35	LEGAT ARCHITECTS	Waukegan, Illinois	97	65	31
37	SSOE	Toledo, Ohio	550	63	49
38	THE STUBBINS ASSOCIATES	Cambridge, Massachusetts	65	58	27
39	CESAR PELLI & ASSOCIATES	New Haven, Connecticut	74	57	36
40	SPECTOR GROUP	North Hills, New York	70	56	41
41	DAVIS BRODY BOND	New York	75	54	30
41	RAFAEL VIÑOLY ARCHITECTS	New York	60	54	11
43	BERGMEYER ASSOCIATES	Boston	75	51	15
43	SASAKI ASSOCIATES	Watertown, Massachusetts	195	51	37
45	LS3P ARCHITECTS	Charleston, South Carolina	87	50	32
46	NADEL ARCHITECTS	Los Angeles	145	49	40
47	LOEBL SCHLOSSMAN & HACKL	Chicago	81	48	30
47	RDG SCHUTTE WILSCAM BIRGE	Omaha	88	48	34
49	LOHAN ASSOCIATES	Chicago	70	47	25
50	FRCH DESIGN WORLDWIDE	Cincinnati	163	44	23

THE MULTINATIONAL REPORT

Who earns the most fees overseas?

RANK	FIRM	1997 INTERNATIONAL FEES	1997 TOTAL FEES	RANK	FIRM	1997 INTERNATIONAL FEES	1997 TOTAL FEES
1	HELLMUTH, OBATA & KASSABAUM	75	250	26	SMITH HINCHMAN & GRYLLS	3.3	65
2	SKIDMORE, OWINGS & MERRILL	40	80	27	NADEL ARCHITECTS	3.2	15.8
3	RTKL ASSOCIATES	31.2	78	28	THE HILLIER GROUP	2.8	56
4	KOHN PEDERSEN FOX ASSOCIATES	27.9	45.7	29	HKS ARCHITECTS	2.6	52
5	WIMBERLY ALLISON TONG & GOO	24	40	30	ALBERT KAHN ASSOCIATES	2.6	32
6	NBBJ	20	100	31	STUDIOS	2.5	12.5
7	ELLERBE BECKET	19.7	73	31	SPILLIS CANDELA & PARTNERS	2.5	25
8	MURPHY/JAHN ARCHITECTS	19	20	33	THE PHILLIPS GROUP	2.5	20.6
9	DMJM/KEATING	18.7	208	34	ZIMMER GUNSUL FRASCA PARTNERSHIP	2.4	48
10	GENSLER	13.7	152	35	PAYETTE ASSOCIATES	2.2	17.2
11	PEI COBB FREED & PARTNERS	12.6	21	36	ARROWSTREET	2.0	13
12	LEO A DALY	9.8	75	37	THE STUBBINS ASSOCIATES	1.6	16.2
13	CALLISON ARCHITECTURE	8.6	43	38	ANSHEN + ALLEN ARCHITECTS	1.3	24.7
14	PERKINS & WILL	7.5	50	39	DAVIS BRODY BOND	1.2	12
15	SASAKI ASSOCIATES	6.4	26.8	40	BERGMEYER ASSOCIATES	1.1	7.0
16	KAPLAN MCLAUGHLIN DIAZ	6	30	41	PERKINS EASTMAN ARCHITECTS	0.9	18
17	BRENNAN BEER GORMAN ARCHITECTS	6	20	42	LEGAT ARCHITECTS	0.8	15.3
18	FRCH DESIGN WORLDWIDE	6	20	43	HENNINGSON DURHAM & RICHARDSON	0.7	36.1
19	SWANKE HAYDEN CONNELL ARCHITECTS	5.4	18	44	ELKUS MANFREDI ARCHITECTS	0.7	14
20	SSOE	5.4	54	45	LOEBL SCHLOSSMAN & HACKL	0.6	10.8
21	CANNON	5.1	34	46	GWATHMEY SIEGEL & ASSOCIATES	0.4	16
22	HAINES LUNDBERG WAEHLER	4.8	37	47	FANNING/HOWEY ASSOCIATES	0.3	34
23	RAFAEL VIÑOLY ARCHITECTS	4.7	10.5	48	RENAISSANCE DESIGN GROUP	0.1	11.6
24	SPECTOR GROUP	3.3	11.1	48	CESAR PELLI & ASSOCIATES	n/a	n/a
25	LOHAN ASSOCIATES	3.3	11	48	FUGELBERG KOCH ARCHITECTS	n/a	n/a

(U.S. dollars in millions)

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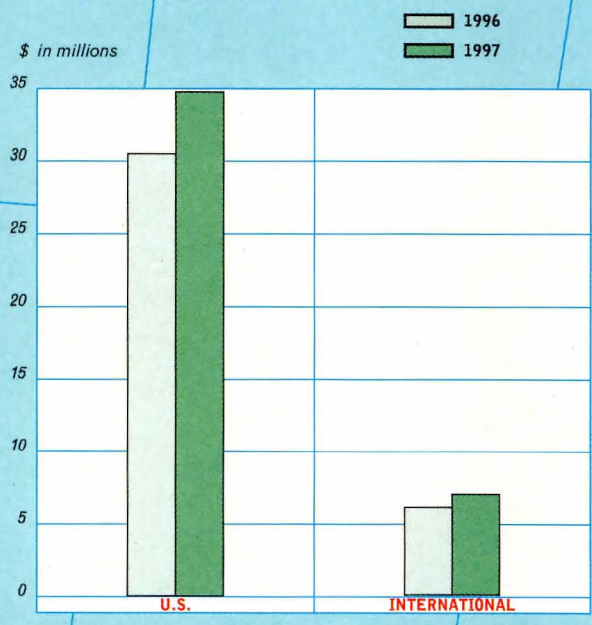
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Top 10 U.S. Firms Ranked by Percentages of Fees Overseas

Average Gross Annual U.S. and International Fees as Billed by Multinational Firms

RANK	FIRM	INTERNATIONAL FEE VOLUME AS PERCENTAGE OF TOTAL FEES
1	MURPHY/JAHN ARCHITECTS	95
2	KOHN PEDERSEN FOX ASSOCIATES	61
3	WIMBERLY ALLISON TONG & GOO	60
3	PEI COBB FREED & PARTNERS	60
4	SKIDMORE, OWINGS & MERRILL	50
5	RAFAEL VIÑOLY ARCHITECTS	45
6	RTKL ASSOCIATES	40
6	LEONARD PARKER ASSOCIATES	40
7	SWANKE HAYDEN CONNELL ARCHITECTS	30
7	FRCH DESIGN WORLDWIDE	30
7	HELLMUTH, OBATA & KASSABAUM	30
7	BRENNAN BEER GORMAN ARCHITECTS	30
7	LOHAN ASSOCIATES	30
7	SPECTOR GROUP	30
8	ELLERBE BECKET	27
9	SASAKI ASSOCIATES	24
10	NADEL ARCHITECTS	20
10	NBBJ	20
10	CALLISON ARCHITECTURE	20
10	STUDIOS	20
10	KAPLAN MCLAUGHLIN DIAZ	20

(total exceeds 10 to represent ties)



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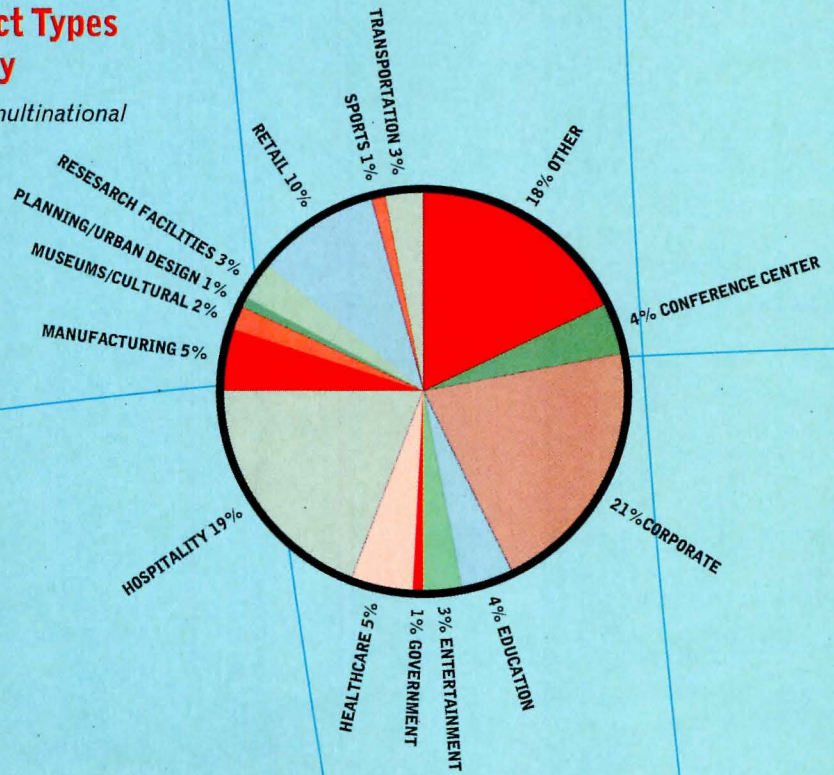
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What projects and services are most in demand?

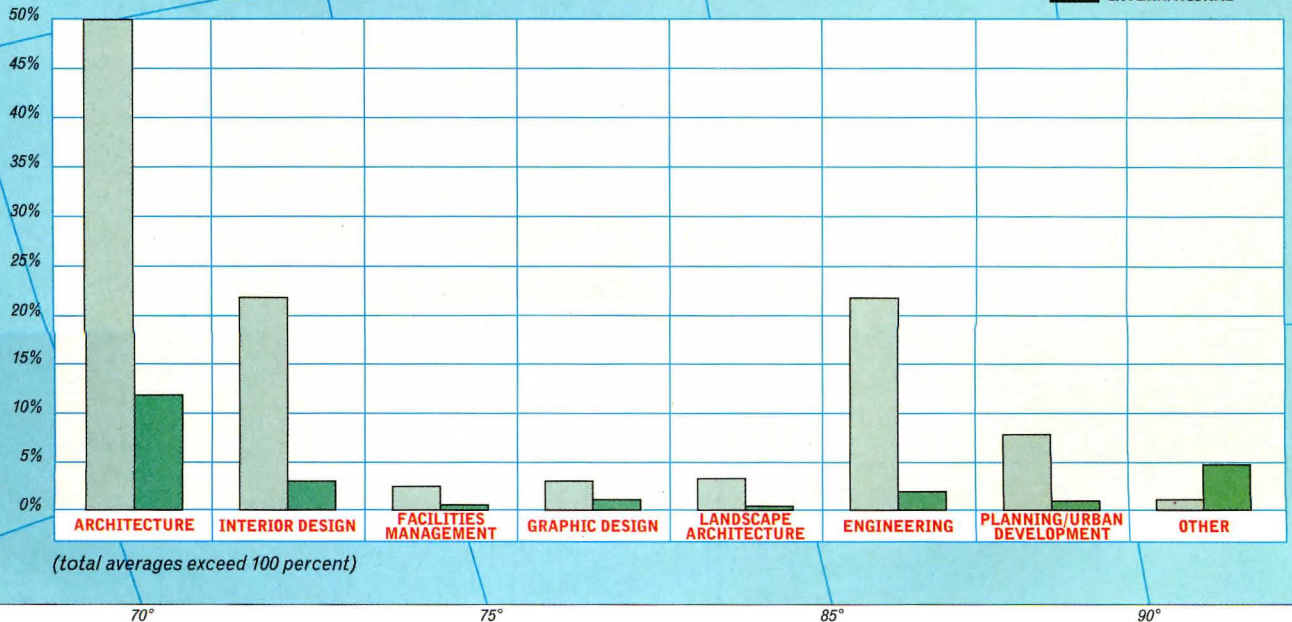
Multinational Project Types Currently Under Way

(shown as percentage of 213 multinational projects reported)



Services Offered by the Top 50 U.S. Multinational Architecture Firms

(breakdown of average respondent's workload)



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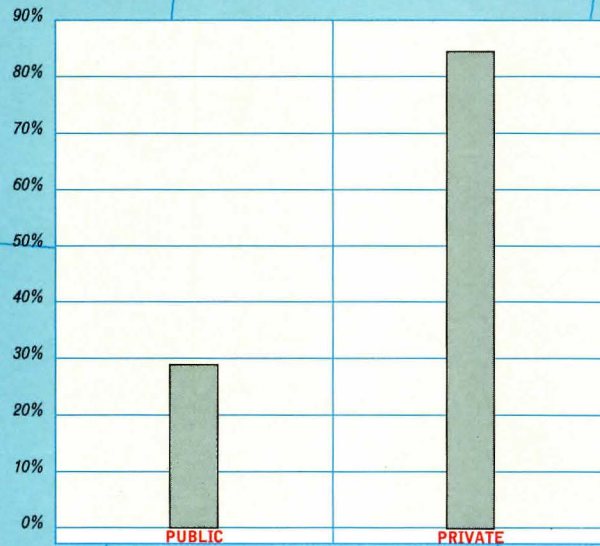
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Volume of Public-Sector vs. Private-Sector Multinational Projects

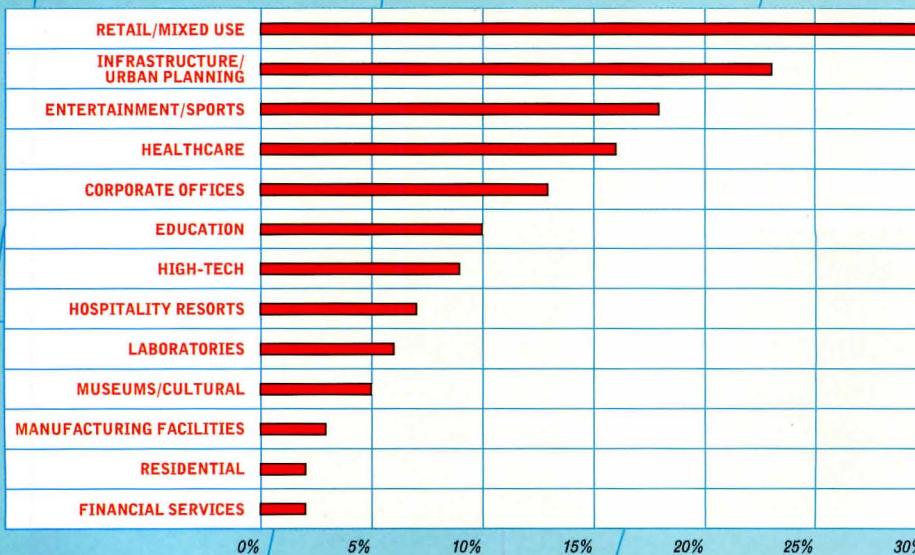
(average percentages of each category reported)



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Project Types Projected to Grow Multinationally

(percentage of respondents expecting increasing opportunities in specific areas)



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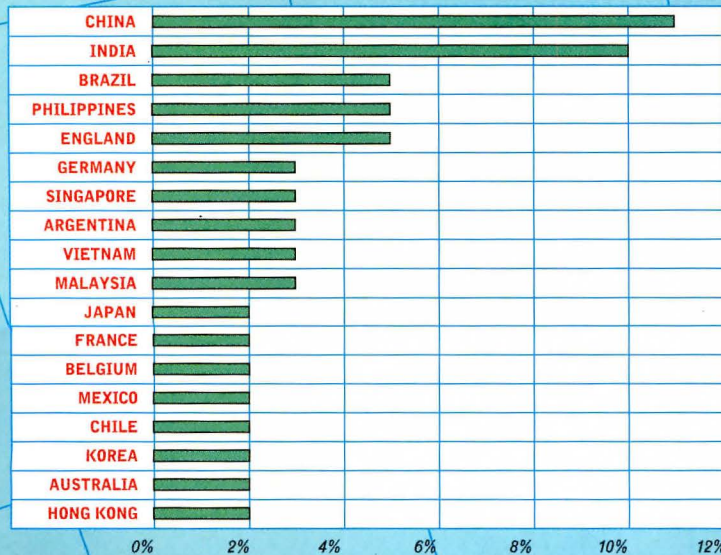
THE MULTINATIONAL REPORT

Where are American architects working?

RANK	COUNTRY	GROSS DOMESTIC PRODUCT (GDP) GROWTH RATE	GDP PER CAPITA	LEADING IMPORTERS	BANK LENDING RATE	INFLATION RATE	PERCENT POPULATION IN URBAN AREAS
1	UNITED KINGDOM	0.8	\$17,980	Europe 52%	U.S. 12%	6.1%	90%
2	CHINA	12.9	2,500	Japan 22%	U.S. 10%	11%	29%
3	SOUTH KOREA	6.6	11,270	Japan 26%	U.S. 24%	8.5%	74%
4	MEXICO	2.5	3,900	U.S. 74%	Europe 11%	n/a	36%
5	JAPAN	1.2	20,200	S.E. Asia 25%	U.S. 23%	4.1%	1.3%
6	BRAZIL	2.2	5,580	U.S. 23%	Europe 23%	n/a	400%
7	MALAYSIA	8.4	8,650	Japan 27%	U.S. 17%	7.6%	3.1%
8	PHILIPPINES	1.6	2,310	Japan 23%	U.S. 20%	15.1%	10%
9	CANADA	1.4	22,760	U.S. 65%	Japan 6%	6.9%	3.1%

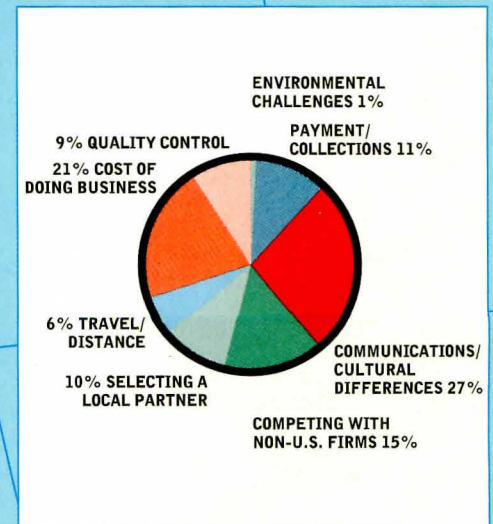
Fastest-Growing Markets for Architects Working Abroad

(average percentages of professional services rendered)



Major Challenges Faced by U.S. Architects Working Abroad

(percentages of respondents reporting specific problem)



95°

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Profiles of Leading Countries for U.S Architects

ALBERT KAHN ASSOCIATES	Brazil, Canada, United Kingdom	40°
ALLEN & HOSHALL	China, Greece, Italy	
ANSHEN + ALLEN ARCHITECTS	Asia, Australia, Europe, Middle East	
ARROWSTREET	Argentina, Chile	
BERGMEYER ASSOCIATES	Canada, Philippines, United Kingdom	
BRENNAN BEER GORMAN ARCHITECTS	China, Egypt, Hong Kong, Indonesia, Malaysia, Mexico, Philippines, Thailand	
CALLISON ARCHITECTURE	China, Hong Kong, Japan, Malaysia, South Korea, Taiwan	
CANNON	Belgium, Israel, Mexico, Turkey	
CESAR PELLI & ASSOCIATES	Argentina, Hong Kong, Japan, Mexico, Netherlands	
CORGAN ASSOCIATES	Australia, Caribbean, England, Japan, New Zealand, South Korea	
DAVIS BRODY BOND	Brazil, Mexico, Netherlands, Switzerland, United Kingdom, Zimbabwe	
DMJM/KEATING	Australia, Indonesia, Philippines, Thailand	
ELKUS MANFREDI ARCHITECTS	Argentina, Philippines, South Korea	
ELLERBE BECKET	Brazil, Germany, Indonesia, Ireland, Russia, Saudi Arabia, South Korea, United Arab Emirates, United Kingdom	
FANNING/HOWEY ASSOCIATES	Philippines	
FRCH DESIGN WORLDWIDE	Argentina, Austria, Belgium, Brazil, China, Ecuador, Japan, South Africa, South Korea	
FUGELBERG KOCH ARCHITECTS	Aruba, Canada, Jordan, Mauritius, South Africa	
GENSLER	China, England, Philippines	35°
GWATHMEY SIEGEL & ASSOCIATES	Singapore	
HAINES LUNDBERG WAEHLER	Brunei, China, Kuwait, Lebanon, Saudi Arabia, South Korea, Spain, Switzerland, United Kingdom	
HELLMUTH, OBATA & KASSABAUM	Australia, China, Hong Kong, Indonesia, Japan, Russia, South Korea, United Kingdom	
HENNINGSON DURHAM & RICHARDSON	Guatemala, Mexico, United Kingdom	
HKS ARCHITECTS	Australia, Bahamas, Mexico	
KAPLAN MCLAUGHLIN DIAZ	Japan, Mexico, South Korea	
KOHN PEDERSEN FOX ASSOCIATES	China, Germany, Hong Kong, Japan, Netherlands, Singapore, South Korea, Philippines, United Kingdom	
LEGAT ARCHITECTS	China	
LEO A DALY	Austria, Bahrain, China, Germany, Hong Kong, Russia, Spain, Thailand, United Arab Emirates	
LOEBL SCHLOSSMAN & HACKL	Chile, China, Mexico	
MANCINI-DUFFY	England, Japan, Latin America	
MMM DESIGN	Italy, Spain	
MURPHY/JAHN ARCHITECTS	Belgium, Germany, Malaysia, South Korea, Thailand	
NADEL ARCHITECTS	China, Philippines, South Korea	
NBBJ	Asia, Europe, Latin America, Middle East	
PAVLIC DESIGN TEAM	Japan, Mexico, South Korea	
PAYETTE ASSOCIATES	India, Malaysia, Pakistan, Saudi Arabia, South Korea	
PEI COBB FREED & PARTNERS	China, Indonesia, Israel, Luxembourg, Netherlands, Philippines, Spain, Taiwan	30°
PERKINS & WILL	Mexico, Philippines, Singapore, South Korea	
PERKINS EASTMAN ARCHITECTS	Brazil, China, Spain	
RTKL ASSOCIATES	Egypt, England, Germany, Poland, South Korea	
SASAKI ASSOCIATES	Aruba, Cyprus, Egypt, France, South Korea	
SKIDMORE, OWINGS & MERRILL	Canada, China, Europe, Far East, Malaysia, Middle East, Philippines, South America	
SMITH HINCHMAN & GRYLLS	Philippines	
SPECTOR GROUP	Belgium, China, England	
SPELLIS CANDELA & PARTNERS	Argentina, Brazil, Costa Rica, Honduras, Mexico, Spain	
S SOE	Japan, Mexico, Netherlands, South America	
STUDIOS	China, France, Ireland, Israel, Malaysia, Switzerland, United Kingdom	
SWANKE HAYDEN CONNELL ARCHITECTS	England, Turkey, Venezuela	
THE HILLIER GROUP	Australia, Czech Republic, Spain, Turkey, United Kingdom	
THE PHILLIPS GROUP	France, Germany, Mexico, Switzerland, United Kingdom	
THE STUBBINS ASSOCIATES	China, Kuwait, Lebanon, Saudi Arabia, Singapore	
WILSON & ASSOCIATES	Canada, Indonesia, Singapore, South Africa, South Korea, United Arab Emirates	
WIMBERLY ALLISON TONG & GOO	India, Malaysia, United Kingdom	
ZIMMER GUNSUL FRASCA PARTNERSHIP	Canada, China, England, India	25°

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115°

A World of Projects

25°

Top 50 firms report projects in the following countries:

ALBERT KAHN ASSOCIATES Mercedes Benz Plant, Juis de Fora, Brazil; Volkswagen Plant, Resende, Brazil; American Motors Plant, Brampton, Ontario, Canada

ANSHEN + ALLEN ARCHITECTS Beijing Hospital, China; Shanghai Far East International Building, China; Norwich and Norfolk Hospital, England

ARROWSTREET Multiplex Hoyts Cinema, Argentina; Shopping Center Food Court, Quito, Ecuador; Arriyah Historic City Retail, Riyadh, Saudi Arabia

BERGMEYER ASSOCIATES Original Levi's Store, Vancouver, Canada; Talbots Store, Kouhoku, Japan; Talbots Store, Jusco Shin Lee, Japan

BRENNAN BEER GORMAN ARCHITECTS Plaza Hollywood Entertainment Center, Hong Kong; Conrad International Hotel, Jakarta, Indonesia; Puri Matahar Residential Complex, Surabaya, Indonesia

CALLISON ARCHITECTURE Oriental Plaza Retail, Beijing, China; Samsung For Us Zone, Seoul, South Korea; Tai Mall, Taipei, Taiwan

CANNON Whitby Mental Health Center, Canada; Xiamen World Trade Center, China; Children's Medical Center of Israel, Tel Aviv

CESAR PELLI & ASSOCIATES Hong Kong Central Station Development; Chubu Cultural Center/Museum, Tottoli, Japan; Biwako Hotel, Lake Biwa, Japan

DAVIS BRODY BOND Valeo Clutch Manufacturing Center, Campinas, Brazil; Valeo Electrical Systems Center, San Luis Potosi, Mexico; Valeo Product Distribution Center, Helmond, Netherlands

DMJM/KEATING Sydney Airport, Australia; Menara Bakrie Office Tower, Jakarta, Indonesia; Korea Development Bank, Seoul, South Korea

ELKUS/MANFREDI ARCHITECTS TyC Cafe, Buenos Aires, Argentina; Divi Beach Hotel, Aruba; Yong Peyong All Seasons Resort, Yong Peyong, South Korea

ELLERBE BECKET Yonsei Severance Hospital, Seoul, South Korea; Hae Song Plaza, Inch'on City, South Korea; Arbat Center, Moscow

FANNING/HOWEY ASSOCIATES Performing Arts Center, Manila, Philippines

FRCH DESIGN WORLDWIDE Falabella Department Store, Buenos Aires, Argentina; Ciro's Plaza, Shanghai, China; Edwards Department Store, Sandton, South Africa

FUGELBERG KOCH ARCHITECTS Iguana Joe's, Aruba; Aruba Airport Retail Center, Le Coco Beach, Mauritius

GENSLER Shanghai Space City, China; London City Airport, England; The Aurora at 90 High Holborn, London, England

GWATHMEY SIEGEL ASSOCIATES Convention Center/Hotel, Marne La Vallee, France; Golf Clubhouse, Marne LaValler, France; Nanyang Polytechnic University, Singapore

HELLMUTH, OBATA & KASSABAUM Foreign & Commonwealth Corporate Offices, London, England; Sendai International Airport, Japan; Tokyo Telecom Center, Japan

HENNINGSON, DURHAM & RICHARDSON Hospital Santa Engracia, Monterrey, Mexico; Hospital Los Angeles, Torreon, Mexico

THE HILLIER GROUP Sydney Harbour Casino, Australia; Prague International School; Sunset Villa Hotel, Saipan

HKS ARCHITECTS Sydney Olympics Ballpark, Australia; Atlantis Resort Phase II, Nassau, Bahamas; Las Ventanas al Pariso, Los Cabos, Mexico

HAINES LUNDBERG WAEHLER Ciro's Plaza, Shanghai, China; Taibao Housing Development, China; Park Hotel, Shanghai, China

KAPLAN MCLAUGHLIN DIAZ Nadya Park Museum, Nagoya, Japan; Samsung Cinema, Seoul, South Korea; Kookmin Bank Headquarters, Seoul, South Korea

KOHN PEDERSEN FOX ASSOCIATES Nanjing Xi Lu, Shanghai, China; Roppongi Office Tower, Tokyo, Japan; Posteel Office Tower, Seoul, South Korea

LEGAT ARCHITECTS Baxter International Plant, Shanghai, China; Baxter International Plant, Miyazaki, Japan; Baxter International Plant, Woodlands, Singapore

LEO A DALY Al Seef Village Complex, Bahrain; Two Queens Road Central Office Tower, Hong Kong; BM-3 Wastewater Treatment Plant, Bangkok, Thailand

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30°

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LOEBL SCHLOSSMAN & HACKL

Torre Paris Corporate Headquarters, Santiago, Chile; Luo Hu Commercial Center, Shenzhen, China; Shenzhen International Exchange Center, China

LOHAN ASSOCIATES

Dhaka Hotel, Bangladesh; Changfa Office Building, Shanghai, China; Suzhou Administrative Committee Office Tower, China

MURPHY/JAHN ARCHITECTS

Sony Center, Berlin, Germany; YTL Office Tower, Kuala Lumpur, Malaysia; Bangkok International Airport

NADEL ARCHITECTS

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PERKINS & WILL

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PERKINS EASTMAN ARCHITECTS

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THE PHILLIPS GROUP

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SPECTOR GROUP

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Citibank Office Facility, Buenos Aires, Argentina; Bank of Boston Offices, São Paulo, Brazil; Marriott Hotel Resort, Costa Rica

STUDIOS

Shanghai Theatre Company, China; Societé General Offices, Paris, France; Sybase Incorporated Offices, Paris, France

THE STUBBINS ASSOCIATES

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WIMBERLY ALLISON TONG & GOD

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INTERNATIONAL TRADE LAW
itl.irv.uit.no/trade_law

Large collection of conventions, treaties, international organizations, model laws, and more.

U.S. STATE DEPARTMENT TRAVEL WARNINGS
travel.state.gov/travel_warnings.html

The most recent travel warnings. Also contains country information and consulate addresses.

U.S. NATIONAL TRADE ESTIMATES
www.ustr.gov/reports/nte/1996/contents.html

Search by country and locate foreign blocks that affect U.S. exports of both goods and services.

U.S. TRADE POLICY AGENDA & ANNUAL REPORT
www.ustr.gov/reports/tpa/1996/contents.html

A complete resource covering all aspects of trade negotiations.

Regions and Countries

FINANCIAL TIMES ONLINE
www.ft.com

The European Community's daily business newspaper. Contains pan-Europe business and financial news.

IPAN ONLINE
www.ipan.com

India's public affairs and business journal on the Web.

NEGOCIOS
negocios.com

The latest economic and business news from Spain and Latin America.

SINGAPORE BUSINESS TIMES ONLINE
www.sph.com.sg/biztimes

Business news from Singapore. Updated daily.

PHILIPPINE BUSINESS ONLINE
www.eiger.ch/eiger/pbo/quick.htm

Very complete source of business news and information from the Philippines.

KOREA ECONOMIC WEEKLY
eco.ked.co.kr/h-kew.html

South Korea's largest-circulation daily business publication.

MEXICO BUSINESS
www.nafta.net/mexbiz

An excellent on-line resource containing information on doing business in and with Mexico.

RUSSIAN BUSINESS LAW JOURNAL
www.spb.ru/rulesreg/index.html

Information on changes affecting business and law in Russia.

ARAB WORLD ONLINE
www.awo.net

Comprehensive information on the Arab world with many business-related directories, links, and news items.

JAPAN EXTERNAL TRADE ORGANIZATION
www.jetro.go.jp

A site promoting trade and economic relations between Japan and other countries.

KPMG CANADA
www.kpmg.ca

Originated by the global accounting and consulting firm KPMG, this Web site contains a large amount of information about doing business in Canada.

ASIA INC. ONLINE
www.asia-inc.com

Contains articles about Asia, an Internet directory searchable by country, and business news and market closings from Knight-Ridder and Lippo Securities.

THAIINDEX
www.thaiindex.com

Lots of information about Thailand with business news and Thai companies organized by category.

HOW OUR SURVEY WAS CONDUCTED

Architecture's survey of the top 50 multinational architects was conducted by Counsel House Research, a division of the Greenway Group, based in Reston, Virginia, and Brandt Resources of New York City.

In May, June, and July 1997, Counsel House mailed survey forms to more than 500 architecture firms, addressed to firm principals. The survey form contained questions regarding firm history; staff size according to profession and certification; services offered; annual gross fees for 1996 and projected fees for 1997; multinational architectural projects currently contributing to firm's revenue stream; percent of public- versus private-sector projects; foreign projects and contribution to revenue stream; names of five most recent foreign projects; and comments on growth opportunities in the multinational marketplace.

A variety of sources helped to identify potential firms for consideration, among them, Construction Market Data's ProFile Directory of U.S. Architectural Firms. To be included, architects needed not only to have a minimum of 2 percent international work currently, but also have significant staff devoted to that work. Many of the 500 practitioners contacted reported doing less than 1 percent of their work internationally. Other candidates for inclusion chose not to participate; among them were Richard Meier & Partners, Heery International, Einhorn Yaffee Prescott, and John Portman & Associates.

Some architects accomplished significant international projects within the last decade, but not in 1996-97, the years covered by this research. They were not included; nor were firms reporting that they will have significant work beginning in 1998.

The top 50 listing was derived from information reported by respondents and checked for accuracy. Firms were ranked by the size of their professional staff and fees. The size of each was validated by reviewing actual lists of architects.

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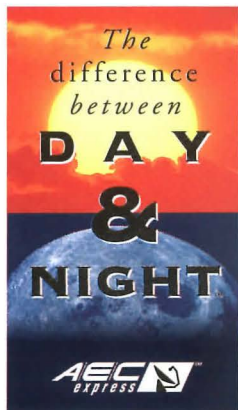
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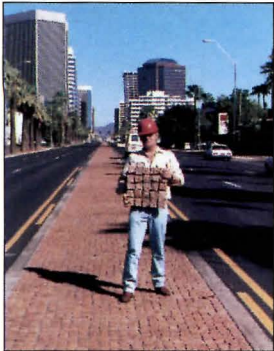
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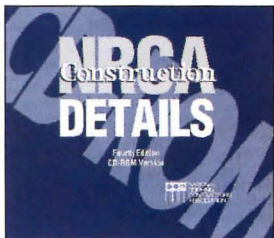
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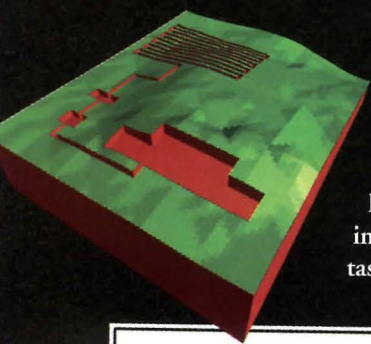
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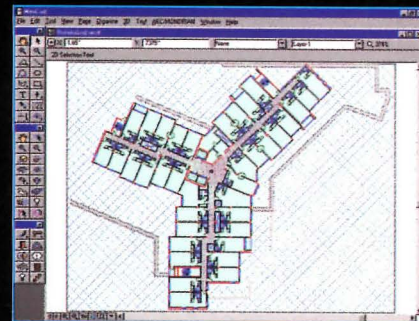
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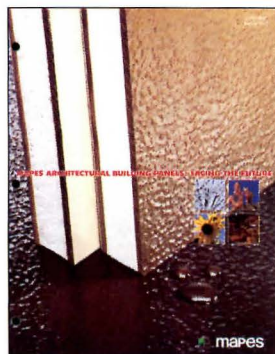
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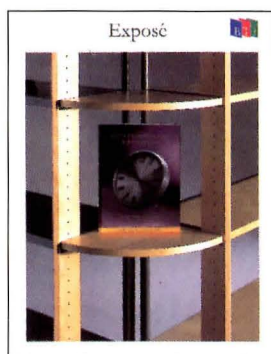
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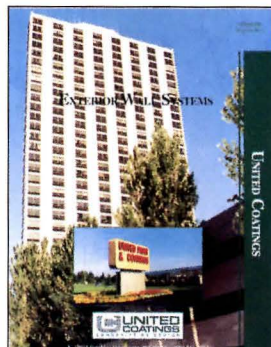
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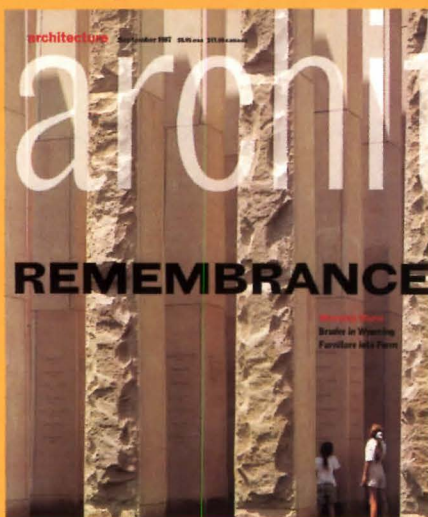
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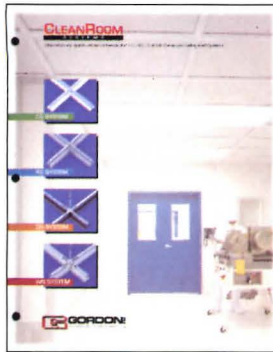
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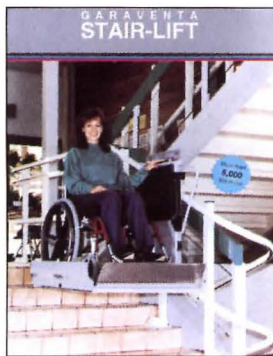


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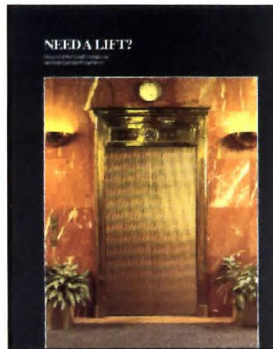
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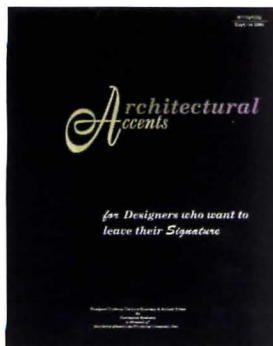
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Rigidized® Metals Corp.



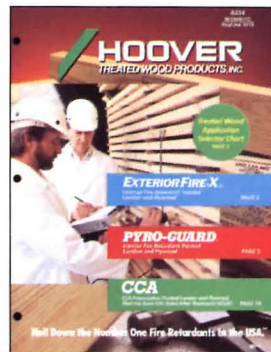
TEXTURED METAL DOORS BY RIGID-TEX®—Rigid-Tex® metals combine beauty and durability in Rigidized and etched metals. Dozens of patterns and custom designs for interior and exterior use, new or retrofit. For elevator doors and interiors, column covers, walls, ceilings, entrances, signage and trim. Available in a wide selection of metals, gauges, sizes and colors. Rigidized® Metals Corp., 658 Ohio St., Buffalo, NY 14203-3185. (800) 836-2580, or (716) 849-4711.
Circle 49.

Southern Aluminum Finishing Co., Inc.



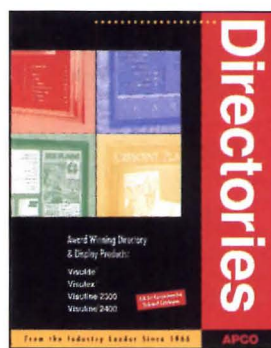
Commercial Gutters, Fine Cornice & Accent Trims—New 1997 brochure presents many projects in the U.S. which feature the popular "Designer Series" commercial gutter system. The brochure also presents an expanded line of interchangeable cornice profiles allowing you to design impressive building features or accents. Available in 56 EZ Mix colors or rich anodized finishes. Call 1-800-334-9823 for free literature.
Circle 53.

Hoover Treated Wood Products



Fire Retardants and Preservatives—New 12-page Sweet's catalog features *Pyro-Guard®* interior type fire retardant lumber and plywood for roof systems and other interior structural uses; *Exterior Fire-X®* FRT lumber and plywood for decks, balconies, siding and other exterior uses; and *CCA/KDAT* preservative treated lumber and plywood that's kiln dried after treatment, from Hoover Treated Wood Products Inc., the USA's largest producer of fire retardant treated wood.
Circle 43.

APCO USA



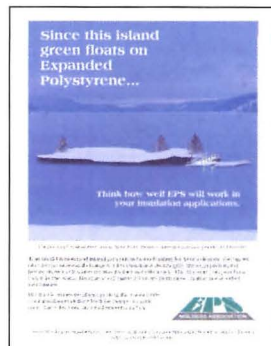
Directory & Display Systems—As a sign industry leader for 31 years, APCO understands the importance of a building directory in creating a favorable and lasting impression. Directories not only provide the information that visitors need, but also create the perception of a professional and organized facility. APCO offers three different directory and display systems, which may be modified to meet your specific needs. Through good design, they function as intended, providing years of trouble free service. For a free color brochure, call (404)688-9000 or fax (800)FAX-APCO
Circle 47.

Metropolitan Ceramics



America's Indoor-Outdoor Ceramic Tile® Metropolitan quarry is the floor covering of choice for demanding applications. Available in three sizes and a number of blendable colors, for a variety of pattern options—Metropolitan is ideal for installations where there can be no compromise of looks or durability. For our latest catalog and distributor list call 1-800-325-3945.
Circle 51.

EPS Molders Association



Information Resource Bulletins—EPS Molders Association serves as your source for accurate information regarding the use of Expanded Polystyrene block molded foam in all phases of residential and commercial construction. From below grade applications, to sheathing and exterior insulation finishing systems, expanded polystyrene is installed for insulation value and aesthetic appearance. New series of information now available! 800-607-EP5A.
Circle 55.

600 YEARS AGO, THIS WAS INTENDED
TO PROVIDE THE ULTIMATE IN PROTECTION
FOR A ROOF.



TODAY, VERSICO DOES THE SAME.

Centuries ago, architects devised imaginative ways to protect their crowning achievements. Unfortunately, these precautions aren't very effective against thermal cycling, heavy maintenance traffic and environmental concerns facing today's design professionals.

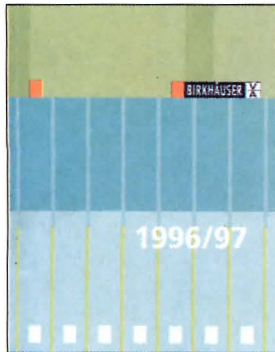
That's where Versico rises to the challenge. Frankly, we're not for everyone. That's by design. We only want to work with those who can appreciate the Versico Advantage: Superior products like our lightweight yet durable Versigard® and Reinforced Versigard (EPDM) roofing systems and our thermoplastic (TPO) Versiweld™ and reinforced Versiweld Premier single-ply roofing membranes that are environmentally sound, dimensionally stable, easy to work with, and abuse resistant. Add training, service and support and you've got a valued partner rather than just another supplier. Plus, Versico offers a host of incentives, warranties and other programs specifically tailored to meet most roofing companies' needs.

For the most up-to-date materials, techniques and expertise, give us a call at 1-800-376-0026. We'll send you information to assure that the roofs you install stand the test of time.



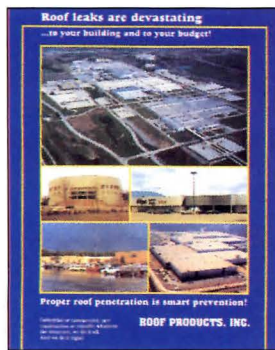
Circle 217 on information card

Birkhäuser



Birkhäuser features new beautifully illustrated and produced monographs including:
Richard Meier - Details
The Le Corbusier Guides
Josef Paul Kleihues
Building in Wood
Philip Johnson (Studio Paperback)
For our free catalog call
1-800-515-2475.
Circle 57.

Roof Products, Inc.



Roof Penetration for New & Retrofit Construction—Before you purchase or specify rooftop equipment, contact Roof Products Inc. They have the knowledge, experience and the technical staff to analyze the project and determine the best applications for a leak-free, cost-efficient job. RPI will supply the solution and the curbs, adapters, and other accessories to change equipment without disturbing the roof or sub-structure. 1-800-262-6669.
Circle 61.

Willamette Industries, Inc.



Duraflake FR fire-rated particle-board—Duraflake FR provides Class A fire protection in wall systems, store fixtures, furniture and case goods. It has a UL flame spread rating of 20 and a smoke developed rating of 25. Its smoothness, machinability and uniformity make it an ideal substrate. It even resists warping and won't leach chemicals. Call (541) 928-3341. Sweet's Catalog 06300/WIL.
Circle 65.

Spacesaver Corporation



Healthcare Brochure—With Spacesaver Storage Systems, you can maximize existing space and increase storage capabilities in almost every area within healthcare facilities. From sterile supplies and kits to glass slides and specimens; from medical records to radiology films and everything in between, Spacesaver can help keep your facility orderly and productive, while keeping vital supplies organized and secure. The prescription for your storage headaches is only a phone call away. 800-492-3434.
Circle 69.

DecoShield®



CREATIVE SYSTEMS offers ways to retrofit existing buildings with a minimum of disruption and mess. Speed and ease of installation means rooms do not need to be vacated during installation. **DecoShield®**—our traditional system is a UL-listed cover and support system for CPVC, copper and steel sprinkler piping. **Deco-PVC™**—a non-listed cover system intended for hydronics, cable or gas piping. Call (800) 873-0894 OR FAX (800) 584-3894.
Circle 59.

Heat-N-Glo



Three-Sided Fireplace for Unlimited Installations—Heat-N-Glo introduces model Pier TR, a three-sided direct vent fireplace that can be terminated vertically or horizontally to accommodate nearly any application. The Pier TR is perfect as a room divider, bar, end of counter or a wide variety of creative installation possibilities. As with all Heat-N-Glo fireplaces, the Pier TR can be operated by remote control for the ultimate in convenience.
Circle 63.

Schlüter® Systems



Schlüter®-TROBA-PLUS, A New Drainage System—Schlüter®-TROBA-PLUS is a pre-fabricated drainage composite that enhances waterproofing systems and provides a secondary water-retention layer to seal out moisture. **TROBA-PLUS** consists of a high-impact polymeric, studded core, covered with a water-permeable filter fabric. **Schlüter®-TROBA-PLUS** provides added protection to the waterproofing layer by supporting the floor covering over its entire surface. For more information call **Schlüter® Systems** at 1-800-472-4588.
Circle 67.

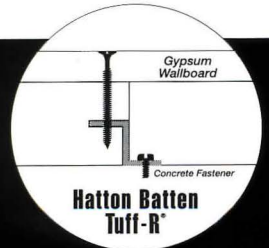
Innerface Architectural Signage, Inc.



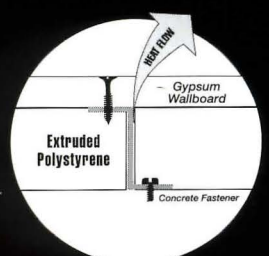
ADA SIGNAGE COMPLIANCE—One of the nation's leading architectural companies for more than 26 years, Innerface offers signage planning and wayfinding consulting, and a complete line of interior, exterior and ADA signage. Also introducing a new Interactive/Touch Screen Directory product. Nationwide coverage and a commitment to quality driven customer service has made Innerface "The Company That Does Things Right." For your local sales representative please call (800) 445-4796. Website: www.rpicurbs.com or e-mail: rpicurbs@gte.net.
Circle 71.

The NEW Hatton-Batten* insulating system from Celotex virtually eliminates costly thermal short-circuiting while increasing R-values by 40 percent. The exclusive kerfed-edge design of our Tuff-R "C" insulating boards completely surrounds the metal Z-furring, effectively preventing heat loss. The insulating boards themselves, faced on both sides with vapor-retardant quality reinforced aluminum foil, yield R-values of 12 to 16 — the highest R-values in the thinnest wall profiles. Best of all, the kerf, just one inch from the back facing, lets you use less expensive Z-furring. And, since the furring doesn't extend to the wall, there's no unsightly telegraphing — or thermal short-circuiting.

* Patent pending.



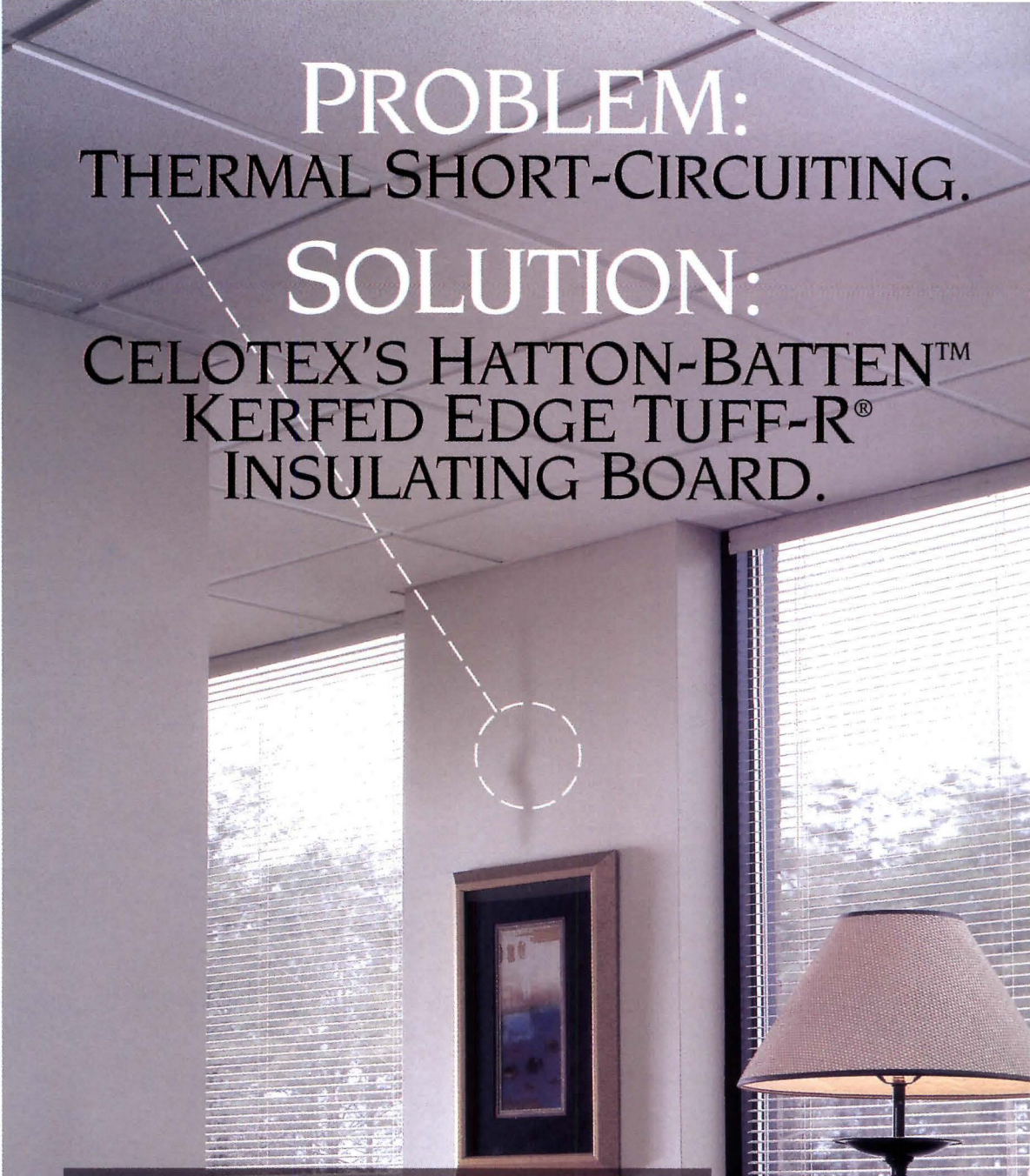
Kerfed one inch from the back face, Hatton Batten's™ exclusive system allows you to create a continuous envelope of foam insulation.



Conventional Z-furring has direct heat flow lowering system R-value.

PROBLEM: THERMAL SHORT-CIRCUITING.

SOLUTION: CELOTEX'S HATTON-BATTEN™ KERFED EDGE TUFF-R® INSULATING BOARD.



Hatton / Batten™

Kerfed Edge Tuff-R® Insulating Sheathing.

- Reduces Thermal Short Circuits
- Increases R-value by at Least 40%
- Decreases Costs
- Prevents Telegraphing

Celotex offers AIA-approved courses and credits for Tuff-R® "C" Commercial Insulation and other Celotex building products. Call today.

Plus...

- 15-Year Thermal Warranty
- Third-party certification by NAHB Research Center and ETL Testing Laboratories
- The Celotex name, with 75 years' experience in insulation

For details on how to short circuit costly thermal short circuiting,
Call: 1-800-CELOTEX (1-800-235-6839).

Circle 219 on information card



Celotex Corporation, PO Box 31602, Tampa, FL 33631-3602

Invisible Structures, Inc.



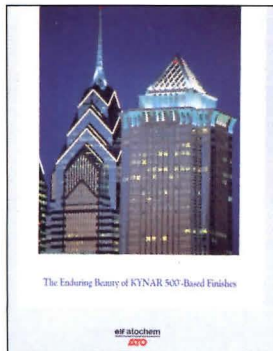
Grasspave² new rolls are sold in nine sizes for fast easy installation to 10 m² (108 sf) to 125 m² (1346 sf). This 100% recycled plastic ring and grid system is a substitute for asphalt surfacing allowing real grass for parking lots, fire lanes, pedestrian areas. Grass low-traffic pavement is very strong, stable, and porous. CADD disks call 800-233-1510 or <http://www.grasspave.com>. **Circle 73.**

Spacesaver Corporation



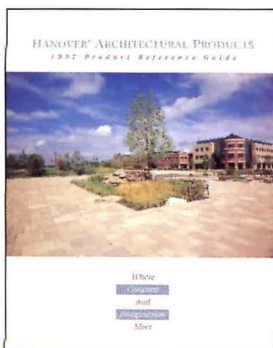
Corrections & Law Enforcement Brochure—From prisons to police stations, Spacesaver has the solution to your storage problems. Our High Density Mobile Storage Systems will maximize existing space, while providing essential security for items being stored. These systems can be custom designed to fit your needs, with capabilities of securely housing weapons, evidence, supplies, etc., as well as books, journals and files in considerably less space than currently used. For information, call (800) 492-3434. **Circle 77.**

Elf Atochem North America, Inc.



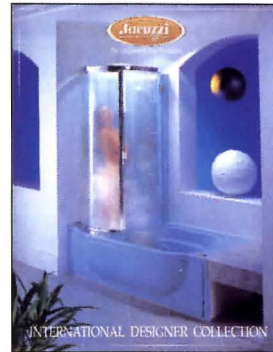
THE BIG DOG IN METAL COATINGS—KYNAR 500[®] resin-based finishes are the standard by which all metal coatings are judged. Thirty years of proven performance ensure its superior weatherability. KYNAR 500 resin-based finishes provide excellent color retention, chalk resistance and gloss retention. No other finish can protect metal as well. Ask For It By Name—KYNAR 500 resin-based finishes. **Circle 81.**

Hanover[®] Architectural Products



Hanover Architectural Products has been producing concrete unit pavers for over twenty five years. Our extensive product line includes Traditional, multisided and Appian brick, as well as, larger scaled pavers. Applications range from municipal sidewalks and curbs, residential patios and pools, to roof ballast and deck installations. (717) 637-0500 **Circle 85.**

Jacuzzi Whirlpool Bath



The Latest in Bathing—Jacuzzi Whirlpool Bath presents The 1997 International Designer Collection of whirlpool baths, faucetry and The J-Dream[™] Family of shower systems. This full-color catalog features beautifully styled products, integrating the most innovative luxury features. For more information please call 1-800-678-6889. (www.jacuzzi.com). Catalog free of charge. **Circle 75.**

Melton Classics, Inc.



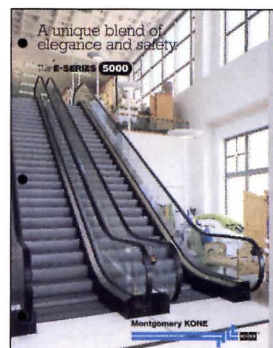
Columns & Balustrades—Melton Classics offers a complete line of classically authentic wood columns for interior/exterior applications. Available in your choice of wood species for paint or stain. Other quality products include fiberglass columns, poly/marble columns and synthetic stone columns and balustrades. **Call 800-963-3060. Circle 79.**

Advance Lifts, Inc.

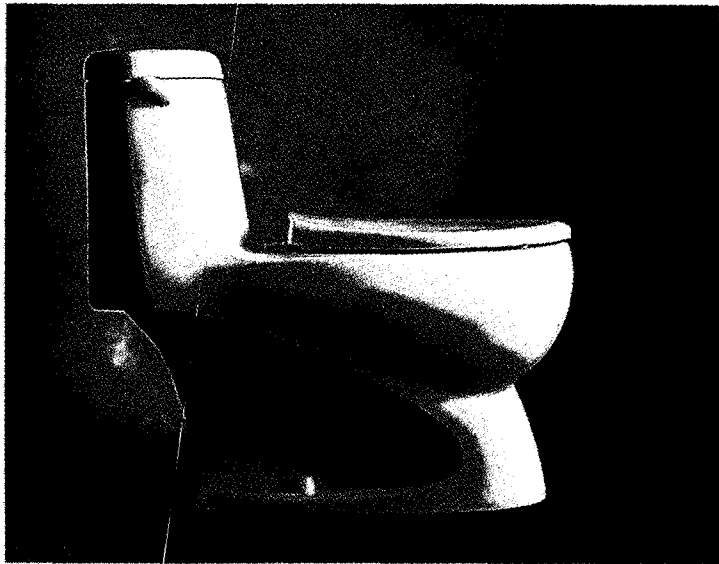


Advance Lifts introduces its new Safety-Dok Model 2400—a vertical rising platform that transfers loads on a level plane and fits into existing 6' x 8' dock leveler pits to provide a ramp free safety zone on a loading dock and eliminates the potentially dangerous ramping conditions of a dock leveler or ramp. To protect personnel, a Safety-Dok is used whenever loads are moved via non-powered material handling equipment. It carries a 5 year structural warranty and has an oven baked enamel paint finish to insure long life. **Circle 83.**

Montgomery KONE



Montgomery KONE's E-SERIES 5000[®] sets a new standard of style and safety. Its bold, sleek shape complements contemporary architecture; the handrails appear to float on a nearly invisible base. Retail building owners love how the sparkling glass balustrades enhance store environments. Plus, reduced step/skirt clearances, lack of exposed fasteners, a modified comb design and other advances make it safer. Call 1-800-956-KONE (5663) for free literature. <http://www.montgomery-kone.com> **Circle 87.**



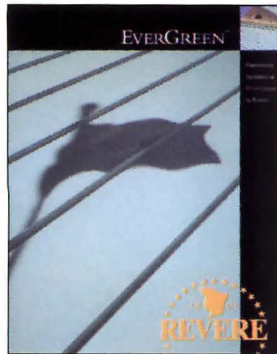
THEY SAY IN THE FUTURE,
EVERYTHING WILL BE DONE BY COMPUTER.
OH?

Savona® Bathroom fixtures that embrace technology, yet elegantly withstand the gentle wash of time. Information? Call 1-800-524-9797 ext. 251

American Standard

Circle 221 on information card

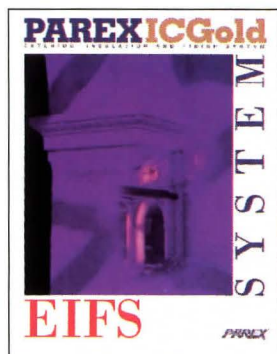
Revere Copper Products



New Revere EverGreen™ pre-patinaed architectural copper lets you specify the rich, warm look of patina, without waiting decades to fulfill your vision. Completely matures after four to six rainfalls. Adds striking beauty and character to any roof or accent. Call for new EverGreen brochure, Revere Copper Products, Inc., P.O. Box 300, Rome, NY 13442-0300, 800-950-1776, Fax: 315-338-2105, <http://www.reverecopper.com>

Circle 89.

Parex Inc.



Parex introduces a New EIFS Technology—I-C Gold®, the first Flexible PM EIFS,—combines the design flexibility and simplicity of jointless polymer based (PB) systems with the benefits of mechanical attachment, and extruded polystyrene insulation board of (PM) Systems. The system's thick self-gauging base coat eliminates control joints, simplifying installation, reducing cost and enhancing architectural versatility. Mechanical attachment makes it ideal for aged substrates whose surfaces are not suitable for adhesives. For information on flexible PM EIFS call 800-537-2739.

Circle 93.

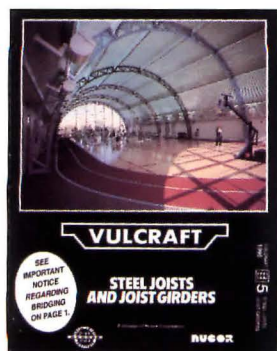
Truebro



TRUEBRO manufactures a professional line of engineered under sink protection devices. The Lav Guard™, Lav Shield™ and Basin Guard™ satisfy the Americans with Disabilities Act article 4.19.4 and 4.24.6, California P.1504B, ANSI A117.1 and BOCA P-1205.4.2 code requirements. These products accommodate wheelchair individuals access to sinks and lavatories, making those fixtures barrier-free and accessible.

Circle 97.

Vulcraft



STEEL JOISTS AND JOIST GIRDERS. This 128-page design manual provides indepth information for the optimum use of steel joists and joist girders. As the largest producer in the United States, Vulcraft has the most experience and expertise in the application, design and manufacture of these products. The economies of steel joists and joist girders contribute to their increasing utilization.

Circle 101.

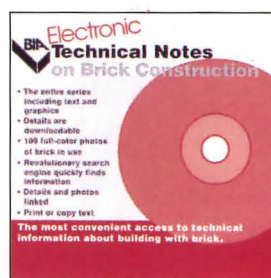
Pemko Mfg. Co



FireGlaze™ for Larger Vision Lites—Pemko Mfg. Co. introduces FireGlaze™ (FG3000), a specially formulated high performance glazing compound. This revolutionary product allows for the use of much larger vision lites, side lites, borrowed lites, and glass transoms in 20, 45 and 90 minute doors and screens. The wall of glass pictured here passed a 45 minute fire test! Expand your vision.

Circle 91.

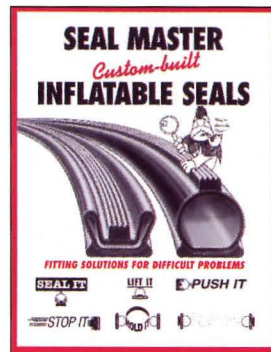
Brick Institute of America



Technical Notes on Brick Construction on CD-ROM. The digitized version contains text, drawings, photographs, tables and charts on design, detailing and construction with brick. Excellent search program. Details download. 100 full color photos show brick in applications. List at \$119.95; 20% professional discount. Visa/MC welcome. Brick Institute of America, 11490 Commerce Park Drive, Reston, Virginia 20191 (703) 620-0010.

Circle 95.

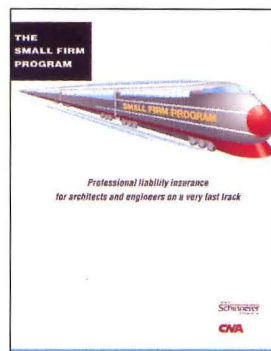
Seal Master Corporation



Seal Master Inflation Seals—Brochure shows typical inflatable seal construction, configurations, retaining systems and air connections. Custom designed seals offer solutions where gaps exist in sealing weather, liquid, noise, hot/cold, light/dark, pressure, EMI, RFI, radiation, contaminants, dust, pastes, pellets and powders. Inflatable seals are used virtually anywhere a positive seal is needed between two opposing surfaces. Seal Master Corp., 368 Martinel Dr., Kent, OH 44240, (330) 673-8410, Fax (330) 673-8242. E-mail: Info@sealmaster.com; www.sealmaster.com

Circle 99.

CNA/Schinnerer



Small Firm Program—The Small Firm Program from CNA/Schinnerer is the fastest and easiest way for you to buy professional liability insurance. Just call Schinnerer at 1-800-SMALL FIRM (1-800-762-5534). Answer a few questions and you'll receive an immediate quote right over the phone. Or ask for a free brochure. For more information, visit us at www.PlanetAEC.com, the interactive resource guide for architects, engineers and contractors.

Circle 103.

Wire Management Systems



Perimeter

Overhead

Infloor

Open Space

Support Services

Tele-Power Poles ⌘T

RCI Poke-Thrus ▶

Walker Floor Boxes ⌘B

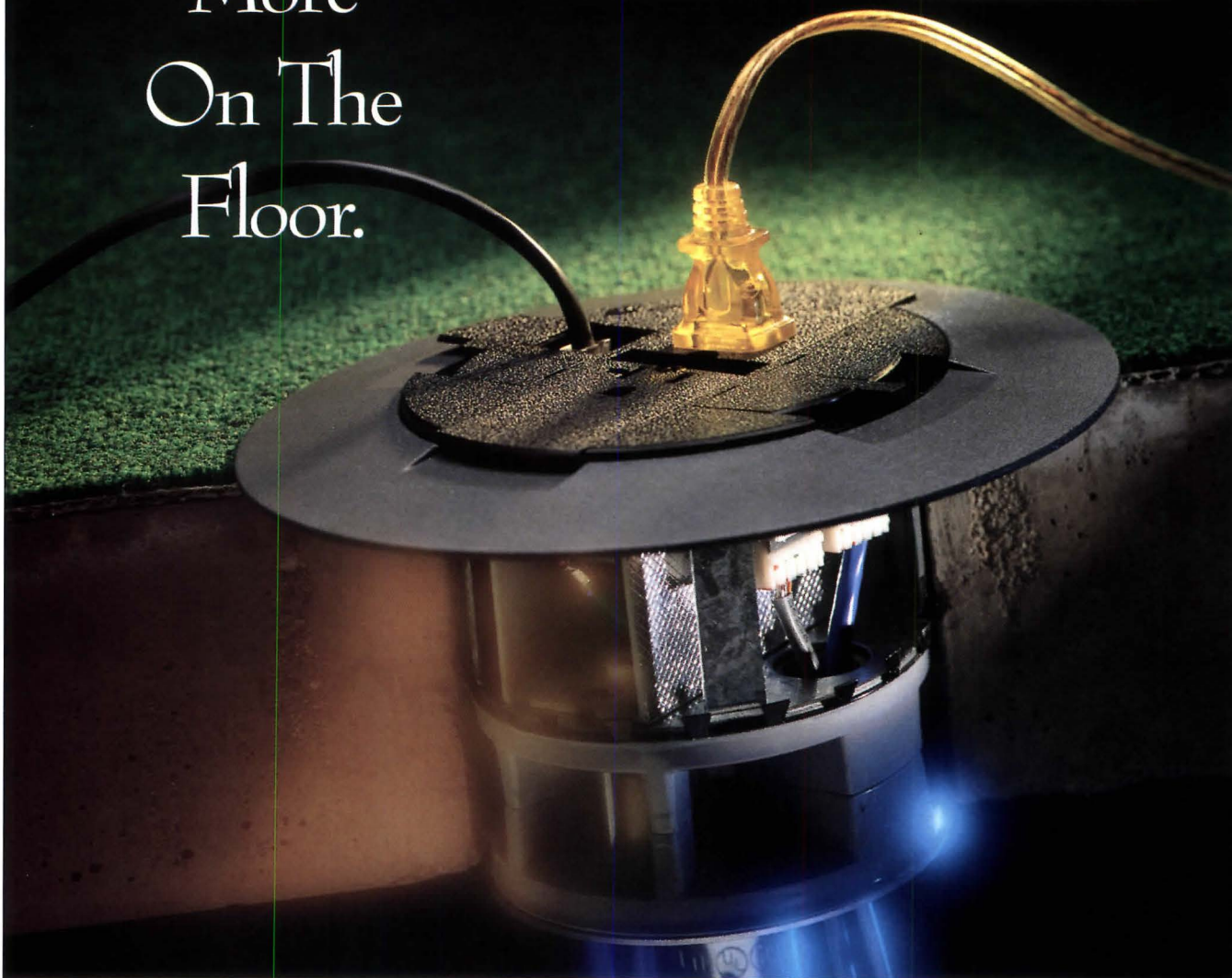
Raised Floor Boxes ⌘H

Power
Communications

Dual Service

Furniture Feed

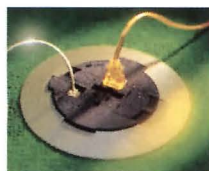
More On The Floor.



Introducing the industry's highest-density power and communications poke-thru: the Walker® RCI™ RC2001.

The unit combines a duplex receptacle and four CAT 5 communication ports that accept most discreet CAT 5 jacks.

Individual slide covers keep out dirt and debris. Unique EMI/RFI shielding



drains interference into the conduit system. And, encapsulated intumescent material maintains the fire rating of the floor.

The RC2001 is just one of many Wiremold wire management solutions: overhead, perimeter, and infloor products that blend performance, installation efficiency, and

elegance — while providing flexibility and accessibility well into the future.

Find out more about the RC2001 poke-thru series and other smart wire management solutions that make your job easier. For the full story, call 1-800-621-0049.

Or visit www.wiremold.com

WIREMOLD®
Walker® RCI™ Poke-Thrus

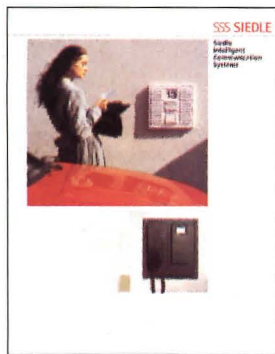
Circle 223 on information card

Springs Window Fashions



Springs provides the best value in commercial mini blinds with their **Bali S3000**. Premium features include curved headrail face, rear light blocking lip, aluminum slats with anti-static paint finish, hidden brackets, clutch tilter, all at standard cost. Springs also manufactures Graber and Nanik brand products. Call SpecFax for product information at 800-327-9798.
Circle 105.

Siedle



Siedle Intelligent Communication Systems—Featuring Siedle Vario Intercom Lobby Units—Video Security for apartments, residences and offices. . .Easkey, the Intelligent Key-Letterbox system—and the System telephone HT611-01—the fastest way to the house door and around the house, complete with watchdog, doorman and nameplate. For full catalog, set up information and architecture specs, call toll free 800-874-3353 or 610-353-9595.
Circle 109.

Endicott Clay Products Co.



Glazed Ware from Endicott. Ceramic glazed tile, face or thin brick. Applications include banding patterns and intricate designer accents.

- resistance to graffiti and stains
- slip-resistant surface for floor applications
- surface bullnose or cove base (**tile**)
- 90° corner units (**thin brick**)
- quoin ends (**face brick**)
- clear glazes available soon

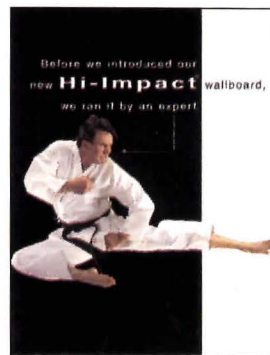
Call: 402/729-3315 or FAX: 402/729-5804
Circle 113.

Kawneer Company, Inc.



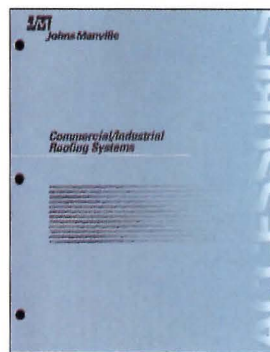
Kawneer 1600 PowerWall™. The First Proven Curtain Wall System to Harness the Energy of the Sun—Kawneer's new flyer announces the first fully-tested and integrated photo-voltaic curtain wall system to produce electrical energy from sunlight. Kawneer and Solarex (Amoco/Entron) combined industry leadership to develop PowerWall™, a reliable, silent, pollution-free and easily maintained energy source that can be vertical or slope glazed. Call 700-449-5555.
Circle 117.

National Gypsum



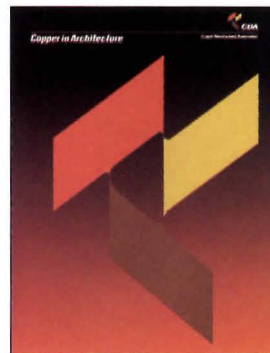
Hi-Impact Wallboard® Gold Bond®'s new 5/8" Fire-Shield Hi-Impact gypsum wallboard provides institutions and high traffic, high abuse areas with an unbreakable wall installation. Bonded with General Electric's Lexan® polycarbonate film in four different thicknesses, Hi-Impact gypsum wallboard provides the degree of impact/penetration resistance needed. For more information, access our Internet home page at:
<http://www.national-gypsum.com>.
Circle 107.

Johns Manville Commercial/Industrial Roofing Systems Accessories



Johns Manville new 1997 roofing accessories catalog features product and application information on expansion joint covers, flexible closures for seismic and other applications, roof drains, fascia and coping systems, flashing membranes and roof vents. 32-page, illustrated catalog contains descriptions, technical data with detail drawings and photos, design and installation recommendations and guide specifications. Johns Manville Roofing Systems, Product Information Center, P.O. Box 5108, Denver, CO 80217. 800-654-3103. Fax: 303-978-2318
Circle 111.

Copper Development Association

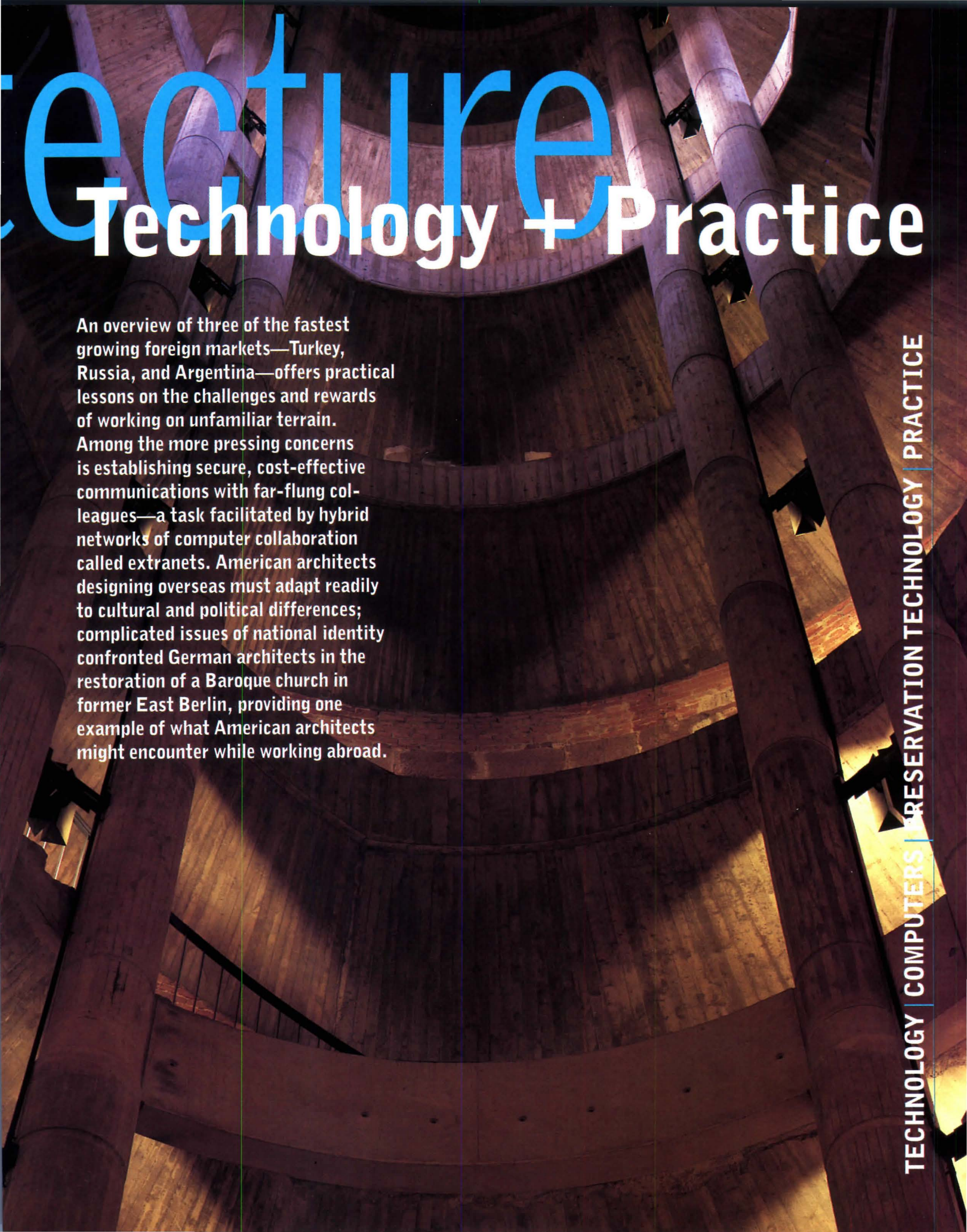


The Copper in Architecture Handbook. More information than ever assembled before on the copper metals in architecture and building construction. Contains designs, details and specifications in hard copy and on CAD diskettes. Provides abundant, practical information on physical and mechanical properties, historical applications. Copper Development Association Handbook; \$85.00. Disks (4): \$40.00. Copper Development Association; 260 Madison Avenue, New York, NY 10016. 800-CDA-DATA 212-251-7200
Circle 115.

The Wiremold Company



Free Subscription to Wire Management Ideas—Modern buildings require modern wiring solutions. That's what our newsletter is all about. Case histories. Research reports. Emerging trends. Product news and reviews. Everything you need to "future proof" your buildings. And make your job easier. The Wire Management Ideas newsletter is designed to help you find better ways to design and install wire and cable systems that address the ever-changing needs for today's building market. For your complimentary subscription, just call 1-800-621-0049.
Circle 119.



ecture

Technology + Practice

An overview of three of the fastest growing foreign markets—Turkey, Russia, and Argentina—offers practical lessons on the challenges and rewards of working on unfamiliar terrain. Among the more pressing concerns is establishing secure, cost-effective communications with far-flung colleagues—a task facilitated by hybrid networks of computer collaboration called extranets. American architects designing overseas must adapt readily to cultural and political differences; complicated issues of national identity confronted German architects in the restoration of a Baroque church in former East Berlin, providing one example of what American architects might encounter while working abroad.

TECHNOLOGY | COMPUTERS | PRESERVATION TECHNOLOGY | PRACTICE

Exposing Layers of History

The renovation of a Baroque cathedral in former East Berlin respects centuries of architectural—and political—changes.



German Bishop's Cathedral on Berlin's Gendarmenmarkt Square was badly damaged during 1943 bombing. East Germans renovated the church during the 1980s until the fall of the Berlin Wall. Latest renovation combines tower and church into cultural center.

By Mary Pepchinski

Decades after World War II, many of East Berlin's once-opulent urban monuments still stood in ruin. Historic buildings, such as the German and French cathedrals, and the Karl Friedrich Schinkel-designed theater on the city's Gendarmenmarkt Square, were crumbling, trees and shrubs taking root in their withered walls. Cash strapped, East German authorities only started turning their attention to the Baroque square in the 1980s.

But the 1989 collapse of the Berlin Wall halted the refurbishment of the German Bishop's Cathedral (*Deutscher Dom*, designed by Martin Grünberg and completed in 1708 with a tower added by Carl Gontard and G.C. Ungers in 1785), which was in the midst of being renovated into a museum for East German contemporary art. Today, an emerging business and government district is taking shape around the square, and the renovation of the cathedral has finally been completed.

Renovation history

In 1992, the Federal Building Ministry commissioned Berlin architect Jürgen Pleuser to resume renovations of the cathe-

dral. Only now the old church was slated to accommodate roughly 30,000 square feet for the exhibition "Questions about German History," which describes the annals of the German parliamentary system, as well as a café, screening and lecture room, temporary exhibition space, storage, and a bookshop.

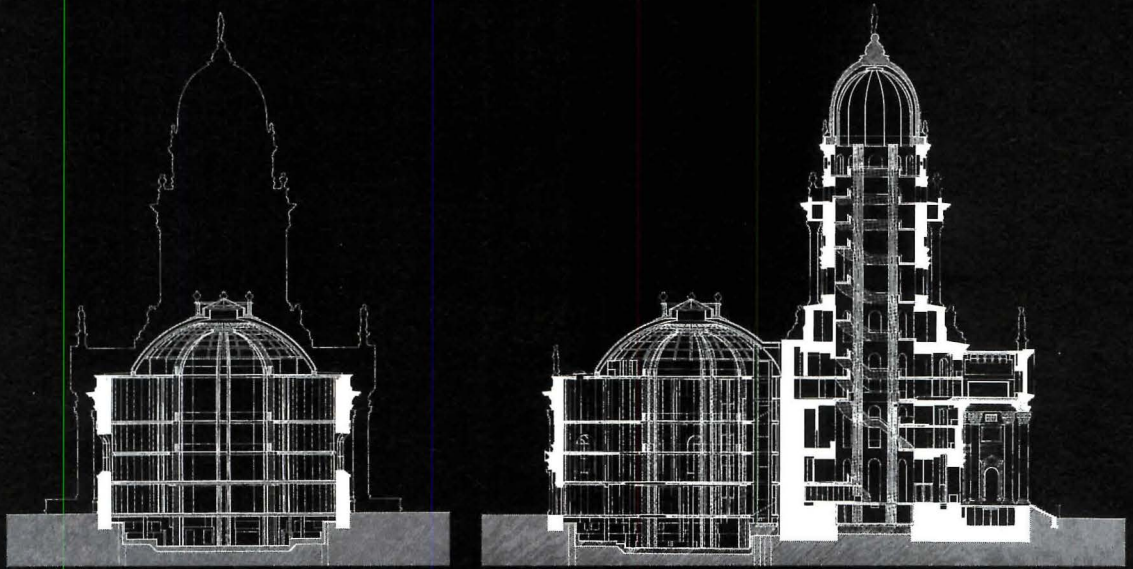
Pleuser was particularly well-suited to the project: Between 1985 and 1992, he collaborated with Axel Schultes on the execution of the Museum of Contemporary Art in Bonn. The 43-year-old architect has also restored a number of landmarks, including a group of Berlin apartment blocks for use as an art gallery and media center.

Pleuser's renovation of the *Deutscher Dom* involved refurbishing a building that had been extensively altered over the past three centuries. The original church had a central, circular plan, surrounded by five apses. To align with the tower of the French cathedral (*Französischer Dom*), located on the opposite side of the square, a new Baroque tower was brutally imposed upon the *Deutscher Dom*'s east facade in 1785, its massive piers blocking two of the apses. In the late 19th century, the cathedral's central space was refurbished to harmonize with the architecture of its Baroque tower: Vaults replaced flat ceilings, the interiors were heavily ornamented, and a new Neo-classical facade was applied.

Modern additions

Since the *Deutscher Dom* was seriously damaged by fire in 1943, East German authorities decided not to restore or recreate its 18th- or 19th-century interiors, and inserted totally new spaces instead. They gutted the church's remaining interiors, added five levels of exhibition space within the center of the church, and topped the building with a cupolalike steel structure. The East German architects also inserted

Architect Jürgen Pleuser regularized concrete floors in church, added by East Germans, and removed slabs in tower. Cathedral is located to east of Potsdamerplatz (below) in an emerging commercial district.



a massive concrete staircase into the tower, and applied a layer of concrete onto its interior brick walls.

Faced with these alterations, Pleuser found his work to be analogous to that of an archaeologist, who, through the process of excavating the cathedral's existing layers, reveals the building's multifaceted history: "We were offered the unique chance to make visible the 300-year old history of this building, with its breakages, transformations, and deformations," explains Pleuser. "We didn't want to obstruct this history once again." As none of the cathedral's historic interiors had survived, the architect attempted to create internal spaces whose logic and detailing derived from the remaining building substance.

Pleuser selectively eliminated the East German's partially completed renovation. For the most part, this entailed the removal of concrete applied to the interior brick walls of the tower. He then sparsely applied new surfaces and, where necessary, made breaks into the bearing walls separating the church from its Baroque tower to form passageways between the two parts. This approach was at least partially inspired by financial considerations: The total elimination of the East German alterations would have been too costly.

Corrective measures

Although the East Germans completed a rough reconstruction of the tower's stucco and sandstone exterior, Pleuser discovered that much of their work was technically flawed, and in collaboration with Berlin's historic preservation authority, reworked the facades. For example, the walls were extremely damp, forcing the architect to apply a special absorbent stucco to dry them out. Some of the roof's sculptural sandstone figures had been poorly repaired with plaster. Under Pleuser's direction, sculptors spent two years removing the plaster infill and sculpting new sandstone replacement parts for the figures.

Pleuser redesigned the tower's east portal to accommodate a new entrance, which leads into a soaring internal space, now used as a lobby. The East Germans had filled the tower with a bulky concrete stair, applied a 4-inch-thick layer of concrete to the walls, added an interior concrete cupola, and blocked the space's vertical flow by inserting a concrete slab at mid-height.



Two concrete slabs in main tower were removed, creating dramatic central shaft above lobby.

R. RICHTER ARCHITECTURPHOTO



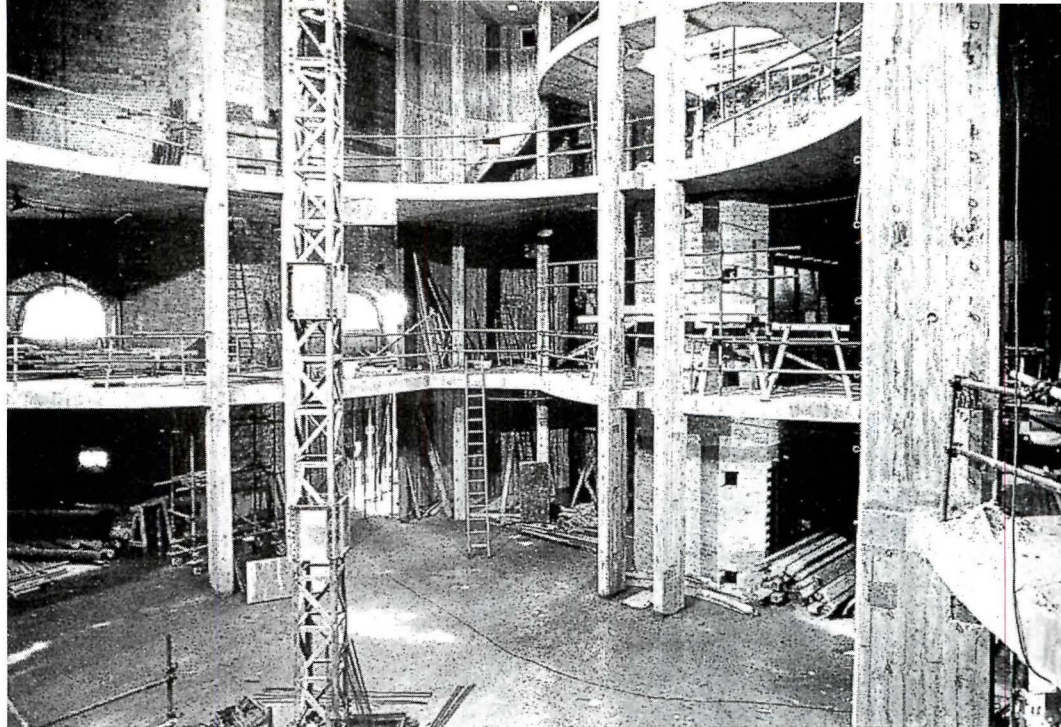
R. RICHTER ARCHITECTURPHOTO



R. RICHTER ARCHITECTURPHOTO



Church's four-story main space houses exhibitions and café (left and below left). After earlier restoration, central core varied in width on each floor. Pleuser altered slabs for uniformity (above right), adding or removing concrete as needed.



Pleuser removed as much of this material as possible, eliminating the intermediate slab and interior cupola and allowing the tower's internal space to extend to its full 195-foot height. A special soft-granule sandblasting technique was employed to remove the concrete from the brick walls.

Once the concrete was eliminated, an array of details emerged: niches that previously had been filled by rubble, bricks of varying sizes and colors used by the East Germans to repair the tower, and scraps of the original Baroque stucco. The patchwork was retained and showcased by lights mounted on the four pairs of concrete piers that support the bulky 1980s poured-in-place concrete stair. The stair and its supporting columns were left dark, creating a dramatic play between the Baroque enclosure and the 1980s infill.

New insertions

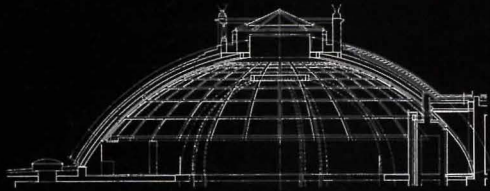
Finally, Pleuser added his own layer of history in the form of industrial floor finishes; finely welded, black matte-finished steel details; and fiberboard furniture. In contrast to the tower, Pleuser conceived the Deutscher Dom's central church as an exhibition space; it therefore required a more neutral interior. However, it too had inherited a massive, concrete construction from the East Germans, consisting of five eccentrically shaped slabs in its central space supported by five pairs of slender piers. Here, Pleuser regularized the slabs by extending them, where necessary (some of the slabs

extended to the atrium, while others did not) toward the church's center, with poured-in-place concrete. At the center of the church, Pleuser formed a simple, cylindrical space, which extends up from the first exhibition floor to the cupola topping the space. The slabs enclosing this newly created atrium provide the exhibition space.

Like the exteriors, the church's interior walls were extremely damp due to years of decay. Pleuser applied a glazed, 2-inch layer of salmon-toned absorptive stucco to the walls, a product typically used to repair frescos. Heating units were then attached to the walls to further dry them out. Finally, a layer of curved, translucent polycarbonate panels were affixed to the walls to create a neutral surface that acts as a backdrop for the exhibition. The satinate finish of the panels allows the salmon-toned stucco to shimmer through, creating a warm, immaterial surface.

The cupolalike steel construction erected by the East Germans over the church's original central space was retained to top the exhibition hall. Pleuser supplemented it with an interior concrete shell, finished in curved acoustic panels. From the floors below, the panels give the illusion of a conventional coffered dome. The effect is that the gray, point-fixed panels, which actually protrude from the shell of the dome, appear to recede. A café at the fifth level is located around the perimeter of the dome under the new shell.

The point of intersection between the



R. RICHTER ARCHITEKTURPHOTO

East Germans added steel cupola over existing oculus and steel structure. Pleuser applied metal acoustical panels to dome to absorb noise from café on top level.



R. RICHTER ARCHITEKTURPHOTO PHOTOS

Acoustical panels simulate traditional coffered dome, but extend out rather than recede. Dramatic lighting demarcates café seating.

original central church and the Baroque tower had never been resolved. When the tower was added in 1785, the original architects chose to support it with massive masonry piers without openings for pedestrian access. This place, however, was critical to the renovation, as the intersection obstructed pedestrian circulation between the church and tower. At the same time, the intersection was one of the most fascinating places in the church, as it was here that the “breakages, transformations, and deformations” that inspired Pleuser were most visible.

To provide new access between church and tower, Pleuser cut doorways into the piers and the masonry facades of the church’s apses to form new passageways. At locations where the levels of the church and the tower did not properly align, stairs were added.

At the joint between tower and church, Pleuser exposed the church’s rough, brick facade; the tower’s brick piers; and the concrete stairs and ceilings. He applied yellow stucco (to match the stucco facade)

to new walls and partitions. Openings in the topmost concrete slab, added in the 1980s to house ducts and vents, were adapted into skylights.

The Deutscher Dom has been a ruin for a good part of this century, but its most recent renovation has given it a new vitality, and indeed a new identity in post-Wall Berlin. It is a popular destination for tourists, Berliners, national politicians trying to impress their constituents, and innumerable groups of high school students on their mandatory history field trips.

In a city that has been struggling to integrate the surviving fragments of historical spaces and buildings into a viable, unified metropolis, the cathedral’s interior collage proves that adaptive reuse need not be blatantly historicizing. It demonstrates that architects need not eliminate artifacts now deemed esthetically or politically uncomfortable to make bold, new architecture.

Berlin-based Mary Pepchinski teaches architecture at the High School for Technology and Economics in Dresden.

Practice **New Overseas Markets**

Argentina, Russia, and Turkey are emerging as lucrative markets for American architects. What do these countries offer?

By Michael Maynard

As Southeast Asia's development fervor begins to fade, new markets are beckoning to American architects with rich design opportunities spurred by growing national economies. Among the top 10 emerging markets as identified by major investment firms and surveys are Argentina, Russia, and Turkey, which, after years of political and social upheaval and economic stagnation, are now attracting developers and multinational corporations to their major cities.

For architects, these emerging markets offer exciting challenges: office buildings, housing, entertainment venues, and, in some cases, entirely new towns. But working in these emerging foreign markets also means a substantial investment of time and a fair amount of frustration. Foreign clients expect significant time commitments to their projects, which means more than just a couple of meetings in their country to discuss design. And if the planning process in some American cities seems onerous, try seeking signatures from 26 governmental bureaus in Moscow for a building approval, or complying with revisions from a Turkish landmarks commission.

American firms must also be vigilant in negotiating contracts and payment in U.S. dollars to ensure their fees are not vaporized by the volatile foreign currency market. In Turkey, for instance, lower building costs and the strength of the U.S. dollar make it a losing proposition for firms to work on a percentage basis of construction costs. Architects say it makes financial sense to partner with local firms who can complete the more time-consuming tasks in their home countries at lower costs.



Of the new overseas markets, Russia holds the greatest potential in terms of economic opportunities. But it still ranks as a high-risk investment owing to its uncertain political future and shaky economy. Still, Western corporations and financial institutions believe that Russia will succeed in the long term and are setting up regional headquarters and offices in Moscow. Developers are responding with plans for mixed-use office and retail complexes in Moscow and, to a lesser extent, in St. Petersburg.

Similar projects are reported in Turkey, which, at the crossroads of East and West in both geography and culture, is considered to have the most significant market in Eurasia. Its population continues to grow, especially in Istanbul, which has ballooned from 1 million people in 1970 to almost 13 million today.

Global financiers consider Turkey a low-risk place to build because its manufacturing industry keeps expanding, creating a burgeoning middle class seeking better housing and Western-style retail stores and entertainment. Europeans tourists, having grown bored of the beaches of France and Italy, are turning their eyes and dollars towards the Turkish coast. As a result, American design firms are being sought by developers and the Turkish government to plan new towns and resorts that pay homage to the country's rich heritage while reflecting its status as an emerging economic market.

Argentina has also evolved into a significant market since President Carlos Menem embarked on a privatization campaign, which began when poorly performing state companies were sold to the private sector in 1991. Since then,

Argentina's economy has grown at an annual average rate of six percent with renewed development of office towers and shopping centers in the capital, Buenos Aires. But architects expecting the fast-track process of Southeast Asia, where construction often begins before design development is completed, should be warned: The pace in Argentina, as in other Latin American countries, is much slower.

Understanding such cultural variations, such as Argentina's sluggish development process, is imperative for architects hoping to work successfully in these countries. Video linkups, computer extranets, and fax lines have made communications between countries instantaneous. But technology is no substitute for establishing a strong presence in the marketplace, whether in the form of a local office or through a partnership with a local firm. The designs cannot be developed from the home office. "You really have to be a part of the market in some substantial way," maintains Guy Perry, vice president of Hellmuth, Obata + Kassabaum (HOK) Intercontinental. "It used to be you would do a design, they would execute it, and you would walk away."

But the smile and the handshake are no longer enough to secure a contract. Developers are savvy enough to realize that an architect must demonstrate a true understanding of the project and the people for whom the project is designed.

Argentina: Privatization Creates New Opportunities

An expanding economy offers Americans the chance to design infrastructure, housing, and hotels.

Most of the new architectural work in Argentina is centered in the capital city of Buenos Aires, a city that remains European in both its architecture and culture. With inflation under control and the government's wide-ranging privatization program successfully under way, architects can expect large-scale planning projects, infrastructure improvements, and construction of hospitals, hotels, and low-income housing to be launched over the next few years.

Market reforms

President Carlos Menem's private-market reforms six years ago have resulted in an expanding economy, falling unemployment rate, and a steep decline in inflation from nearly 85 percent in 1991 to single digits this year. Because little construction was undertaken while the country faced dire economic conditions, architects say that the Argentine market is wide open. "Much of the infrastructure in Argentina is outdated," maintains Lance Josal, the managing director of RTKL's Dallas office, who points to the country's airports, shipping ports, and roads as sources of lucrative commissions.

The political and economic instability that Argentina faced in the 1970s and 1980s has resulted in a more deliberate pace of development, says Manuel Glas, a project director for New York-based Rafael Viñoly Architects. Investors remain spooked by the past economic crises and have been cowed into cautiousness. Even in today's improved economic climate, the money has to be on the table before developers will go forward with a project.

Another financial stumbling block is Argentina's onerous tax burden, which is an issue that architectural firms must address when negotiating



In designing 21-story office building in Buenos Aires, Cesar Pelli & Associates worked within city's restrictive construction code, which limited building's massing to 35 percent of site.

a contract. Because of the fears of inflation, the lower construction costs, and the heavy tax rate, firms generally prefer to work on a lump-sum fee basis. By figuring the taxes into the lump-sum fee, the sting of the tax bite is averted.

For example, when Rafael Viñoly Architects has a project in Argentina in which much of the work will be done in its New York offices, the firm signs the contract in New York to avoid the burden of local taxes and the value-added tax (VAT),

which is applied to Argentine professional services.

U.S. architects say that most Argentine clients are accustomed to paying in dollars. But Glas notes that Argentina's stable exchange rate of the past five years has made the peso much more of a stable currency. This stability is due to President Menem's convertibility plan that required every Argentine peso to be backed by a U.S. dollar. Argentine monetary policy is, for all intents and purposes,

RTKL's Show Center Norte, a 60,000-square-meter shopping and entertainment facility in Buenos Aires, is part of South America's growing retail market. Scheduled to open next spring, facility features indoor streetscapes that double as performance stages.



Benjamin Thompson Associates (BTA) is converting Buenos Aires central produce market into a 1.4 million-square-foot retail and entertainment complex by gutting interior and adding new concrete slabs to support new levels. BTA had to show municipal authorities that public plaza adjacent to market would become part of shopping center's interior.



controlled by the actions of the U.S. Federal Reserve.

Codes and planning

An issue that construction officials in Buenos Aires have not yet fully addressed involves the building codes, which have not been updated since 1977. As a result, American firms design according to the codes they use back home. For example, Cambridge-based Benjamin Thompson & Associates (BTA) relies on Massachusetts safety and building codes for its design specifications on Argentine projects.

The planning process is largely based on negotiations with municipal authorities, though it does not make it any less difficult to receive project approval. "It's going there, talking to the people and proving that you are making sense out of what you're showing them," asserts Daniel Kielmanowicz, senior associate and principal for Latin American projects at BTA.

Such a process makes teaming with local architects much more valuable. Though it is a requirement for foreign firms and joint ventures, such affiliations make smart business sense because U.S. firms can take advantage of the local expertise and their relationships with local officials. While Kohn Pedersen Fox (KPF) worked with municipal authorities on guidelines for its design of the Telecom Argentina office building, it was the local architect hired by KPF and the Argentine

construction company, Benito Roggio, that worked out the details.

Almost all varieties of construction materials are available locally. For years, strict trade restrictions made it difficult to import foreign construction materials. Although these restrictions have been removed, the tariffs continue to make imports expensive.

Structural frames for mid- and high-rise buildings are generally poured-in-place concrete, which has created a style in which the structural frame has a very strong presence.

When it comes to litigation, American architects probably wish that the U.S. more closely resembled Argentina, which is a much less litigious society. Local architects may carry insurance, but clients do not require U.S. firms to carry errors and omissions insurance. "They try to avoid any confrontation in the courts," Glas says. Instead, disputes are settled through arbitration. A dispute between a client and an architect may be handled by the professional architectural association, or it may go before an arbitrator specified in the contract.

Argentine developers and the clients are generally receptive to foreign influences and consumers are sophisticated when it comes to art, architecture, and styling. As clients, they demand architecture that is considered cutting edge. Architects thus face greater scrutiny and challenges because their clients are often difficult to please.

Russia: Reforms Spur Commercial Growth

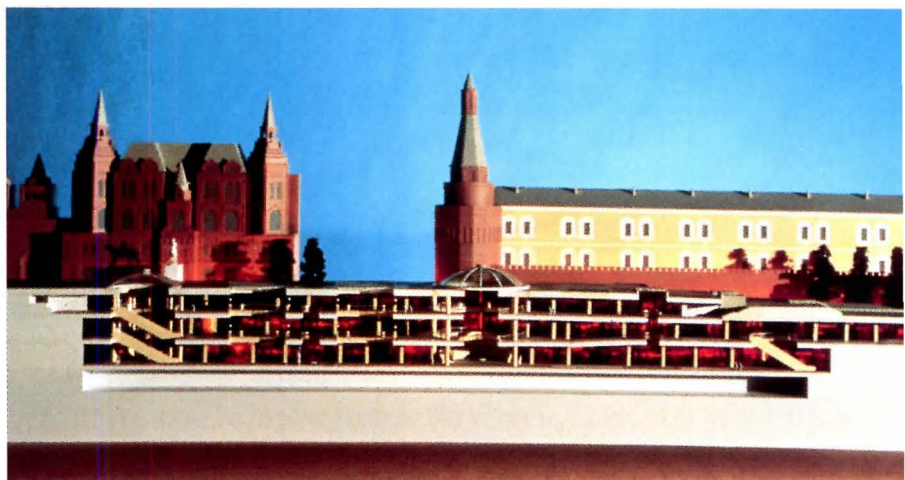
Offices and retail projects abound in Moscow and St. Petersburg, despite the legacy of the Communist past.

Crime is rising and the infrastructure is crumbling, yet Russia's young democracy is promising enough for three quarters of Fortune 500 companies and major financial institutions to have established offices in Moscow. As these corporations stake their ground in the Russian market, they are developing office towers or renovating existing buildings to tap into capitalism's newest territory. As a result, American architects are finding many types of commercial projects, though Michael Bennett, managing principal of HOK's Berlin and Moscow offices, emphasizes that the Russian construction industry remains a long way from maturity.

The state of Russia's building industry parallels that of its transition to a free-market economy, which has been unsteady. Seventy percent of the country's enterprises are privately owned. But many believe that this economic reform process has stalled. In a speech at Harvard University this year, Deputy Treasury Secretary Lawrence Summers warned that Russia needs to overhaul its inequitable income tax system, mount a successful campaign against crime and corruption, and further develop its capital markets.

Partnerships and approvals

Nevertheless, American architects report a strong market for offices, hotels, and retail in Moscow and, to a lesser extent, in St. Petersburg. In undertaking such projects, foreign architects working in Russia are required by law to partner with a registered Russian architect or obtain a local design license to practice. Partnering with a Russian architect or design institute—former government design bureaus that have been privatized—is essential, says Neil Francis of Ove Arup &



Hellmuth, Obata & Kassabaum's design for Mazanaya Square, a three-level, 54,600-square-meter underground retail mall located next to Kremlin and north of Red Square, keeps plaza at its current level to maintain views of Red Square. Shopping center connects to city's extensive subway system through existing network of tunnels.

Partners, because the local firm can maneuver the partner firm through the intricacies of Russian building codes.

In all joint ventures, Russian architects remain the architect of record. "Local architects maintain strong control over the design of projects in Moscow," explains Peter Magill, a partner of Skidmore Owings Merrill (SOM), architect of the Meyerhold Centre, an eight-story office building with a 16-story residential/office tower in Moscow. "It is difficult to change that."

Design approval is plagued by vestiges of the Communist system. When the land is cleared for a project, for example, property boundaries are typically unclear, thus requiring negotiation between developers, property owners, and authorities. Also, utilities sometimes bisect sites. SOM, for example, had to alter its design of the Meyerhold Centre because a major telephone conduit and gas lines cut across the site. In the past, such issues were not a concern because the notion of private property rights did not exist.

Still, architects such as Michael

Newland, Ellerbe Becket's director of Eastern European projects, has seen positive changes within the Russian government that are expediting design and development. In the first phase of the approval process, the plan is scrutinized by a city architectural council in an urban design review. The review analyzes the proposal's utility loads and its environmental impact on the urban context. If the proposal causes negative environmental effects or creates excessive shadows in an area, the plan is rejected. "It's a very good system," maintains Newland, "because it allows the developer to know if he can build 20 stories or 10."

After the urban design review comes a phase known as technical and economic organization, which operates as the final approval stage by routing the plans to a number of governmental agencies for review. Once approved, the project goes into construction documents. Bennett of HOK advises clients that the process may take from three to six months.

What accounts for the long wait is the number of government agencies that must sign off on a project.

Skidmore, Owings & Merrill's Meyerhold Centre in Moscow, a 30,000-square-meter office and residential complex, incorporates limestone and brick facade to place building in context of historic street. Architects had to build around existing utilities, such as telephone conduits and gas lines, that bisected site.



Architect Marga Jann, founder of Poetic License in Rochester, New York, discovered that she needed 26 signatures to have the design of her Moscow office building approved. "The process really discourages high art because it's so frustrating to deal with the city architect," laments Jann, who believes that municipal authorities would prefer buildings that resemble gray filing cabinets. "They hate glass curtain walls."

Fees and contracts

Before any project is begun, however, architects must determine how they will be compensated for their work. Fees are almost always established as lump-sum payments in dollars, although it may be priced on an understanding of a typical percentage of construction costs, notes Francis. One of the issues that is worked out in a Russian contract is the payment of taxes, specifically the value-added tax (VAT) that is

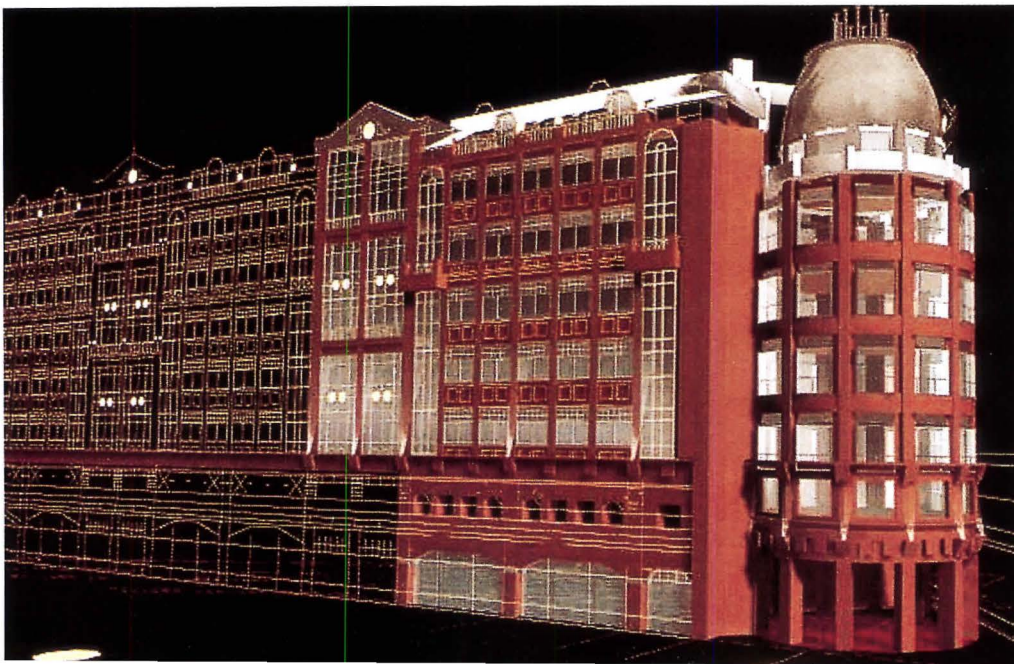
imposed on goods and services. There are also a number of payroll taxes that must be taken into account if a local staff is hired.

Internationally accepted contracts are enforceable under Russian law, although arbitration, not lawsuits, settles most disputes. Until the government achieves a greater degree of certainty, the concept of force majeure—an event that cannot be reasonably anticipated—remains an important part of these contracts. Design firms tend to use the standard contracts, though Francis notes that the best protection is to "try and keep cash flow positive throughout the duration of a project." In place of insurance against errors and omissions are very strict regulations that Russian architects and engineers must abide by in the event of problems that result from the designs.

Because Western expertise usually surpasses local engineering, mechanical, and plumbing conventions, most foreign firms wind up exceeding Russia's government-enforced building and construction standards. And with the new building technologies that American and European firms are bringing to Russian buildings, officials must adopt regulations that apply to such devices as HVAC systems.

With all of the headaches that come with a government that continues to evolve, Bennett of HOK describes Russia as a "very interesting and frustrating market." After all, he asks, where else can an architect design an office tower next door to the Kremlin?

The Arbat Centre, a 40,000-square-meter mixed-use office, retail, and parking facility designed by Ellerbe Becket, is intended to serve as anchor for future developments. The design utilizes stone and brick to reflect the surrounding architecture of Arbat Street. Long-span structural system supports building over existing subway line and station and complicated underground conditions, including water lines and unusual geological formations.



Turkey: Western Influences Shape Building Boom

Demand for foreign-designed housing, entertainment, and new towns is rising in Istanbul and Ankara.

Bordering Syria, Iraq, and Iran, Turkey plays a strategic role within the North Atlantic Treaty Organization and has been lobbying to join the European Monetary Union. Yet Turkey's democratic form of governance remains shaky: In February, the Turkish military overthrew the Islamic government (chosen in free elections) and replaced it with a secular governing party that must hold new elections by next year.

This political situation, however, has not dampened Turkey's economy, which continues to grow and generate new jobs. One of its fastest growing segments is manufacturing, from high-end apparel to automobiles. The result has been a higher standard of living for the Turkish people and an explosion in the country's middle-class population. That, in turn, has created a growing demand for housing, retail stores, and entertainment. The new Turkish middle class is also creating a need for more schools and universities.

Towns and tourism

It is such large-scale planning and design projects, such as Sabanci

Cannon designed a 230-acre campus for Sabanci University, scheduled to open outside of Istanbul in the fall of 1999. The architects developed buildings that prepare students for the high-tech world, yet incorporate the thematic design ideas of Turkish culture. They accomplished these seemingly disparate goals by utilizing local materials and layering geometric shapes into the architecture.



Ispartakule, designed by CHK Architects & Planners, is one of several new towns under development in Turkey. Located 40 minutes from Istanbul, this 1,150-acre Neotraditional community will feature housing, retail, and enough office space to provide every adult in the town with a job.

University designed by U.S. architect Cannon, that are fueling much of the work in Turkey. Because local planning efforts have been small, private developers and the government are turning to American architects to create new towns on the outskirts of Istanbul, Turkey's largest city, and Ankara, the capital. Such large-scale planning, maintains Guy Perry, vice president of Hellmuth, Obata + Kassabaum (HOK) Intercontinental, will continue to grow in importance and "is one of the strongest areas of all emerging markets."

Outside of Istanbul, for example, CHK Architects and Planners of Silver Spring, Maryland, is developing two new towns for a government-owned bank and two development companies, Korzmaç Yigit and Gütlasz AS. Both towns are modeled

on New Urbanist concepts of public open spaces, community centers, schools, and libraries. The towns, adjacent to highways, are arranged as a series of neighborhoods with a carefully integrated street system and stream valley park weaving the neighborhoods together.

Planning these new developments requires architects to appreciate Turkey's dichotomy as a country where most of its citizens are Muslim, yet have a decidedly European orientation. "That whole Westernized aspect of Turkish culture is keen on having the very latest in entertainment, maintains HOK's Perry."

HOK, for example, is designing a state-of-the-art aquarium in Istanbul at the entrance to the Bosphorus, the sea channel dividing the European

Olive Grove Tower in Istanbul, designed by Randy Gerner of New York-based Gerner Kronick + Valcarcel (GKV), symbolizes city's emergence in global business community. Because of historic nature of Istanbul's skyline, 26-story bank headquarters was reviewed by Monuments Commission. Gerner devotes three-quarters of the site to green space.



and Asian halves of the city. Increasingly, says Perry, Turkish families are traveling to such destinations as London and Orlando and want similar entertainment venues in their own cities.

While Turkey's new entertainment venues are designed to attract the natives, tourism is a vital sector of the national economy. From the ski resort designed by Santa Monica-based Moore Ruble Yudell in Bursa to resorts along the Aegean Sea, European tourists are seeking new places to spend holidays. Perry says that the concept of vacation resorts is evolving from places of isolation into part-time communities where people can work via telephone, fax, and computer.

One entertainment concept that does not sell is the use of historicism. American architects explain that they are careful not to mimic the existing architecture, some of which dates back to the Byzantine Empire of the fifth and sixth centuries.

Turkey has an intensive preservation code that includes four categories of landmarked buildings covering both facade and interior spaces, explains Principal Randy Gerner of Gerner, Kronick + Valcarcel in New York City.

Construction and contracts

In addition to preservation codes, the government has imposed strict seismic regulations in certain areas of the country due to Turkey's location on a fault line. The requirements have become so demanding in Istanbul that concrete makes less financial sense than steel, says Gerner, whose firm has designed a 26-story, steel-framed office tower in Istanbul. With steel production in Turkey increasing, the use of steel in construction is likely to grow.

Even so, construction costs remain low in Turkey, and the U.S. dollar remains strong, making it advisable in most cases for architects to be paid on a lump-sum fee rather than a percentage of the project cost, which tends to be lower.

Fees paid in U.S. dollars also avoid fluctuations in the currency market. Consequently, American architects try to perform as much of the time-consuming design tasks in Turkey because of the lower labor costs.

There are other advantages to designing in Turkey. As in other economically emerging countries, lawsuits are not as prevalent as in the U.S. Contracts, however, may be very involved, especially when the client is the Turkish government.

The government does require American firms working in Turkey to team with local architects who belong to the Chamber of Turkish Architects. Gerner explains that many Turkish construction companies provide in-house architecture or engineering services that can act as a substitute for a local firm.

With these partnerships, American architects can save time by taking advantage of the seven- to 10-hour time difference between the U.S. and Turkey. One team can work on the set of drawings and specifications on computer, send the drawings to Turkey via modem as they leave for the day. Meanwhile, their counterparts pick up the design as they arrive for work.



Tourism represents growing segment of Turkish economy. For Bursa Ski Resort in northern Turkey, Moore Ruble Yudell Architects & Planners had to ensure that their design met needs of those tourists who typically stay at large American and European ski resorts. Architects reduced building mass by taking advantage of site's natural contours.

Technology **Insulating Concrete Block**

Cost-effective wall systems integrate insulation and finishes to improve the thermal performance of concrete masonry.



Polyurethane insulation poured on-site into specially designed concrete blocks helps architects achieve high R-values in single-wythe wall construction.

By Eric Adams

"One system, one trade," is how Phoenix architect Wendell Burnette characterizes internally insulated concrete block. "The beauty of the material is the economic benefit. You have one trade in the field. There's no insulation, interior finish, or exterior finish workers coming out separately," adds Burnette, who specified these composite wall systems for an 1,800-square-foot interior design studio in Scottsdale, Arizona, to keep heating and cooling costs down.

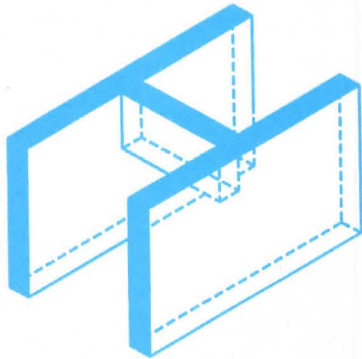
Burnette is one of many architects who are turning to internally insulated concrete masonry units (CMUs) as a more cost-effective alternative to wall systems that place insulation on the exterior or interior surfaces of the concrete block.

High R-values

High-strength concrete and post-tensioning rods reinforce these internally insulated walls and allow the blocks to act as single-step finish on interiors and exteriors. To allow construction of larger walls, the

blocks also have higher compressive strengths than standard blocks.

Capitalizing on the principle of thermal mass, the insulation within the blocks' cavities helps regulate the temperature within the structure by dissipating heat it absorbs during the day. These heavy-wall systems provide thermal insulation R-values ranging from 15 to 28. "In winter, when the block temperature is raised to ambient indoor air temperature, that mass holds heat and radiates it back inside over a seven- to eight-hour period," explains Rob Jolly,



Concrete block wall systems reduce thermal bridging by minimizing contact between interior and exterior block faces. Insulation is positioned in cavities between faces of H-shaped unit.

director of market development at the National Concrete Masonry Association. "That way, the furnace doesn't come on for six to eight hours, whereas conventional insulation systems will retain the same amount of heat for only 45 minutes."

The process is similar in summer. The concrete masonry's temperature will fall to that of the ambient air and remain cool for up to eight hours. In either season, heating and cooling expenses are lower and HVAC equipment performs better over the long term, as systems run less frequently and for shorter periods.

Insulating options

The insulation within the blocks can be composed of either synthetic materials, such as polyurethane, or natural materials, such as the mineral perlite. In each case, manufacturers strive to fill as much of the cavity as possible to ensure minimal thermal bridging. For the Scottsdale design studio, the construction of which will begin in January and finish late next summer, Burnette specified Superlite Integra, a 12-inch CMU that can be insulated with a variety of materials. For economic reasons, he chose perlite, a loose, granular mineral that is poured into the blocks'

cores on-site. Other systems, such as Enerblock, Korfil, and Thermalock, are insulated with, among other materials, preformed polystyrene inserts, granular insulation, or poured polyurethane. Of these, polyurethane, which is what Superlite prefers to use in its Integra system, is the most expensive insulating material, but because of its high air cell content, it offers the greatest insulating properties, with R-values of up to 28. Burnette chose poured polyurethane for his own residence and studio, completed last year.

"Polyurethane is a two-component resin product that expands to 32 times its original volume," explains Edward Freyermuth, technical services director at Phoenix-based Superlite Block. Freyermuth adds that the Uniform Building Code prevents polyurethane from being deployed in walls thicker than 8 inches, because the American Society for Testing and Materials (ASTM) flame test cannot yet

Burnette braced perlite-insulated concrete walls with vertical steel reinforcement. Colored glass embedded into CMU joints in west wall will project light patterns onto opposite wall.

Design studio achieves minimal bracing

Internally insulated concrete block was the construction material of choice for Phoenix architect Wendell Burnette as he designed an 1,800-square-foot studio for Scottsdale interior design firm David Michael Miller Associates. The 18-foot-wide, 128-foot-long building has a narrow footprint that leaves room for a courtyard with mesquite trees on a 50-foot-wide lot.

Burnette chose a system consisting of 12-inch Superlite Integra blocks insulated with perlite, a natural mineral, to achieve an R-value of 20. This gave him a "single-stroke solution" providing for structure, insulation, and interior and exterior finishes. Steel reinforcement and the blocks' own strength allowed him to design, with minimal bracing, 30-foot-high walls that run the length of the two-story building.

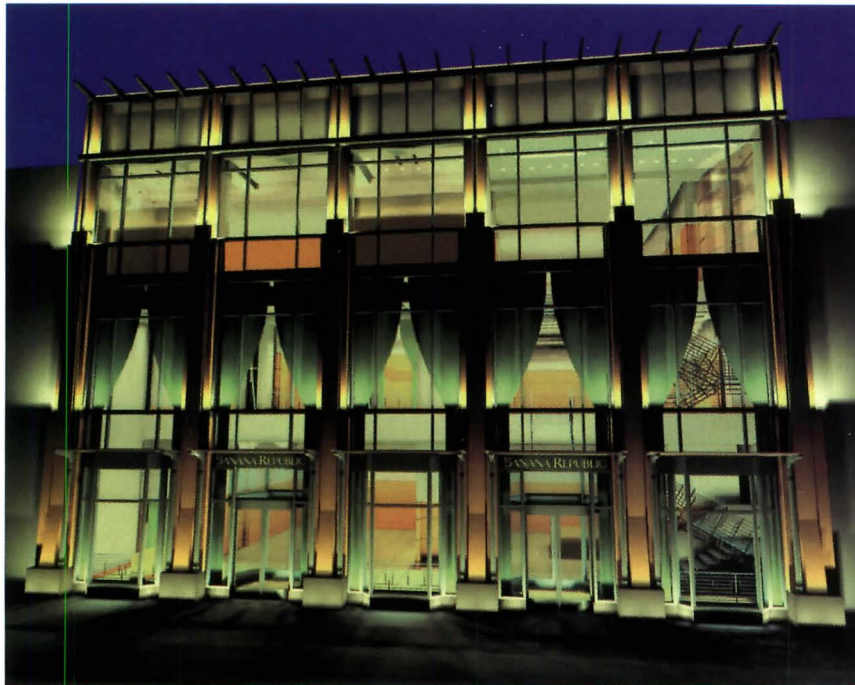
The masonry walls project to enclose an "outdoor room" in the front of the building. This room features a cantilevered stone bench from which the public can observe changing interior design displays. Inside, a volumetric space is punctuated by the principal designer's office placed on a bridge between the two walls.





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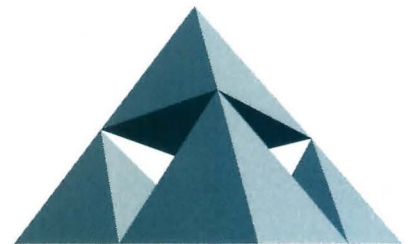
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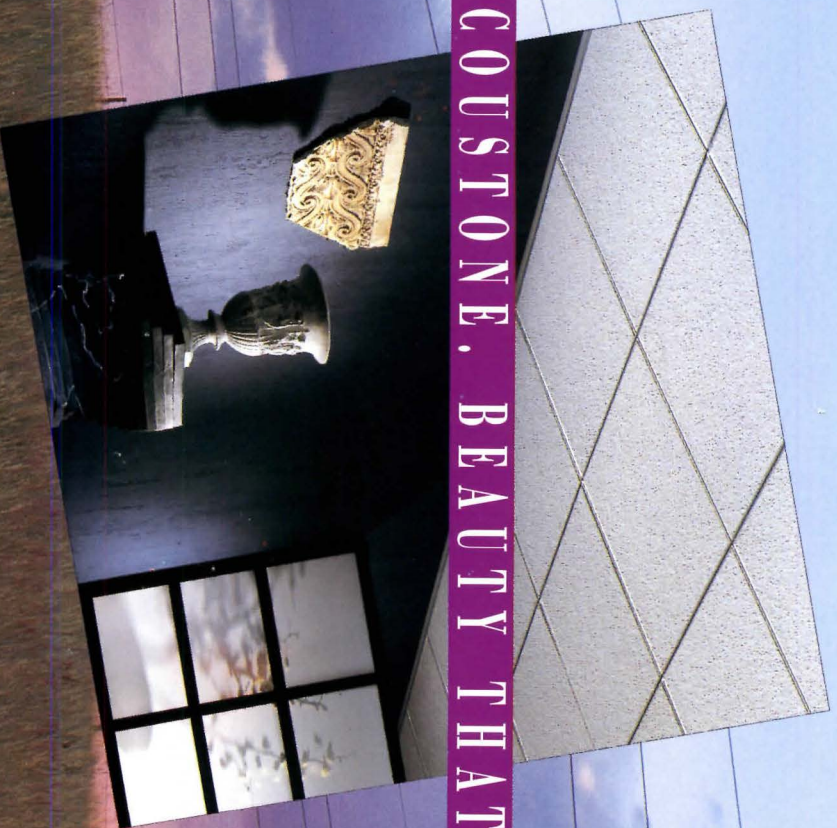
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