

# Progressive Architecture

October 1984





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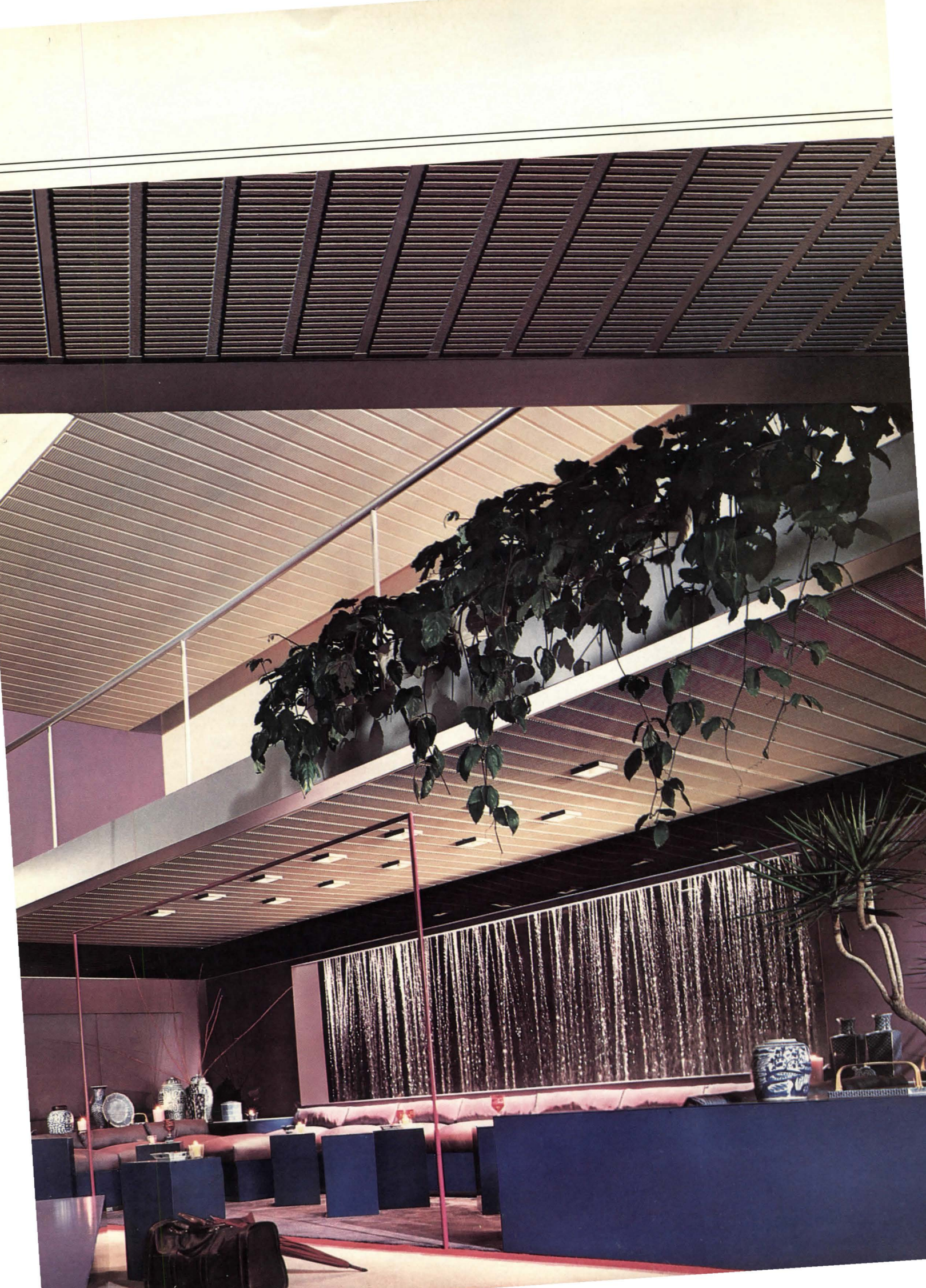
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Architects: The Spector Group, North Hills, NY.



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## Architectural design

### 67 Stirling in Stuttgart

London architects James Stirling, Michael Wilford &amp; Associates design a monumental Art Museum and Chamber Theatre for Stuttgart, West Germany.

### 70 Moving toward Stuttgart

Three museum projects by Stirling/Wilford laid the groundwork for the art museum at Stuttgart.

### 74 The talk of the town

The public, for the most part, is wildly attracted to the Stirling/Wilford art museum complex in Stuttgart, and most critics term it a triumph.

### 84 The joy of quoting

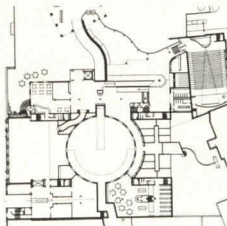
Sources of inspiration for the Staatsgalerie complex are traced.

### 86 Stirling/Wilford in progress

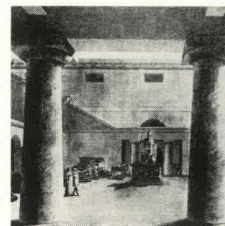
Contextualism and a representational/abstract mix link projects underway in the Stirling/Wilford office.



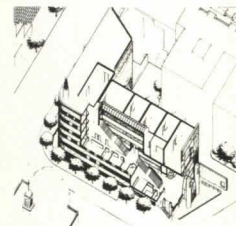
70



74



84



86

### 88 Venturi, Rauch & Scott Brown

Four projects illustrate this firm's thoughtful brand of contextualism.

### 94 Art as Architecture

Andrew Leicester uses sculpture to explore architectural ideas.

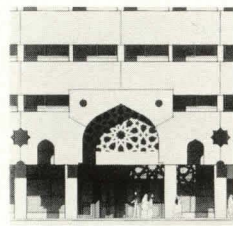
### 98 Beyond Modernism

P/A presents a brief portfolio of work by Zaha Hadid, winner of Hong Kong's Peak competition.

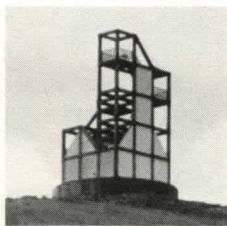
## Technics

### 113 Facing tile

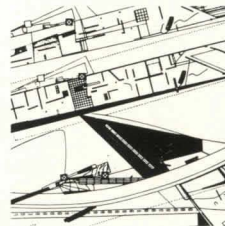
Changes in technology and taste have made ceramic tile a more versatile and more popular product in the U.S.



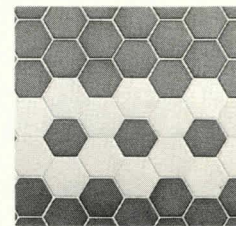
88



94



98



113

### 7 Editorial

### 10 Views

### 15 Furniture

### competition

### 23 News report

### 39 Perspectives

### 51 Calendar

### 61 P/A Practice

### 128 Books

### 139 Products and

### literature

### 143 Coming next month

### 154 Job mart

### 158 Advertisers' index

### 159 Reader service card

### Loose subscription

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### Canadian issues

### Cover

### Staatsgalerie, Stuttgart

### (p. 67), James Stirling,

### Michael Wilford & Asso-

### ciates, architects. Mon-

### tag by Ken Windsor;

### photography by Richard

### Bryant.

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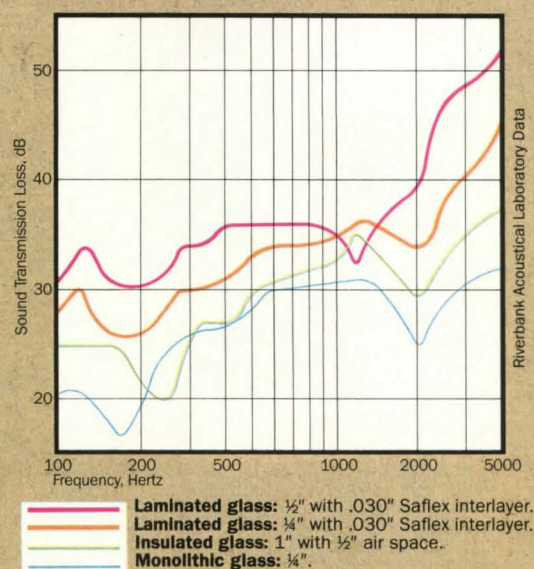
The building shown at left is Ten Five Sixty Wilshire Boulevard and shown below is Mirabella. The architect for both buildings is Maxwell Starkman.



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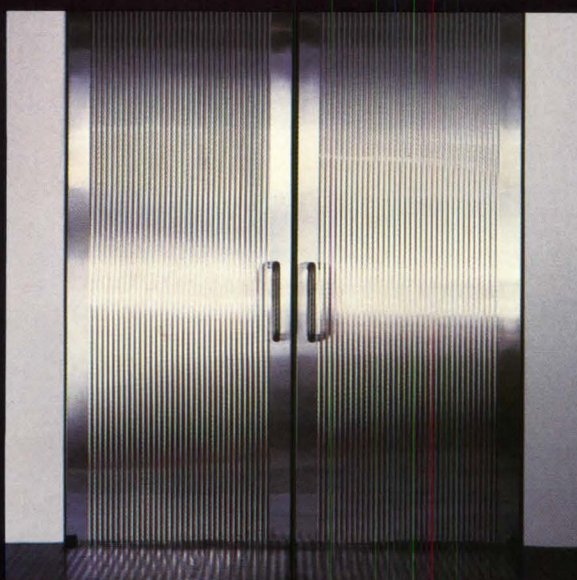
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# Building confidence

When a new building project is announced these days, the architects and clients usually brace themselves for a lot of flak. Except in the most boosterish of towns—or the most depressed—the prospect of just about any new building in public view seems to be cause for alarm. Of course, many proposals are downright offensive—and most win approval in some form anyway. What is troubling is the general expectation that a blunder or worse will be perpetrated.

The background of this public disfavor is

*The fear that anything we build today will be inferior to what it replaces has become prevalent among members of the public and the profession alike. How can we counteract this undercurrent of distrust?*

complex. From the 1960s and 1970s we have inherited several interrelated attitudes: a general suspicion of both government and business; a belief in local, vs. centralized, power (which, for architects, can mean the neighborhood, or even the city block); a loss of faith in growth and progress; a renewed appreciation of earlier cultural achievements (popularized as nostalgia). We are also heirs to a deepening skepticism about experts, whether physicians, economists, highway engineers, or architects. Though the rebellion of the 1960s is behind us, these attitudes suit

the more conservative present remarkably well: Our two most recent Presidents, for instance, have both campaigned against centralized authority, and neither of them seems to have put much trust in experts.

Architects must simply live with these attitudes—which to a large extent they share. But the crucial factor, about which they can do something—and must—is the widespread lack of confidence in their own performance. (And distrust is directed at performance, rather than capabilities; as with other professions, the doubts seem to involve the motives and commitment with which these skills are put to use.)

One problem is that architects tend not to present an image of self-confidence, individually, and they obviously don't present a consensus, as a group. In recent decades, architects have in fact adopted a more pliable position on design, more receptive to input from the client and the public. Even some of today's most strong-willed designers (witness the articles on James Stirling's work in this issue) present their work as a response to many influences.

While these less dogmatic positions invite public interference, they also help to open up communications and defuse animosity. It is still the arbitrary formal stunt, dropped arrogantly into the landscape or cityscape, that incenses both the public and concerned fellow architects.

Whatever its causes, the apprehension and distrust that greet so many architectural proposals impose a serious burden on the profession. The resulting frictions consume professional effort, often delay construction, and generally undermine the value of the architect to the client.

What, then, is to be done to rebuild confidence in the architects' judgment? The procedure most often proposed is to educate the public about architecture—teach them the

basics in school, offer them lectures, exhibits, tours, and newsletters. Sponsor Beaux-Arts balls. Organize architecture buffs as an influential public force. Work to get informed architecture criticism in local newspapers and magazines. The AIA's plan for national public membership is commendable, but local efforts are likely to be more productive—and are essential even with a national program.

A complementary need is for architects to learn from the public. For decades, we have been urged to study public behavior and preferences, by writers such as Jane Jacobs, Christopher Alexander, William H. Whyte, Oscar Newman, and a host of behavioral experts. What we need is more widespread, intelligent application of these lessons—without submerging personal vision; an architect cannot be just a pollster.

The most effective way to build confidence in architects, of course, is to produce buildings that reassure the public. This cannot be done with buildings that are designed mainly to dazzle or intimidate various factions, or to make the client happy at any cost. The best defense against low expectations is to produce work that will enrich the place where it stands and the lives of those who experience it. ■

*John Morris Diefen*



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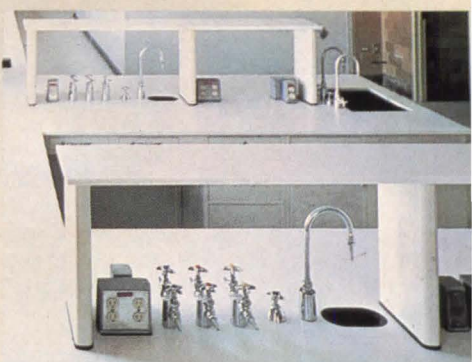
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## Views

### Window alternatives

Once again Thomas Vonier, AIA, has done an outstanding job of presenting us with a thorough and succinct article on a complex subject (*Next Window, Please*, August 1984). Windows and window glazing, whether they be for new buildings or for rehabilitation projects, afford the architect the opportunity to work in what often seems to be a limitless matrix environment.

To add to the choices presented by Mr. Vonier, I would like to add one more product with whose performance attributes I have recently become very familiar—laminated architectural glass. Laminated glass is a sandwich of two pieces of glass (of almost any type) joined together by an interlayer of polyvinyl butyral (PVB). The interlayer can be clear or tinted for solar control, but in either case it blocks out more than 99% of the UV energy below 380 nanometers. Laminated glass is a recognized safety glazing product for sliding doors, etc., and is often used in buildings because of its exceptional noise control characteristic, damping both low and high frequency noises. With security issues becoming more and more of a concern, laminated glass, which resists attack and can prevent entry, is an applicable product.

As designers we are fortunate to have the choice of glazing materials that we do. Today's products can all add up to high performance windows, but it means that we, the designers, need to do a thorough job of defining the performance requirements and finding the single product with multiple performance benefits that can provide the most for our clients' dollars.

Joel P. Zingesser, AIA  
Building Technology Inc.  
Silver Spring, Md.

### Housing dialogue

On the whole, the essays on social housing in your July 1984 issue are thoughtful—though widely divergent—examinations of the current sad state of affairs in this area of public policy.

Based on my research in the United States and abroad, I would like to offer two observations. First, the crisis in social housing affects most post-industrial societies—not our country alone. Given the wide variety of programs that have been tried and found wanting here and elsewhere, it would seem that objective, non-partisan analysis of the international experience with social housing should be vigorously pursued as a precondition for any future policy.

Second, if the international experience shows anything, it certainly shows that no single approach, whether based on massive government production programs, housing voucher schemes, mutual housing associa-

tion concepts, or any other unidirectional effort, is likely to result in acceptable solutions, if by "acceptable" we mean solutions which satisfy both the target population and the public at large and are economically feasible.

While we await the careful policy analysis, courageous political leadership, and committed bureaucracy that will be needed to respond to the current crisis in social housing, *Progressive Architecture* should be commended for continuing to open its pages to a constructive dialogue on housing issues.

Guido Francescato, Chairman  
Department of Housing and Design  
University of Maryland  
College Park, Md.

### No place for sexism

The list of productivity-increasing tips (May 1984) furnished by A/E Systems Report included some useful suggestions and astute observations. However, to my dismay, it used sexist language, representing all drafters, managers, principals, and clients as men, except for one mysterious woman who appeared in item #50, confined between parentheses.

I have a few tips for you, Editors, to increase your credibility, relevance, and status as truly "progressive" thinkers:

1. Institute an editorial policy to take women out of parentheses and into the text. The AIA rewrote its Owner/Architect Agreement (AIA Document B161) back in 1977 and accomplished non-sexist language.

2. Institute an editorial policy of not printing sexist advertising, or establishing guidelines for your advertisers. The image of the scantily-clad, ornamental and/or secretarial female juxtaposed against the suited, professional-looking and/or actively productive male is not flattering to the magazine. In fact, such ads can create a negative association with their product for some readers.

3. Strive in general to eradicate these disturbing inequities so that readers may more fully devote themselves to the content of your otherwise excellent magazine.

Laura Kraft  
Kovalenko Architects  
Seattle, Wash.

### Mauritania housing correction

In the article on low-cost housing in Mauritania (P/A, July 1984, p. 106), the position of the Association for the Development of an African Architecture and Urbanism (ADAUA) was misstated. From the summer of 1982, the ADAUA has limited its role to that of consultant.

### Charleston Place credit extension

Landscape architecture for Charleston Place (P/A, Aug. 1984, pp. 74-79), was by Frank Bilbao and James Voss Associates.



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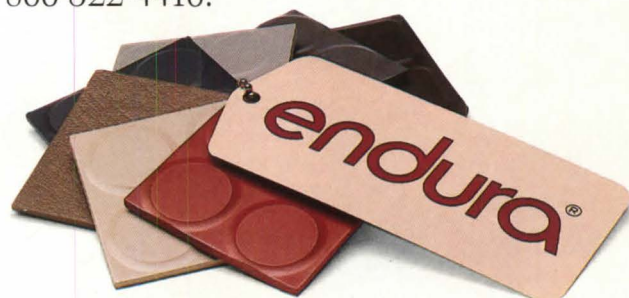
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INDUSTRY EVENTS

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**PROGRESSIVE ARCHITECTURE** announces the fifth annual competition recognizing outstanding furniture and lighting design proposals, not yet being marketed by any manufacturer as of entry deadline, January 17, 1985. The competition is intended to give the design professions a forum to express ideas about the next generation of furniture design, at a time when architects and designers are increasingly custom-designing furniture for their projects and manufacturers are increasingly open to fresh ideas. The competition is specifically aimed at furniture intended for use, but the design need not be constrained by existing production or marketing practices. Entries may be based on either fabricated pieces or project drawings. Designers are encouraged to consider the aesthetic and ideological implications for furniture design implied by the current concerns within architecture and other design disciplines.

**WINNING PROJECTS** will be published in the May 1985 P/A and they will be displayed at major industry events during the year. Winners will be honored in New York City at an awards ceremony in early March attended by press, designers, and industry manufacturers.

In addition to the exposure afforded the submissions, the competition will encourage further discourse between the entrants and respected furniture producers. Any ongoing discussions will, of course, be up to the individual designers and manufacturers, but benefit to both is anticipated.

**SUBMISSIONS** are invited in all categories including chairs, seating systems sofas, tables, desks, work stations, storage systems, lighting, beds, and miscellaneous furniture pieces.

## THE JURY FOR THIS COMPETITION

*Gae Aulenti*, architect, industrial and furniture designer, Milan, Italy.

*Thomas H. Beeby*, partner, Hammond Beeby and Babka Incorporated, Chicago, architect and furniture designer.

*Ralph Caplan*, writer, editor, and critic, New York.

*Charles Gwathmey*, partner, Gwathmey Siegel & Associates, New York, architect and furniture designer.

*Richard Schultz*, industrial and furniture designer, Barto, Pa.

## JUDGING

will take place in New York City during the month of February. Designations of *first award*, *award*, and *citation* may be made by the invited jury, based on overall excellence and advances in the art.

[Turn page for rules and entry forms]

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DEADLINE FOR SUBMISSION  
JANUARY 17, 1985

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## Entry form International Furniture Competition

Please fill out all parts and submit, intact, with each entry (see paragraph 11 of instructions).  
Use typewriter, please. Copies of this form may be used.

ENTRANT:  
ADDRESS:

ENTRANT PHONE NUMBER (day):  
(evening):

CATEGORY:

ENTRANT:  
ADDRESS:

DESIGNER(S) RESPONSIBLE FOR THIS SUBMISSION  
(identify individual roles if appropriate):

I confirm that the attached entry meets eligibility requirements (paragraph 1-3)  
and that stipulations of publication agreement (paragraphs 4-6) will be met.  
I verify that the submission is entirely the work of those listed on this form  
(or an attached list as necessary).

SIGNATURE  
NAME (typed)

FURNITURE COMPETITION  
Progressive Architecture  
P.O. Box 1361, 600 Summer Street,  
Stamford, CT 06904

(Receipt)  
Your submission has been received and assigned number:

ENTRANT:  
ADDRESS:

ENTRANT:  
ADDRESS:

### ELIGIBILITY

1 Architects, interior designers, industrial designers, and design students from all countries may enter one or more submissions.

2 Design must be original. If found to be substantially identical to any existing product design, entry will receive no recognition.

3 Designer may be under contract to or in negotiation with a manufacturer for this design, but design must not be available in the marketplace as of entry deadline.

### PUBLICATION AGREEMENT

4 If the submission should win, the entrant agrees to make available further information, original drawings or model photographs as necessary, for publication in the May 1985 P/A and exhibition at major industry events.

5 P/A retains the rights to first publication of winning designs and exhibition of all entries.

6 P/A assumes no obligation for designer's rights. Concerned designers are advised to document their work (date and authorship) and seek counsel on pertinent copyright and patent protections.

### SUBMISSION REQUIREMENTS

7 **Submissions will not be returned under any circumstances.** Do not use original drawings or transparencies unless they are sent with the understanding that they will not be returned. P/A will not accept submissions with outstanding custom duties or postal charges.

8 Drawing(s) and/or model photo(s) of the design should be mounted on one side only of one 20" x 30" foamcore board presented horizontally. **Any entry not following this format will be disqualified.**

9 There are no limits to the number of illustrations mounted on the board, but all must be visible at once (no overlays to fold back). No actual models will be accepted. Only one design per board.

10 Each submission must include a 5" x 7" index card mounted on the front side of the board with the following information typed on it: intended dimensions of the piece of furniture, color(s), materials, components, brief description of important features, design assumptions, and intentions. This information is to be presented in English.

11 Each submission must be accompanied by an entry form, to be found on this page. Reproductions of this form are acceptable. All sections must be filled out (by typewriter, please).

Insert entire form into unsealed envelope taped to the back of the submission board. P/A will seal stub of entry form in envelope before judging.

12 For purposes of jury procedures only, projects are to be assigned by the entrant to a category on the entry form. Please identify each entry as one of the following: Chair, Seating System, Sofa, Table, Desk, Work Station, Storage System, Lighting, Bed. If necessary, the category "Miscellaneous" may be designated.

13 Entry fee of \$35 must accompany each submission, inserted into unsealed envelope containing entry form (see 11 above). Make check or money order (no cash) payable to *Progressive Architecture*.

14 To maintain anonymity, no identification of the entrant may appear on any part of the submission, except on entry form. Designer should attach list of collaborators to be credited if necessary.

15 Packages can contain more than one entry; total number of boards must be indicated on front of package.

16 Deadline for sending entries is January 17, 1985. First class mail or other prompt methods of delivery are acceptable. Entries must show postmark or other evidence of being en route by midnight, January 17. Hand-delivered entries must be received at street address shown here by 5 p.m., January 17.

**ADDRESS ENTRIES TO:**  
*International Furniture Competition*  
Progressive Architecture  
600 Summer Street  
P.O. Box 1361  
Stamford, CT 06904



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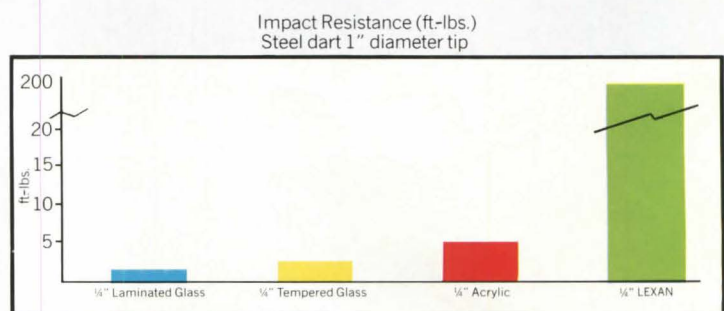
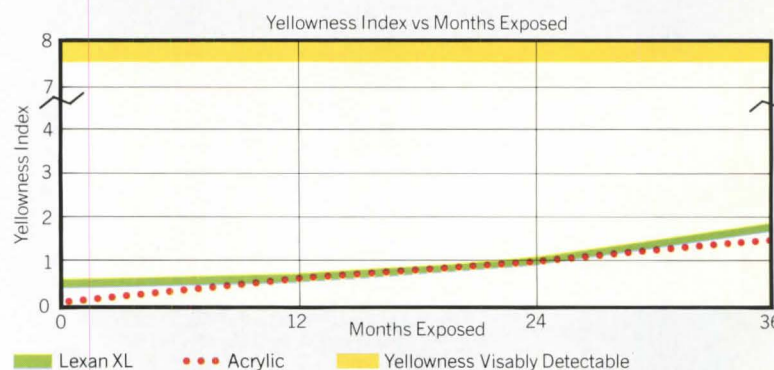
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**PLASTICS**





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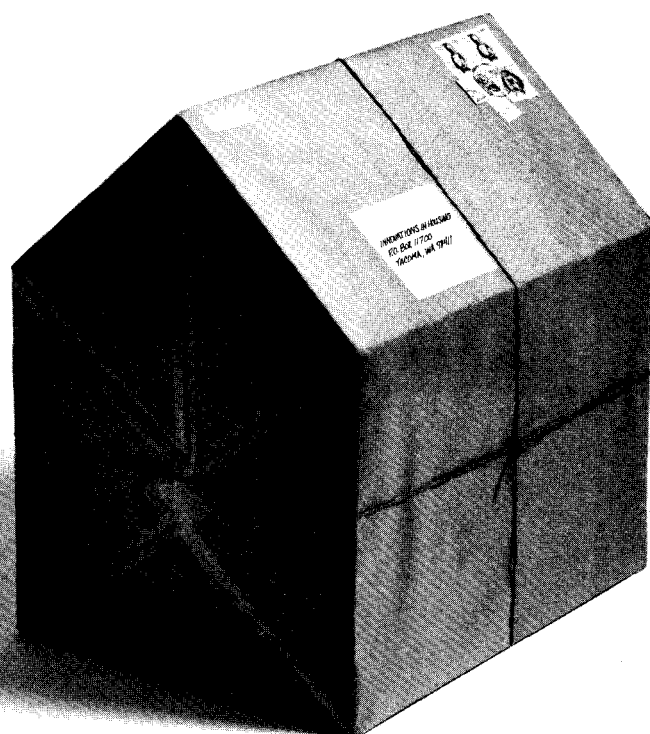


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# P/A News report

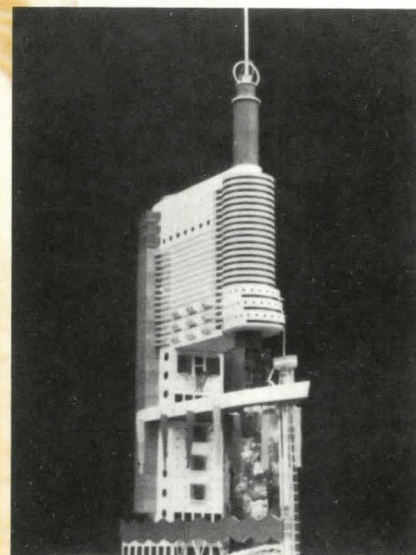
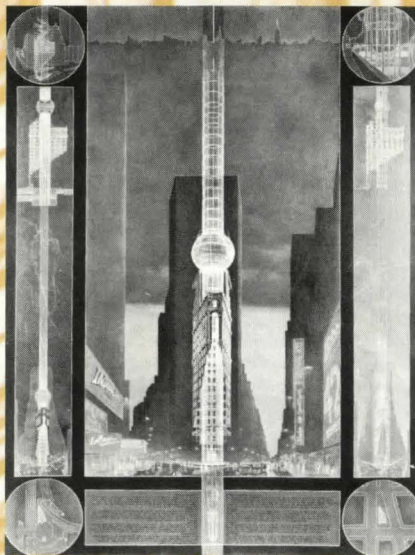
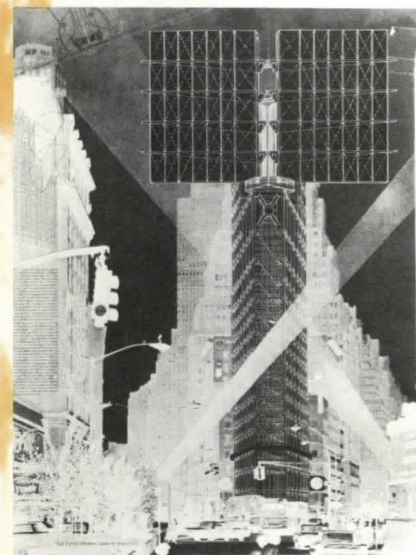
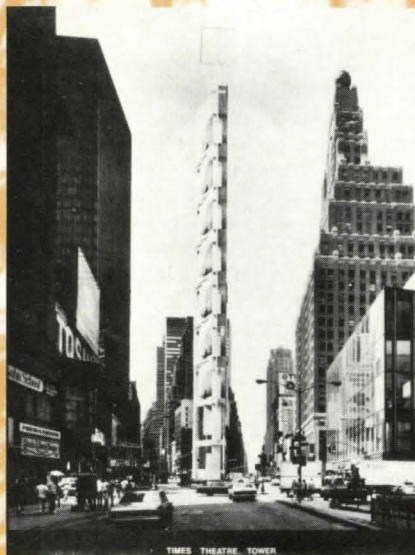
## Too late for Times Square?

When John Burgee Architects with Philip Johnson proposed to do away with the Times Tower in their proposal for Times Square (P/A, Feb. 1984, p. 69), they weren't just knocking down some old office building but challenging an American icon. Who in this country has not seen the red ball—now a New York apple—drop from the Times Tower on New Year's Eve? By day, however, stripped of its glitzy nighttime neon, the Tower is a pale, "modernized" version of the quirky 1904 original (the terra cotta tower was re clad in marble in the mid-1960s when the building changed hands). For a while it seemed as though Johnson/Burgée would have their way unopposed: the beleaguered tower would go down without the slightest protest, and their four virtually identical glass and granite office towers would transform honky-tonk Times Square.

Then the Municipal Arts Society and the National Endowment for the Arts stepped in with a theoretical design competition focused on what to do with the Tower site. Solve the question of the Tower's fate, they must have reasoned, and you have the key to all of Times Square. MAS had expressed reservations when the Johnson/Burgée scheme was first unveiled last December, repeating their criticisms—too big, too bulky, too bland—at public hearings throughout the spring. This competition, however, was the first active maneuver in the search for alternatives.

The invitation to enter was extended not only to members of the design professions but to poets, painters, sculptors, and any others wishing to participate. The jury represented an appropriately wide range of disciplines: Henry Cobb, Jury Chairman, John Hejduk, and Adele Santos, all architects and educators; Jonathan Barnett, urban designer; Vartan Gregorian, historian and president of New York Public Library; Ming Cho Lee, theater design consultant; Hideo

*Proposals for Times Square and its tower are considered, a scheme for the Canadian chancery is critiqued, and the Rhodes Tavern controversy is concluded in this month's News report.*



*The eight winners in the Times Tower competition are: Raimund Abraham (top left); Paul Bentel and Carol A. Rusche; Lee Alan Dunnette (bottom left); Christopher Genik and Peter Waldman; Frank Lupo and Daniel Rowen with Karen Maloof (top right); Taeg Yoshinobu Nishimoto (bottom right); William F. Schacht for Lockwood Greene Architects with Cassandra McGowen; and David Stein. The original Times Tower designed by Cyrus L.W. Eidlitz (1904) is shown in silhouette.*



## Pencil points

**Michael Graves**, with artist Edward Schmidt, has won a competition for a Napa Valley winery and residence sponsored by the San Francisco Museum of Modern Art (P/A, Sept. 1984, p. 26).

• While no "second prize" was awarded, the jury did name their second favorite: a scheme by Robert Mangurian and James Turrell.

**The Museum of Modern Art**, criticized in recent years for its "archivist" approach to architectural exhibitions, has announced a series of five shows on the work of significant contemporary (as opposed to Modern) architects.

• The series kicks off in June 1985 with Ricardo Bofill of Taller de Arquitectura, Barcelona, and Leon Krier. Funding for the exhibitions, and accompanying catalogs, lectures, and symposiums, has been provided by a grant from Gerald D. Hines Interests, the Houston-based real-estate development company.

**Sir John Summerson**, curator of Sir John Soane's Museum at Lincoln's Inn Fields, London, for almost 40 years, has retired. His successor is Peter Thornton, formerly of the Victoria & Albert.

**Six Rome Prize Fellowships** in architecture have been awarded by the American Academy in Rome to Frederick Schwartz and Roger Crowley of New York; Jesse Reiser, Dobbs Ferry, N.Y.; Joseph DePace, Brooklyn, N.Y.; Mark O'Bryan, Ithaca, N.Y.; and John Naughton, Chicago, Ill.

• Chip Sullivan, Miami, Fla., was awarded a Rome Prize in landscape architecture; Antoine Predock, Albuquerque, N.M.; Marc Treib, Berkeley, Calif.; Fredrich St. Florian, Providence, R.I.; and Morison Cousins, New York, were awarded NEA advanced fellowships in the Design Arts.

**Tensile fabric structures** are the subject of an International Symposium planned in Orlando, Fla., Nov. 27-30. Presentations on design and construction by such industry experts as Frei Otto, Walter Bird, David Geiger, and Donald Greenberg will be geared to the profession at large. For more, contact Norine Lester, ISAFS, 1800 Pickwick Ave., Glenview, Ill. 60025 (312) 724-7700.

**First place** in the NEA-sponsored competition to design a new architecture building for Roger Williams College went to Kite Palmer Associ- [Pencil points continued on p. 34]

Sasaki, landscape architect; Carl E. Schorske, cultural historian; and Richard Sennett, writer and founder of the Institute for the Humanities, New York University.

This jury met on July 13 and 14, reviewed all 565 entries, and chose eight finalists. Then, curiously, two months passed before these eight equal winners (see caption) were announced at a gala opening on September 17. (Their proposals are on exhibition at the Urban Center, together with a carefully edited collection of also-rans, through Oct. 27.) During those two months, the developer, Park Tower Realty, went about his business. Several major tenants were signed. Johnson/Burgee's scheme and their recommendation that the Times Tower be condemned gained credence with time. Only Brendan Gill spoke out in pained protest, writing to the editors of the *New York Times*, "Will nobody speak the truth about this heinous urban misadventure—that it is a real-estate speculation intended to pour hundreds of millions of dollars into the pockets of a few individual developers, banks, and insurance companies, and that it has little or nothing to do with the improvement of living conditions in New York City for all the rest of us?"

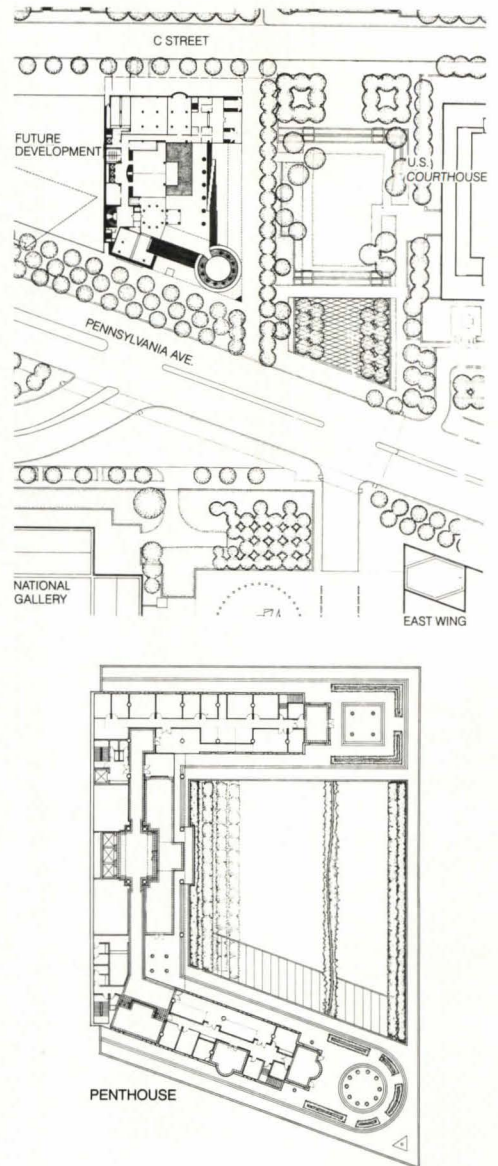
Worse still, the jury found its choices upstaged by those of critic Carter Wiseman, who published his "personal best" in *New York* magazine before the winners were released, thereby reducing the whole affair to a beauty contest. The jury statement, when it finally appeared, had been sapped of its strength and potential impact.

That's too bad, because the conclusions of this distinguished group are important, if debatable. The Times Tower site, they maintain, must be occupied by a building: "It is not an appropriate site for an open plaza or monument." (They do not, however, explain how they came to this conclusion.) Whatever building occupies the site must respect the street walls, as does the present tower. It should be multiuse and accessible, at least in part, to the public. The jury judiciously refrains from commenting on the Johnson/Burgee scheme; what they think of it, however, may be read between the lines. The Johnson/Burgee proposal depends upon the elimination of the Times Tower if it is to make sense architecturally and urbanistically; asserting that the site must be occupied by a building, therefore, is equal to expressing disapproval of the plan. MAS is more forthright in its critique: The Johnson/Burgee scheme violates crucial guidelines for setbacks, materials, signage, and lighting. If built, it will change Times Square radically, and irrevocably.

Will these criticisms carry any weight? Time, that ir retrievable commodity, has passed. The final UDC environmental impact statement—prepared after the jury met but before they issued their conclusions—urges that the Times Tower be "substantially modified (stripped to its structure) or replaced" by a low-rise "theme" pavilion. The Tower itself has been sold again. The architects' "revised" proposal for the four office blocks, based on feedback from the spring hearings, tinkers only with minor entrance and storefront details, and the scheme, with few hurdles left to clear in the approvals process, has acquired the feel of a *fait accompli*. [DDB]

## Erickson's embassy: Post-Modern pastiche

When the plum commission to design a new Canadian embassy in Washington was handed to Arthur Erickson in 1982, there were cries of foul play: although Canada's top-ranking architect wasn't short-listed by the advisory committee, then Prime Minister Pierre Trudeau, a personal friend, decided he was the man for the job. Now that Erickson has unveiled his scheme for the \$28



million building, the embassy is generating controversy once again.

This chancery, as it is properly known, is a marked departure for Erickson, catching him en route from macho Modernism to figural Post-Modernism. The transition seems forced, however; the figural pieces have been deployed in fussy, even contradictory ways. Scheduled for completion in 1986, the stone building will occupy a privileged site at the intersection of Pennsylvania Avenue and Constitution Avenue, diagonally across from the I.M. Pei addition to the National Gallery of Art. Responding to a complex program, strict zoning and setback regulations, and important context, Erickson observed the edges of the site, but carved out



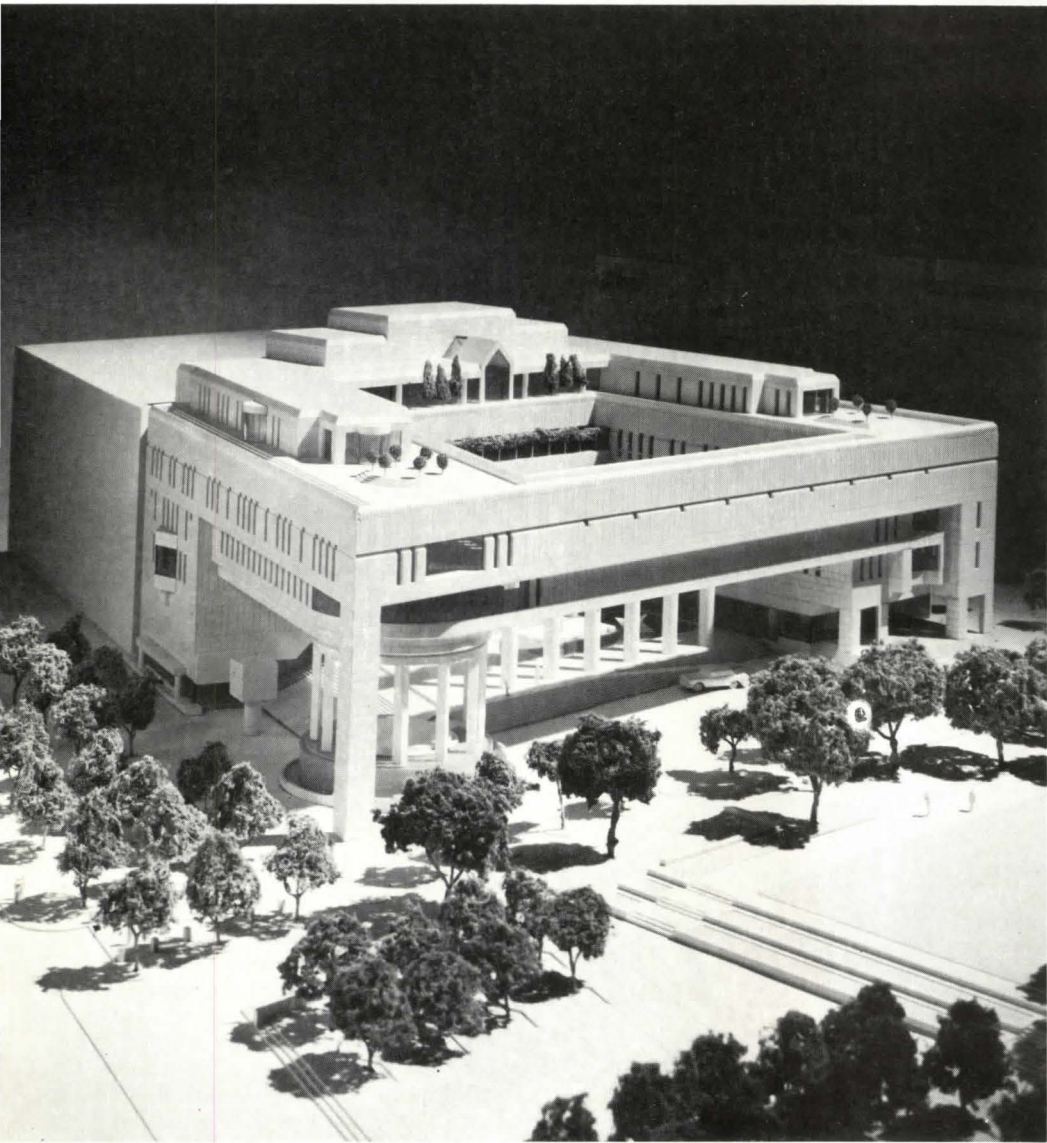
## The end of the Rhode(s)

In the space of two gloriously sunny days at the end of Washington's summer, while many awaited news of a hurricane's progress not far to the south, an end also came to the Rhodes Tavern. Looking at the pile of rubble that once stood a few blocks from the White House, one might easily have concluded that the hurricane had already come and gone. Bitterly contested in the courts and at the ballot box, the seven-year battle (P/A, Nov. 1983, p. 52) was ended unceremoniously and irrevocably on September 10. Bulldozers silenced the debate over whether this "oldest commercial building in Washington's downtown" should, in the interests of historic preservation, remain to block completion of developer Oliver T. Carr's elegant, \$100 million retail/office complex, itself a model of preservation design by the Washington offices of SOM and Vlastimil Koubek that incorporates the old Metropolitan Building and Keith-Albee Theatre.

The 185-year-old Rhodes Tavern was reputed to have been, variously, the District of Columbia's first polling place, an early city hall, the site from which British army officers watched the White House burn, and many other things. It seems to have been constructed in two stages, dating roughly from the 1790s and the mid-1800s. For as long as anyone in D.C. can recall, however, it was a tawdry eyesore, housing a succession of marginal businesses. One authority suggested that "only a few lintels and window frames" remained from the original structure. There was little question that most of the historic fabric had long since been destroyed as various tenants and owners shaped the tavern to suit their aims.

Still, Washington voters heartily endorsed "saving" the historic Rhodes Tavern in an unprecedented public referendum last November, later declared unconstitutional by a D.C. Superior Court judge. A small group of self-styled preservationists (few architects, if any, among them) carried on the battle in the courts and on street corners throughout the city, their leader a former government lawyer who quit his post four years ago to devote full time to the cause. The more uncharitable among critics of the campaign cite his obsession as the only reason the struggle lasted as long as it did, reportedly costing developer Carr huge sums for the long delays. In any case, the tavern's fate was sealed when Supreme Court Justice Warren Burger refused on September 6 to intervene and block demolition.

In a city filled with preservation interests, and generally beset by battles and odd compromises between the forces of progress and the friends of the past (see P/A, June 1983, pp. 41-43), the Rhodes was a tough case and, perhaps, something of a watershed. For once, the developers seem to have emerged intact, if not quite unscathed, and their plans



Proposed Canadian Chancery at Pennsylvania Ave. and John Marshall Place.

the principal façade along John Marshall Park to reveal a large, open courtyard framed by a colonnade of freestanding cast aluminum columns. These, ideally, echo the porticos of the nearby D.C. Municipal Center and present a welcoming image of Canada.

The building makes an elaborate bow to Pei's East Building at its attenuated southeast corner, where a rotunda with ten columns, one per province, is placed. The rotunda—a reference to the Jefferson Memorial?—provides shade, access to the courtyard, and an announcement of the ground-floor public facilities, including an art gallery, a general purpose room, and a small conference center. Another porch at the northeast corner leads to the passport and immigration

offices. Finally, the ambassadorial penthouse, centered by a little Gravesian pavilion, crowns the sixth, or top, level.

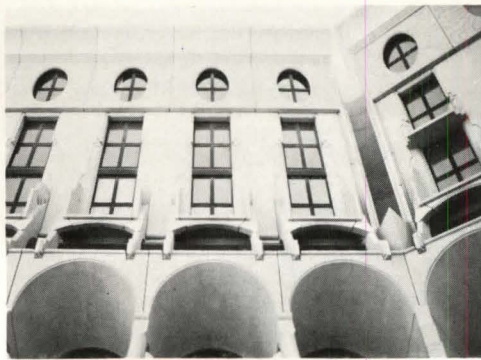
Is this embassy a classy pastiche of Washington architecture or a meaningful statement about the country it represents? The landscaped courtyard, designed to signify accessibility and openness, is poorly programmed: no major rooms survey it. The apparent generosity of the gesture is all too easily construed as hollow pastoral rhetoric, in certain conflict with the aristocratic image of the ambassadorial suite. Erickson has taken off in a new direction, but he has not yet mastered it. ■

ADELE FREEDMAN is architecture critic for the Toronto Globe and Mail.

Panda Associates



will be implemented without compromise. The natural allies of preservation did not rally uncritically around this cause, and many kept a quiet but firm distance from the entire imbroglio. To this architect, the outcome is pleasing, not least because there is every reason to believe that the SOM design now to be completed will grace that important capital corner in ways that the Rhodes never did nor could, and may one day cause a future generation of preservationists to struggle and win, with reason and right on their side. [THOMAS VONIER]



## Marne-la-Vallée ever more exotic

There seem to be no limits to the formal inventions that can be realized in the new towns around Paris. The latest stunner now nearing completion in Marne-la-Vallée is Les Arènes de Picasso, by Manolo Nuñez-Yanowsky and his associates. Its two gargantuan discs-on-edge rise out of a continuous lower structure that bounds an octagonal plaza. Meticulously executed concrete details suggest sources ranging from Viollet-le-Duc drawings to solid-state circuitry. Standing only a few hand-springs away from the Spaces of Abraxas housing by Bofill's Taller de Arquitectura (P/A, Oct. 1982, pp. 74-79), this homage to Picasso supplants it as the most startling of Marne-la-Vallée's architectural exotica. [JMD]



Les Arènes de Picasso, close up (above, top and bottom) and from afar (middle).

## Five Buildings in Four Tenses

It is not very often that architects get together and look at buildings rather than talking about them "in absentia," but that was the attraction of the 1984 AIA National Design Conference in San Diego, Aug. 26-28, entitled "Five Buildings in Four Tenses, How Architecture Speaks to its Public." San Diego is an ideal city for such an event. It has a rich stock of old, eclectic architecture, and is growing rapidly. The conference offered a view of both sides of the city and a chance to hear from the local community.

Organized by Gerald Allen and Richard Bundy, the conference looked at five buildings in their contexts: the Hotel Del Coronado (1886-88) by James and Merritt Reid; the San Diego Museum of Art (1914-16) by Bertram Goodhue; Irving Gill's La Jolla Women's Club (1913); the Salk Institute (1959-67) by Louis Kahn; and the nearby San Juan Capistrano Library (1984, P/A, June 1984, pp. 69-79) by Michael Graves. The "four-tense" framework was established by Allen, who proposed that architecture could be categorized as past, present-progressive, present-eternal, and future. Past tense refers to historic precedents in architecture; present-progressive refers to current architecture, rooted in its time and place; present-eternal implies architecture of a timeless quality; future tense describes architecture to come. Those overlapping tenses were merely a starting point for discussion.

Each building received the benefit of an introduction, some more informative than others, and a tour (self-guided). Michael Graves was present to describe the design process for the San Juan Capistrano Library. Richard Oliver, author of a recent book on Bertram Goodhue, gave a brief introduction to the delightful Hotel Del Coronado and a longer explanation of the origins of Goodhue's San Diego Museum of Art. Don-lynn Lyndon described the La Jolla Women's Club and Irving Gill's work generally; and Dr. Jonas Salk and Charles Moore were present to comment on the Salk Institute.

These introductions were supplemented by panels and lectures. Social geographer Larry Ford gave a brief, amusing history of San Diego's eclectic "landscape." Museum director Sebastian (Lefty) Adler described the new San Diego Art Center, which will occupy space in the remodeled Balboa Theater in the downtown "gas lamp" district. A panel of architects and local politicians discussed the overlooked notion of San Diego as a "world class" city. And rounding out the con-

Photos: John Morris Dixon



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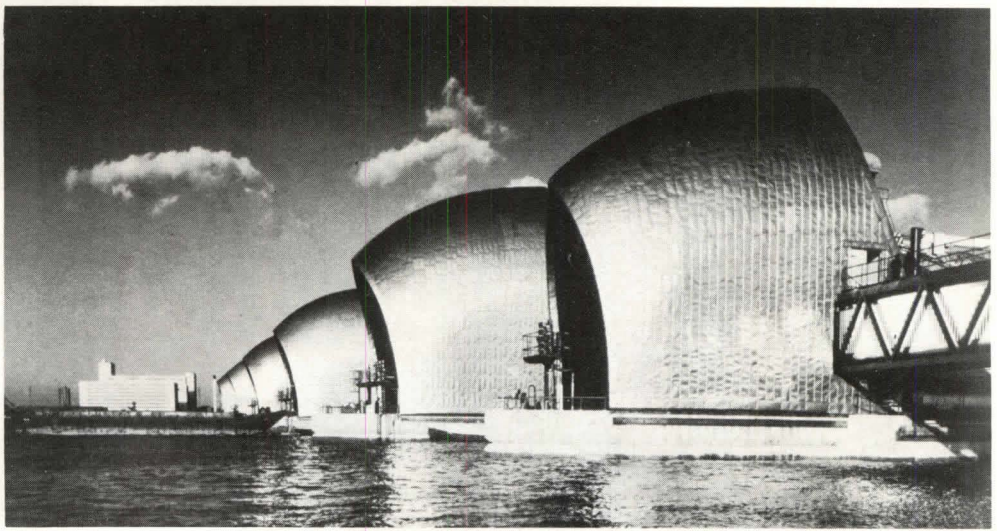
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ference, architect William Hubbard and social geographer Pierce Lewis looked to the past as guide to the future—Hubbard promoting an architecture with a “sense of place” and Lewis reexamining model American small towns and cities.

The major frustration for conference attendees was the dominance of the “Moore School,” as evidenced by speakers Gerald Allen, Charles Moore, Donlyn Lyndon, William Hubbard, and Richard Oliver. While the principles they advocate—creating buildings with “a sense of place,” recognizing the importance of eclecticism, etc.—are valid for many of the buildings examined, their inability to adequately explain others was sorely evident. Lyndon’s superficial description of Gill’s architecture, for example, left one recalling Esther McCoy’s in-depth analysis. Charles Moore’s comments on the Salk Institute revealed him to be ill-at-ease with the notion of quiet, timeless, monastic architecture. In fact, his puzzlement with the Salk Institute served an important purpose in provoking the most emotional exchange between a conference panelist and audience members, who felt that the Institute offered many valuable lessons.

In the final analysis, however, the conference was one of the most enlightening of such events in recent memory. If this kind of in-depth analysis of buildings were required of all local architects, we might look to a San Diego—and other cities—as rich in the future as in the past. [BARBARA GOLDSTEIN] ■



Jean Clapham, job architect, 1972–78, Thames Barrier.

### *Women architects in the U.K.*

The contribution that women have made to architecture in Britain was the subject of a major summer exhibition, “Women architects: their work,” at the RIBA. It is estimated that, up to last year, the number of women practicing in the UK totaled 1800, or seven percent of all qualified architects. A central aim of the exhibition was to encourage the entry of women into the profession.

The exhibition examined the role of British women in architecture from the 17th Century to the present day, through photographs, original drawings, documents, and models. The work ranges from a bathtub to Heathrow Terminal Four, including libraries, schools, offices, shops, housing, a wine bar, concert hall, theater, museum, crafts market, and a youth hostel.

[MONICA PIDGEON] ■



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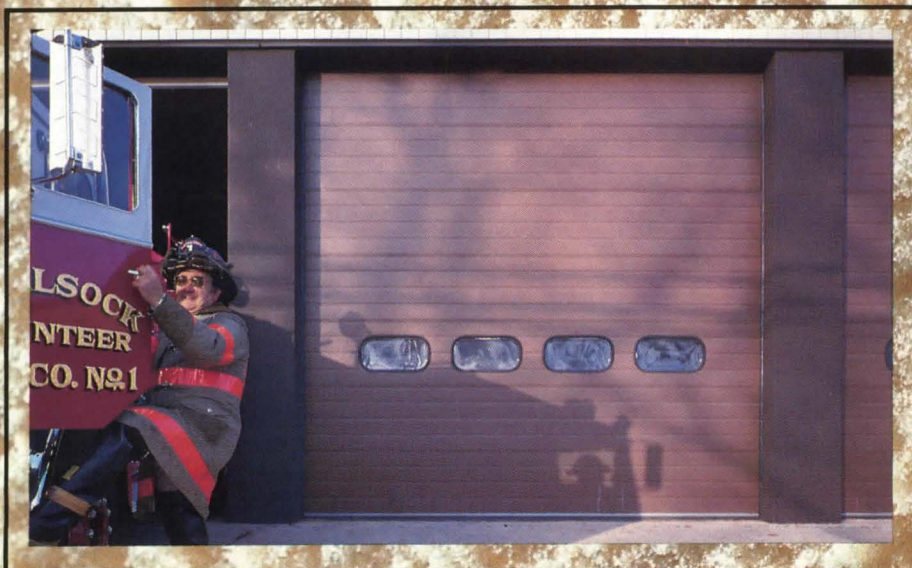
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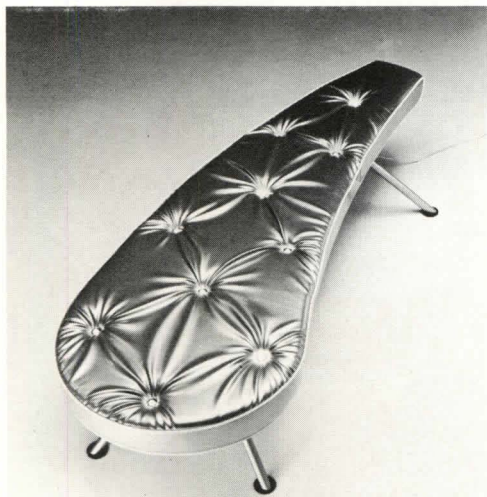


## Japan in New York: Gallery 91

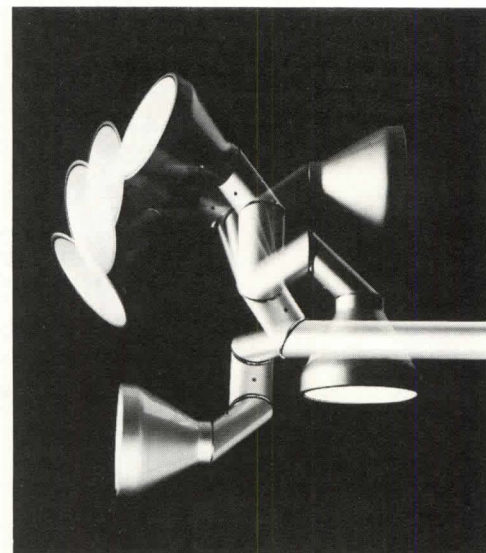
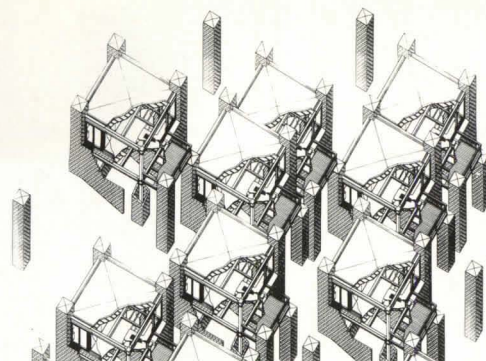
New York's new showcase of contemporary Japanese hand-crafts and industrial design, Galley 91 in SoHo, acts as the American representative for many Japanese designers. Gallery director Yoshiko Ebihara is a member of the editorial committee of *Japan Interior Design* magazine and writes on design trends in New York.

The Gallery, which opened in April 1983, has hosted a continuous series of provocative shows on fabric design, art furniture, and architecture. Currently on view is a comprehensive show called "From Pushpin to Architecture: Masayuki Kurokawa of Japan." The title is no mere conceit: Kurokawa has in fact designed a line of elegant pushpins, together with a prodigious quantity of doorknobs, handles, lamps, clocks, trays, and silverware. The objects are displayed on a "stage" designed by Kurokawa with Shiro Kuramata and constructed in Col-core by Formica Corporation. Against one wall are flashed images of buildings designed by the architect.

The Kurokawa show, which runs through Oct. 27, follows a summer exhibition of interior objects and art furniture by Sinya Okayama. Forthcoming is a show of the "origamic" architecture of Masahiro Chatani.



"Humming" (top left), "Kazenoko" (right), and "Crocodile" (above), designed by Sinya Okayama.



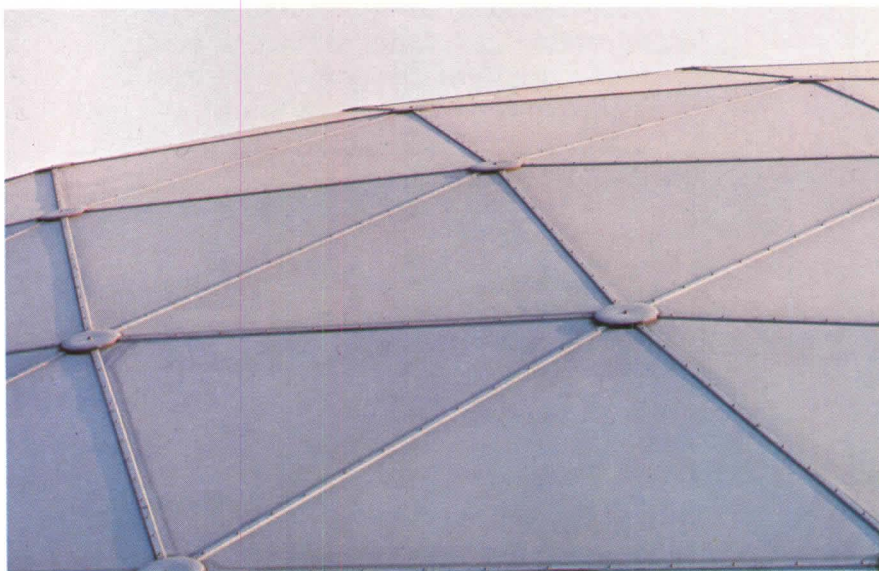
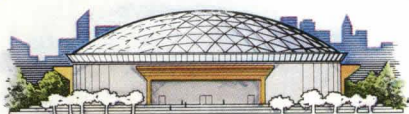
Villa Ban (top) and ceiling or wall-mounted Salty series, designed by Masayuki Kurokawa.

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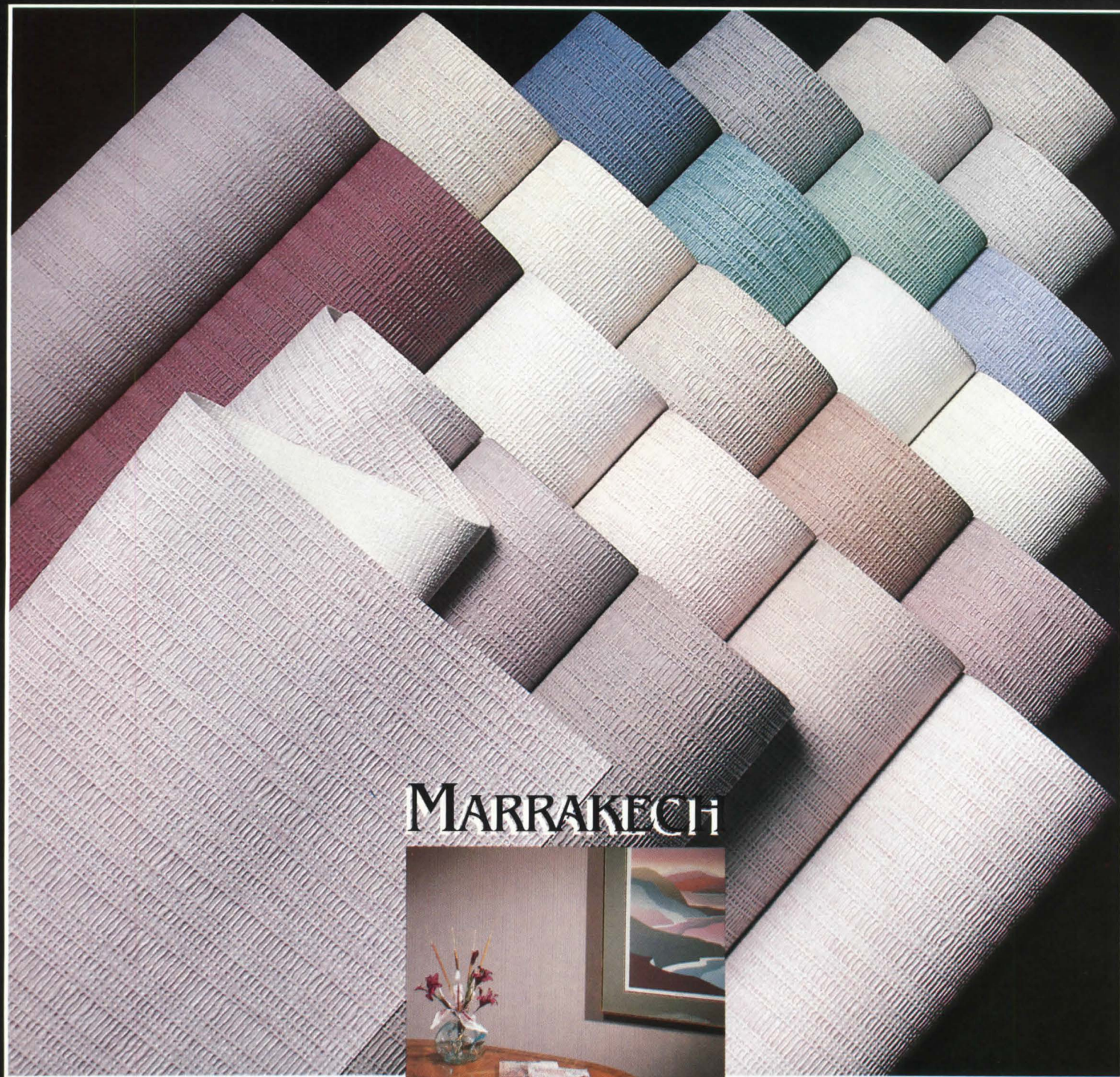
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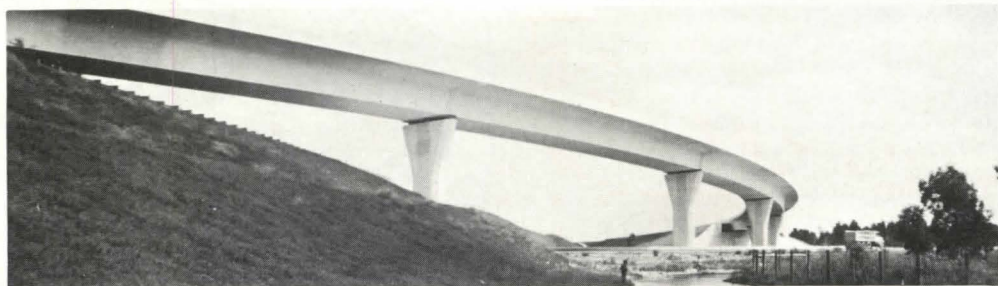
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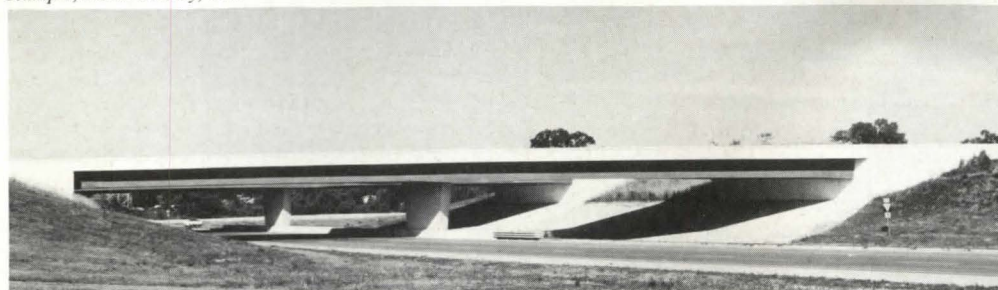
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The Prestressed Concrete Institute celebrated its 30th anniversary and announced the winners in its 22nd annual awards program, at its annual convention in Orlando, Oct. 14-17.

Nine buildings and three bridges received equivalent recognition awards based on aesthetic expression, function, and economy using precast, prestressed concrete. The winning structures are: Highway 406 Bridges over the Twelve Mile Creek, St. Catharines, Ontario (Ontario Ministry of Transportation and Communications, structural engineer); Ramp "I" over I-75 and the Florida Turnpike Extension, Dade County, Fla. (Beiswenger, Hoch & Associates, engineers); State Route 111/State Route 42, Putnam County, Tenn. (Tennessee Department of Transportation, engineer); Philip Morris USA Manufacturing Facility, Cabarrus County, N.C. (Herbert Beckhard and Frank Richlan, formerly of MBA/Architects, New York, with CRS/Sirrinc, architects; Weidlinger Associates, structural consultant); One Civic Center Plaza, Denver, Colo. (HOK, architect; KKBNA, engineer); 8000 Regency Parkway Office Building, Cary, N.C. (Thompson, Ventulett, Stainback & Associates, architect; Armour & Cape, engineer); Goldome Bank for Savings Corporate Headquarters, Buffalo, N.Y. (Kohn Pedersen Fox, architects, Le Messurier, engineer); Christiania Corporate Office Building, Tarrytown, N.Y. (Mathew Warshauer, architect; Frank Taffel, engineer); New Center One, Detroit, Mich. (SOM, architect and engineer); Tracor Office Building, Rockville, Md. (Benjamin E. Brewer, Jr., architect; Walter P. Moore & Associates, engineer); Justice Center, Portland, Oreg. (Zimmer Gunsul Frasca, architects, kpff, engineer); Maryland Concert Center Parking Garage, Baltimore (Cochran, Stephenson & Donkervoet, architect; George Evans Associates, engineer); Special Jury awards were given to Water St. Substation, Jacksonville, Fla. (William Morgan, architect; H.W. Keister Associates, engineer); and the Leonard Natatorium and Gymnasium renovation, Macalester College, St. Paul, Minn. (The Leonard Parker Associates, architect; Bakke, Kopp, Ballou & McFarlin, engineer).

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## Pencil points

ates, Providence, R.I. Ellenzweig, Moore & Associates, Cambridge, Mass., and the team of Stephen Morgan and Robin Ringwald, St. Louis, Mo., tied for second place.

● The seven merit awards went to: A/L Design, New York; James Garrison, New York; Hanno Weber & Associates, Chicago, Ill.; Gifford Pierce, Groton, Mass.; Robert A.M. Stern Architects, New York; Suri Architects, St. Paul, Minn.; and Jung/Brannen Associates, Boston, Mass.

**The Department of Architecture** at the Chicago Art Institute, in a fund-raising first, staged a "roast" for Stanley Tigerman on August 7. On hand were former employees Laurence Booth and James Nagel, and friends/rivals Helmut Jahn, Thomas Beeby, R.A.M. Stern, and Charles Moore.

**Also in the Windy City**, Carson Pirie Scott's September "salute to Chicago architecture" opened with a benefit ball for H.H. Richardson's 1886 Glessner House, now being renovated under the direction of architect John Vinci.

● The chain, whose flagship store was designed by Louis Sullivan, hosted several exhibits on Chicago architecture, urban design, and furniture design, and sponsored a draw-your-own-Chicago-skyline competition. Contestants were given a 15-minute lesson on the Apple Mackintosh and then set loose for 45.  
● The city has also been papered with posters designed for Carson Pirie Scott by architect Helmut Jahn.

**Modo**, a newly formed architectural league in Washington, D.C., kicks off its first lecture series this fall with an address by Peter Waldman of Rice University. The group has yet to issue a "manifesto," but its young members hope to stimulate debate on design issues in the D.C. area—a worthy cause!

**For its third annual Beaux-Arts Ball** on Oct. 27, Philadelphia's Foundation for Architecture is conducting a design-build competition for a "Kitsch Niche." Like last year's pushcarts (P/A, Feb. 1984, p. 32), the niches must display and dispense ornament to revelers. The competition is made possible by Pennwalt Corp.

● All entries will be on view at the Art Institute after the Ball (Nov. 26–Dec. 14).

**The rural post office** is now modular and movable, thanks to manufacturer Gelco Space. The prefab p.o.'s, which come complete with flag poles, can be relocated as populations shift, servicing small towns of 100 residents or less.

## P/A News report

### Details, details . . .

Design, yes, certainly, but who's going to worry about the details? For a week, some 40 architectural educators did, during the first annual Construction Materials and Technology Institute. The program conducted at the University of Pennsylvania was sponsored by the Association of Collegiate Schools of Architecture, with support from a group of building product associations and the AIA Services Corporation.

ACSA launched the Institute to give faculty who teach construction technology an opportunity to gain timely knowledge of new building product developments and appropriate applications. The sessions commenced with a thoughtful keynote challenge from Chicago architect John F. Hartray, Jr., who, with good humor, bemoaned the present trend in architectural education away from a concern with the practical, and exhorted the attendees to better equip their students to design buildings that "still must, along with everything else, stay out in the rain, sun, and wind, and must do it well." He urged, not for the last time during the five-day program, attention to details.

The attending faculty members, who were selected competitively from a large field of applicants, joined in workshops on construction techniques and special applications, sponsored by the Masonry Industries Council, the Indiana Limestone Institute, and the American Wood Council. Any fears that the presentations might become too proprietary or could be "tainted" by the commercial interests of the sponsors were not borne out. The sessions were full of lively exchange on the problems and opportunities associated with the building materials represented.

Harvard professors Bruno Pfister and Marc Angelil, both of whom come from European academic traditions of rigorous concern with appropriate materials usage and construction detailing, spoke convincingly about their recent successes—and earlier failures—in helping students to become excited about and competent in this area of learning, the poor stepchild of contemporary architectural curriculums. Their approach combines theory with applications to practice and entails detailed study of noted architectural works.

Notably missing from the sessions, however, was any concern for roofing systems or steel construction, a flaw that can be traced in the charter sponsor list. ACSA's executive director, Richard E. McCommons, hopes to overcome this problem in future years by attracting a more representative group of industry sponsors.

ACSA invited two presentations by practicing architects, Edward Ford of Geddes Brecher Qualls Cunningham and Daniel Kelley of Mitchell/Giurgola, who offered compelling evidence that, whatever shortcomings may exist in the schools, some practitioners are very much on top of the situation. One of them, in a private remark, countered Hartray's opening salvo: "Schools need to worry about the architectural design issues; the materials and technology stuff hits you very hard and right away in practice. It changes all the time, and you learn it there because you have to." [THOMAS VONIER]



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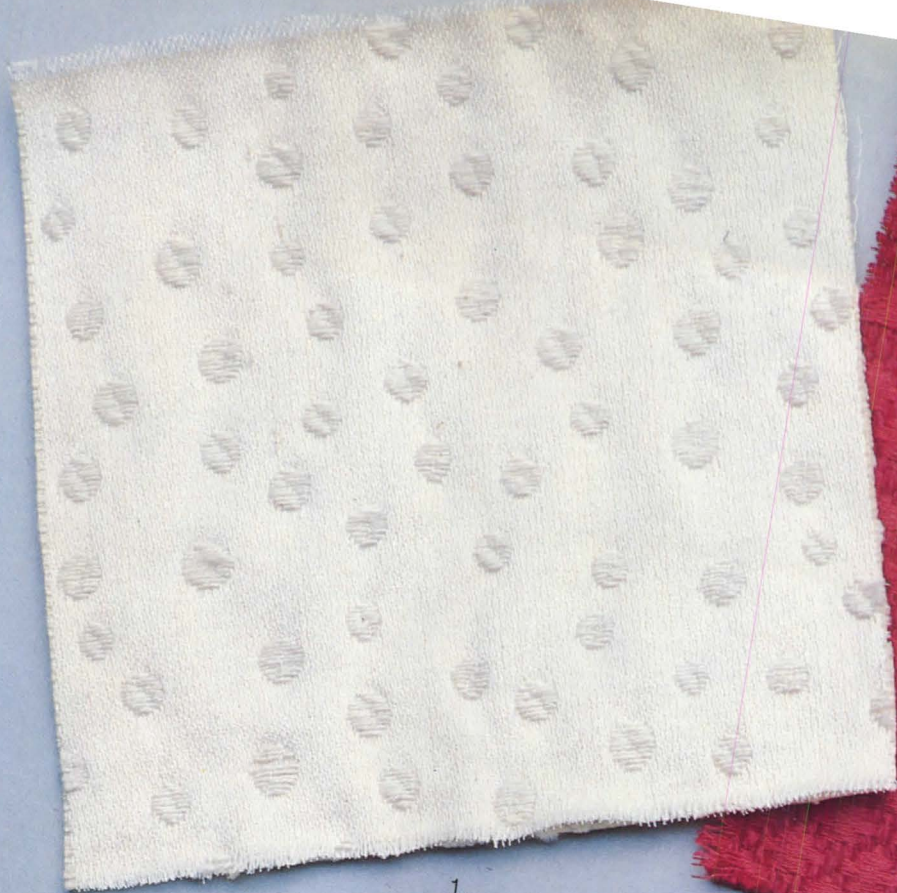
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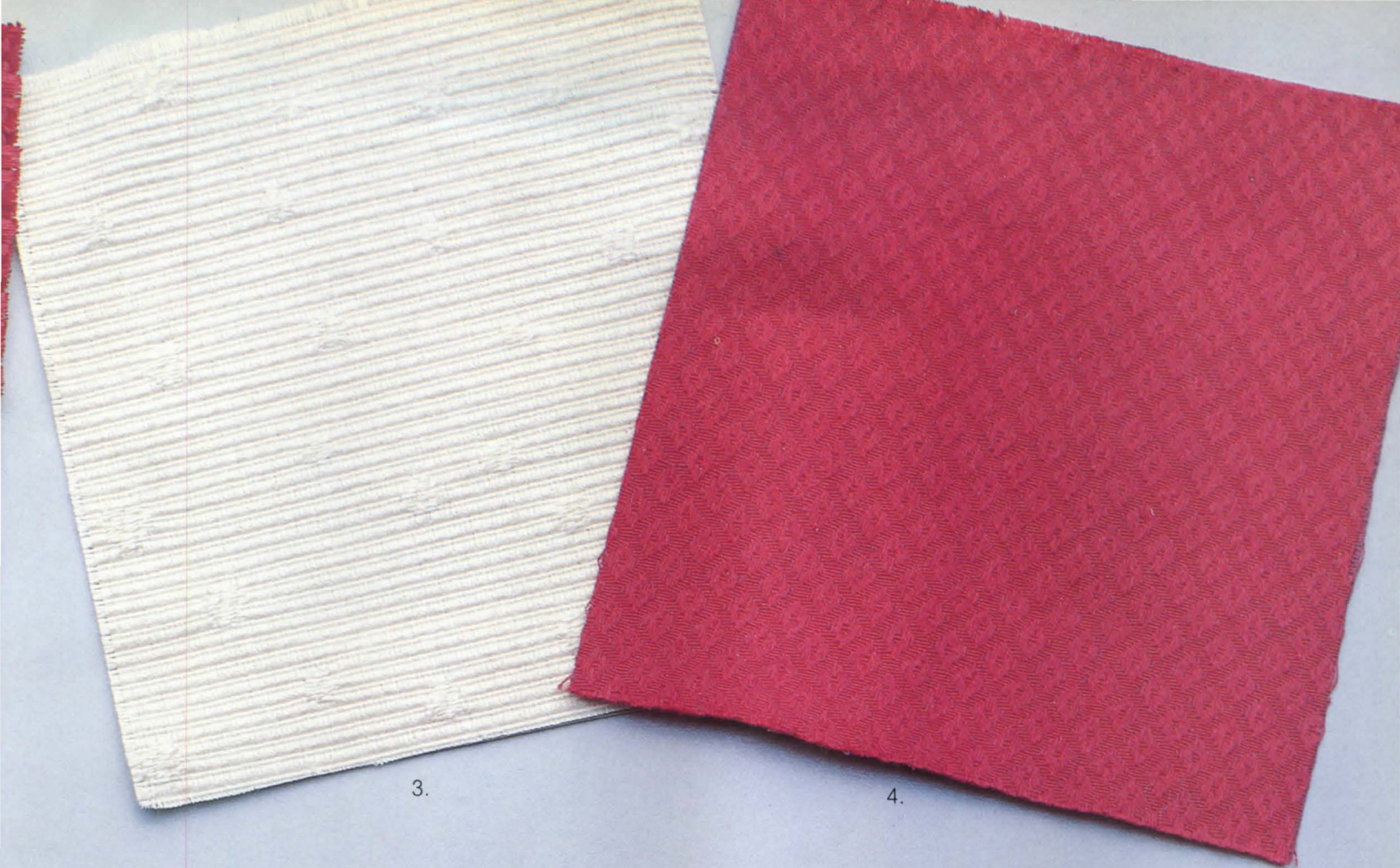


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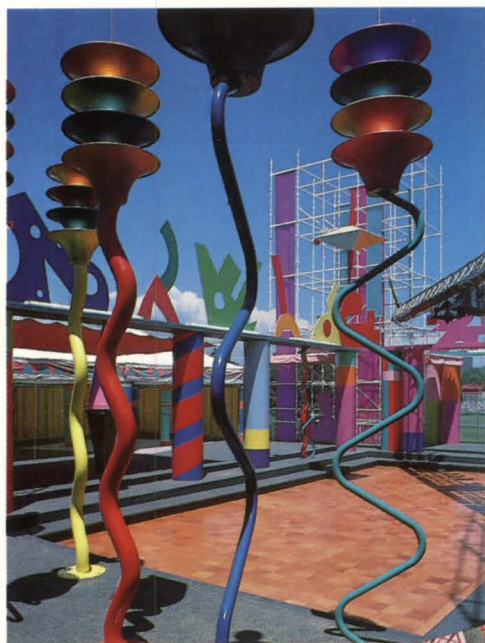


# Perspectives

## L.A. 84: A gold for design

The bright Olympic cues began filling the streets just as Angelenos were preparing to abandon them to the tourists. Then, suddenly, the Summer Games sprang to life in bursts of flame and fireworks: traffic and crime all but disappeared; home-team spirit soared along with the Goodyear and Fuji Film blimps; the avant-garde triumphed at the giant Arts Festival; and Los Angeles looked so good that no one could bear to let the Olympics leave town.

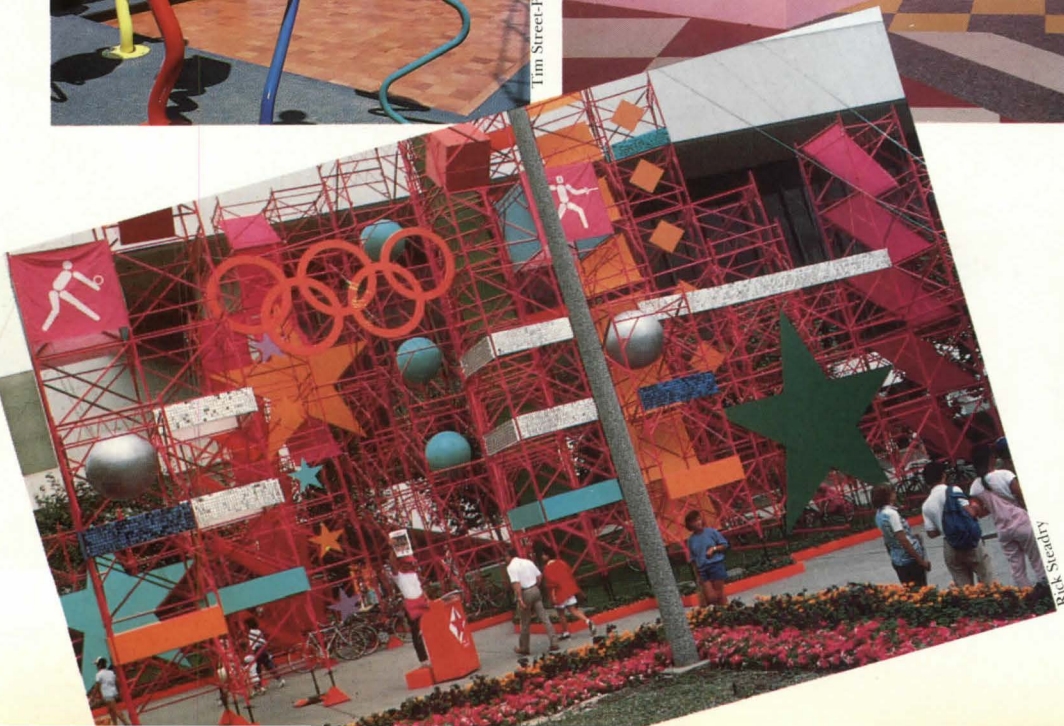
In fact, everyone wanted to keep the street banners and bunting aloft until someone



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Rick Steadley

Two perspectives are featured this month. The first, a wrap-up of the L.A. Olympics design program, focuses on Peter Shire's Olympic disco, off limits to all but athletes. The second, a report from Saudi Arabia (page 45) considers three exemplary projects by American architects.

Graphic designers Sussman/Prejza & Co. and the Jerde Partnership architects produced an Olympic setting as colorful as it was ephemeral. The entrance to the volleyball and fencing venues in Long Beach (left) was made of rented scaffolding adorned with the trademark colors, shapes, and patterns of "Festive Federalism." At the discos in the Olympic Villages at UCLA (top left) and USC (above), artist and furniture designer Peter Shire turned stock metal parts, linoleum, and Sonotubes into a Constructivist fantasyland.



could think of another celebration to justify them. Even the officials at the L.A. Coliseum, who initially resisted the "wild" graphic schemes, didn't want to strike the set just yet. Although many grateful citizens attributed the new urban decoration to spontaneous magic, the Olympic "look," dubbed Festive Federalism by its creators, was the result of a resourceful and exacting collaboration between graphic design and architecture (P/A, June 1984, p. 22).

Creative Directors Deborah Sussman and Paul Prejza of Sussman/Prejza & Co. applied dazzling colors and patterns to dozens of sports and Arts Festival sites, whose 3-D "kit of parts" was designed by architect and Design Program Director Jon Jerde of the Jerde Partnership, with David Meckel as Program Manager. Using paper and fabric colonnades, tents, aediculae, and scaffolding, the design team transformed dull civic and university buildings into exhilarating international fairgrounds. As planned, the California sunlight, local color, and especially the television transmission intensified the "look" even more.

One of the least publicized parts of this design was the pair of Olympic Village discos created by Los Angeles ceramic artist and furniture designer Peter Shire. The discos—indoor at the USC Village and outdoor at UCLA—gave the competitors a little glitter with their gold. At these crowded night-spots—from which photographers were barred to protect the athletes' privacy—disc jockeys, break dancers, and live bands of-

fered the athletes the chance to unwind from the pressures of competition and to communicate in the international language of rock.

The Jerde and Sussman/Prejza offices invited Shire to take their Festive Federalism theme to its outer limits, and Shire obliged, in the Russo-Italo-Angeleno Constructivist style that has characterized his space-boggling furniture and objects, some of which were created for the Memphis collections. His rows of spiraling columns, checkerboards of vibrating colors, and friezes of frissoning Mylar sequins combined to achieve the effect that Shire attempts to trigger in all his work: "a sense of very, very precarious balance." Since that just happened to be the opposite of the athletes' workaday preoccupation with equilibrium, it was a healthy match.

Even without the disco strobe lights, everything seemed to be moving. The flower-shaped torchères appeared to be rising; the wildly patterned floor tiles, wavering; the sequined parapets shaped like animals and teapots, shifting slightly.

The disco sites themselves were equally "precarious." UCLA's open-air version occupied the center of an enormous temporary platform, erected over the track stadium bleachers with rented scaffolding. The disco shared this clifflike structure with several bright tents, housing Village shops and services, forming a nomadic-looking bazaar. The other disco was installed in a USC film school sound stage; like any other stage set, it was

to be struck when the music died.

Although the discos were as temporary as the rest of the design program, they included some of the most permanent pieces of Olympic decoration, the steel and anodized spun aluminum torchères and buoys. These elements, which looked sleek, expensive, and custom-made, were in fact economically pieced together from modified spare parts and tools. Shire knew what to ask for, and the Burbank fabricators were happy to bend car and firetruck exhaust pipes into corkscrews, and to spin metal flowers from tools made for hot-air balloon parts. For these trades it was a change from their usual aerospace contracts; for Shire, it was another chance to pay homage to "all the hot rods I never had." ■

**BARBARA FLANAGAN** writes about architecture and design from her home base in Los Angeles.

[Perspectives continued on p. 45]



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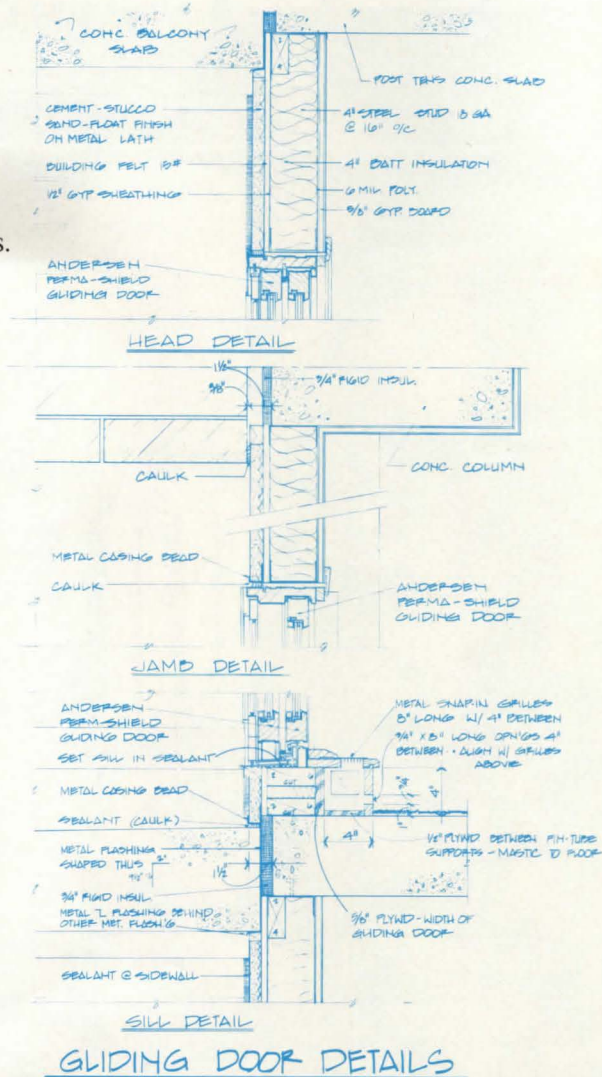
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Architect: Richard F. Zenisek AIA  
Minneapolis, Minnesota

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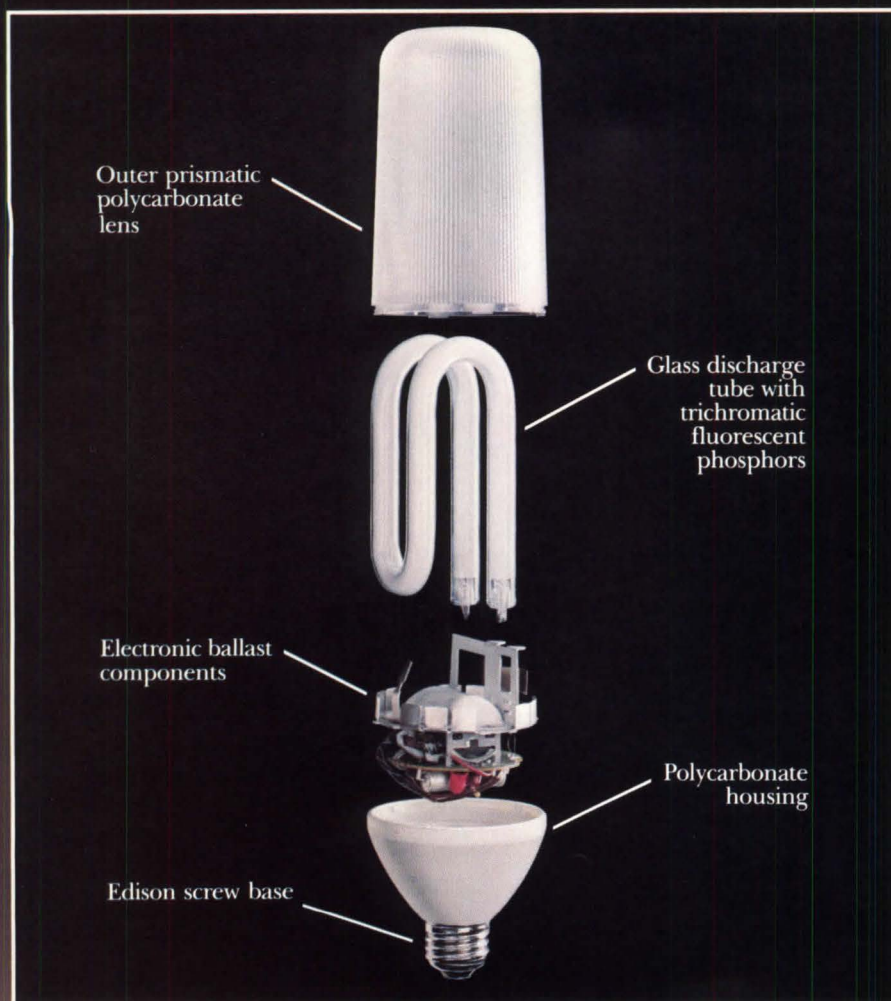
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## Report from Saudi Arabia

The accomplishments of American architects in Saudi Arabia are known to most of us only through photographs—and will remain so, since foreigners are admitted to the kingdom only for the Haj pilgrimage or for bona fide business reasons. A rare opportunity to visit new major buildings there was enjoyed this past summer by some 30 U.S. magazine editors in the fields of architecture and construction. Each magazine was asked to send one editor—with no limitations as to sex or religion—for a five-day tour cosponsored by the Owens-Corning Fiberglas Corporation and the Saudi Presidency of Civil Aviation.

The two airports that were the prime destinations of this tour are certainly among the most spectacular works completed recently by American architects anywhere in the world. The Haj Terminal at King Abdulaziz International Airport in Jeddah (P/A, Feb. 1982, pp. 116–122), designed by Skidmore, Owings & Merrill, surely justifies all the recognition it has received (P/A Award, AIA Honor Award, Aga Khan Award). So vast that its white rectangle is the first visible sign of Jeddah as one approaches by air, it has the exhilarating grace of a great bridge structure. Its severe beauty is based mainly on mathematically determined form—with elegantly adjusted proportions—yet it is an effective *architectural* space, with a fine sense of procession from bay to bay. The fabric roof filters the desert sun to yield soft, modulated light and remarkably comfortable temperatures, even on a July day.

The passenger terminal at the all-new King Khalid International Airport in Riyadh, designed by Hellmuth, Obata & Kassabaum, is noteworthy first for its commodiousness. The ample expanses of its con-



Photos: Jay Langlois/Owens-Corning



Top and above: The Haj Terminal at King Abdulaziz International Airport, Jeddah, Saudi Arabia, SOM, architects; left: King Khalid International Airport, Riyadh, HOK, architects.

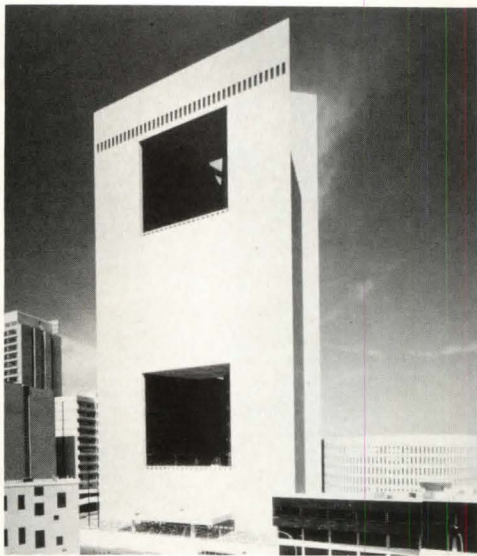


ventional floor levels (emplaining, deplaning, auxiliary mezzanines) are organized around atrium spaces with indoor fountains, gardens, and terraced groves. The roof canopies assembled of curved, triangular shells are very effective for the purpose. From the outside, their petallike forms rise in gentle mounds to mark centers of activity along the terminal's long spine; with the cylindrical columns that support them, they provide a sympathetic ordering framework for the variety of roadways and jetways that pass beneath. Inside, the triangular shells yield a pleasing quality of billowing shelter, and the clerestories between them admit diffused light; the major quibble would be with the fat truss members that crisscross these clerestories, marring an otherwise well-proportioned system. The extensive use of molded fiberglass (FRP) for counters and other furnishings shows off the material's potential, especially for rich, muted colorings.

Related to the line of passenger terminals at Riyadh are a mosque and a Royal Pavilion—in effect an exclusive VIP terminal—set off by extensive plazas and plantings. (The airports in both Jeddah and Riyadh offer the largest areas of greenery in town, both made possible by treated waste water.) A nice adjustment of silhouette and color clarifies the role of each building: the mosque shifting from the prevailing beige to near white as it rises to a broad dome; the royal terminal sheltered by the standard triangular elements, more steeply arrayed to give the smaller volume prominence, with columns



King Khalid passenger terminal.



National Commercial Bank, Jeddah, SOM, architects.

clad in rose-colored marble for richness and visual emphasis. This marble, used liberally on the interior of the pavilion, appears at close range to be too vividly colored and nervously veined for the intended effect of sober elegance (but only a privileged few see it close up).

In downtown Jeddah, the editors were able to visit the 27-story National Commercial Bank building, designed by Skidmore, Owings & Merrill. This severe triangular prism, with no windows in its stone-clad faces, could hardly be called contextual in the conventional sense. Yet its unique design is manifestly a response to the fierce sunlight of Jeddah and the fine views of the city and the Red Sea to be enjoyed from upper floors. Each of its multistory, glazed recesses shelters a latter-day hanging garden. As in many other SOM buildings, meticulous detailing of fine materials lends convincing substance to an abstract formal concept. Interiors carry on the firm's tradition of muted opulence; particularly fine are stone floors laid in characteristic Islamic geometric patterns, their tracery just discernible in the surface of gray-white striated stone. The quality of construction (by a Korean firm) is especially impressive, but construction of all major buildings visited seemed remarkably good by any standard, notwithstanding the still limited industrial resources of the kingdom. It is clear that the Saudis are eliciting the best efforts of the architects and contractors selected to build there. [JMD]

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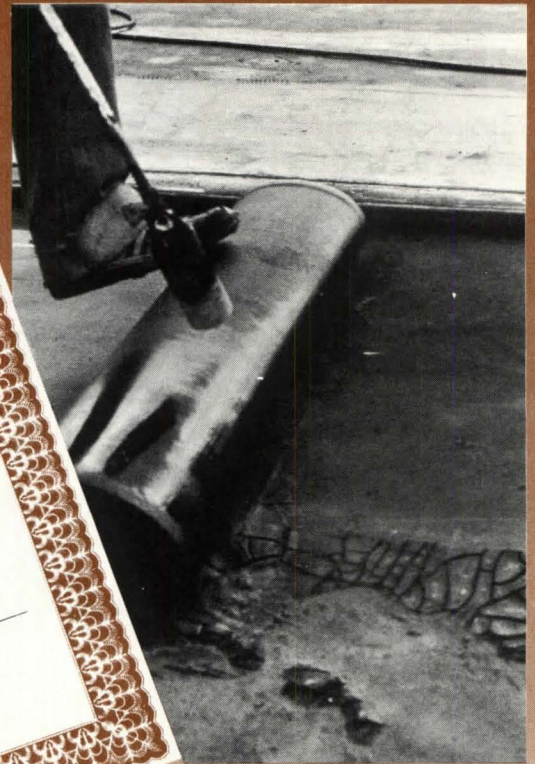
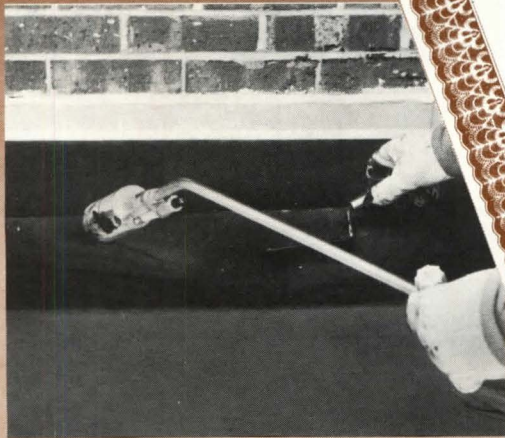
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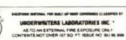
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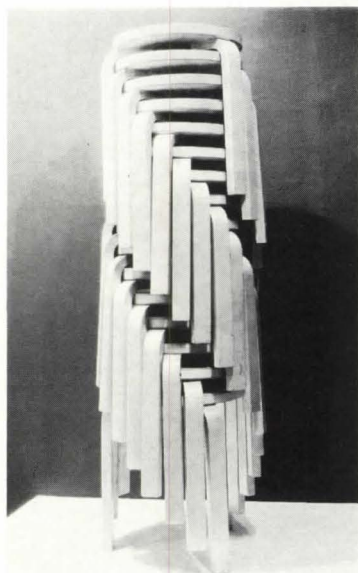
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# P/A Calendar



Aalto's stacking stools, MoMA, through Nov. 27.

## Exhibits

### Through October 20

U/K/Z; Works 1984–86: Simon Ungers, Laszlo Kiss, Todd Zwigard. Façade Gallery, New York.

### Through October 20

Mary Helen Chappell: The Garden as Metaphor (Nature Corrected by Art). Philippe Bonnafont Gallery, San Francisco.

### Through October 25

A New American House Competition: Winning Entries. MCAD Gallery, Minneapolis College of Art and Design, Minneapolis, Minn.

### Through October 25

Ruins and Revivals: The Architecture of Urban Devastation. Avery Hall, Columbia University, New York.

### Through October 27

From Pushpin to Architecture: Masayuki Kurokawa of Japan. Gallery 91, New York. Also, **November 10–December 22**, Origamic Architecture: Masa-hiro Chatani.

### Through October 28

Design in the Service of Tea. Cooper-Hewitt Museum, New York.

### Through October 28

Honor and Intimacy: Architectural Drawings by the Gold Medalists, 1907–1983. Art Institute of Chicago, Chicago. Also **February 5–March 25**, the Octagon, Washington, D.C.

### Through November 3

Chicago: The Sky's the Limit. Chicago Public Library Cultural Center, Chicago.

### Through November 5

American Architecture: Innovation and Tradition. University of Pennsylvania Graduate School of Fine Arts, Philadelphia.

### Through November 9

House/Work: Women Artists and Designers. The First Women's Bank, New York.

### Through November 9

Built for the People of the United States: 50 Years of TVA Architecture. University of Kentucky Art Museum, Lexington, Ky.

### Through November 11

Hockney Paints the Stage. Museum of Contemporary Art, Chicago, Ill. Also, **Dec. 16–Feb. 17**, Fort Worth Art Museum.

### Through November 11

Photography and Architecture: 1839–1939. National Gallery of Canada, Ottawa.

### Through November 16

Eva Zeisel: Designer for Industry. The Brooklyn Museum, Brooklyn, N.Y.

### Through November 27

Beaux-Arts Chicago: The Athens of the Midwest. Archi-Center, Chicago.

### Through November 27

Alvar Aalto; Furniture and Glass. Museum of Modern Art, New York.

### Through November 28

Otto Wagner, 1841–1918: Exhibition of 400 Original Drawings. The Academy of Fine Arts, Vienna, Austria.

### Through January 6

Automobile and Culture. The Museum of Contemporary Art, Los Angeles.

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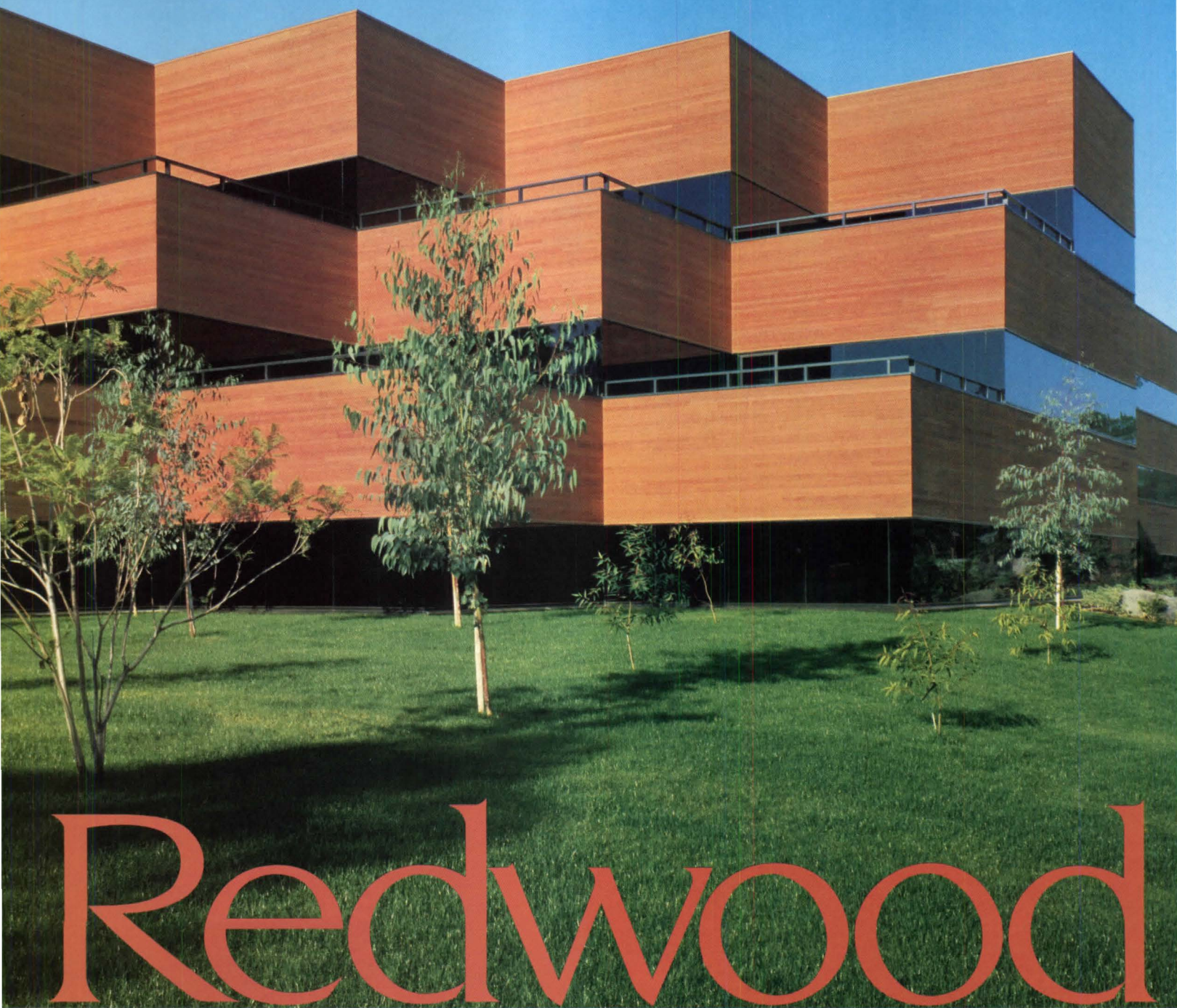


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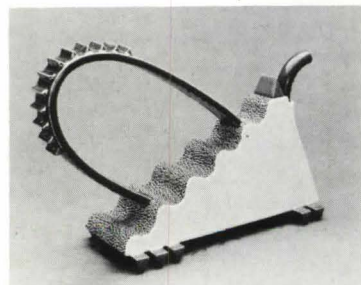
Building Suburbia: Scarsdale, 1890–1940. 1828 Quaker Meeting House, Scarsdale, N.Y.

**Through January 13**

Visions of Liberty: photographs of the Statue of Liberty. The New York Historical Society, New York.

**Through April 7**

Chicago Furniture: Art, Craft & Industry, 1833–1983. Renwick



Matteo Thun, *Teapot*, 1982, Cooper-Hewitt, through Oct. 28.

Gallery, National Gallery of American Art, Washington, D.C.

**October 16–December 1**

Le Corbusier: Paintings, Collages, Drawings—1922–62. Prakapas Gallery, New York. Also, **January 11–March 2**, J.J.P. Oud: Architectural Drawings and Photographs.

**October 17–February 17**

White City: International Style Architecture in Israel. The Jewish Museum, New York.

**October 21–January 6**

A Serious Chair, designed by Bill Stumpf and Don Chadwick. Walker Art Center, Minneapolis, Minn.

**October 22–November 23**

Carlo Scarpa: Drawings for the Brion Family Cemetery. School of Architecture, Yale University, New Haven, Conn.

**October 30–November 20**

Mediterranean Indigenous Architecture. Buell Architecture Gallery, School of Architecture, University of Illinois at Urbana-Champaign.

**October 31–January 6**

Chicago and New York: A Century of Architectural Interaction. The Octagon, Washington, D.C.

**October 29–November 16**

Projects for the Venetian Town, 1926–1981. Avery Hall, Columbia University, New York.

**November 1–30**

Phoenix: An Exhibition of New Design Works. Queen's Quay Terminal, Toronto, Canada.

*Competitions*

**October 26**

Registration deadline, Ceramic Tile Distributors of America and the Association of Student Chapters of the American Institute of Architects Fall Student Design Competition. Contact CTDA Executive Offices, 620 North Craycroft, Suite 204, Tucson, Ariz. 85711 or the ASC/AIA, 1735 New York Ave. N.W., Washington, D.C. 20006.

**November 1**

Postmark deadline, National Concrete Masonry Association 2nd Annual Concrete Block Paver Design Competition. Contact Richard Branham, NCMA, P.O. Box 781, 2302 Horse Pen Rd., Herndon, Va. 22070 (703) 435-4900.

**November 1**

Contest deadline, Golden Hammer Awards for Coverage of Housing Issues. Contact Betty Christy, Asst. Staff V.P. of Public Affairs, National Association of Home Builders, 15th and M Streets, N.W., Washington, D.C. 20005.

**December 1**

Entry deadline, 1985 Tucker Architectural Awards program, sponsored by Building Stone Institute. Contact BSI, 420 Lexington Avenue, New York, N.Y. 10170 (212) 490-2530.

**December 31**

Postmark deadline, First Annual Kitchen Design Awards. Contact ICF, 305 E. 63rd St., New York, N.Y. 10021, or any local ICF showroom.

**January 17**

Postmark deadline, P/A's 5th annual International Furniture Competition. See p. 15 for information and entry form.

**March 15**

Postmark Deadline, 1985 Du Pont "Antron" Design Award Competition. Contact Gary Johnston (302) 774-6124.

*Conferences, seminars, workshops*

**October 24–26**

IFMA '84, fifth annual conference and exhibition, International Facility Management Association. Mart Center, Chicago. Contact IFMA, 3970 Varsity Drive, Ann Arbor, Mich. 48104 (313) 994-0660.

**October 24–28**

38th National Preservation Conference, National Trust for Historic Preservation. The Baltimore Convention Center, Baltimore, Md. Contact Preservation Conference, Center for Preser-

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(while letting someone  
on the inside out).  
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and the world  
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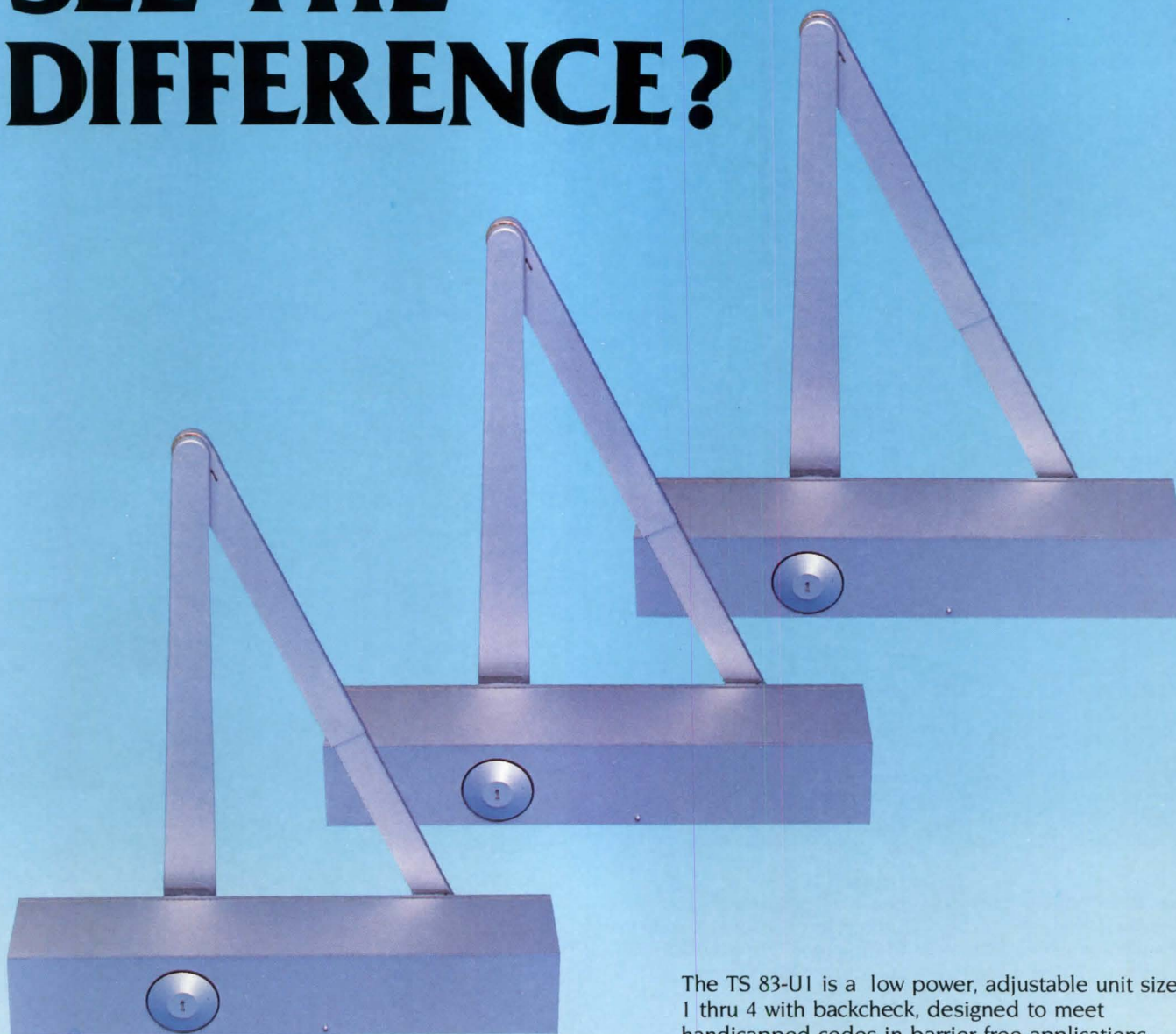
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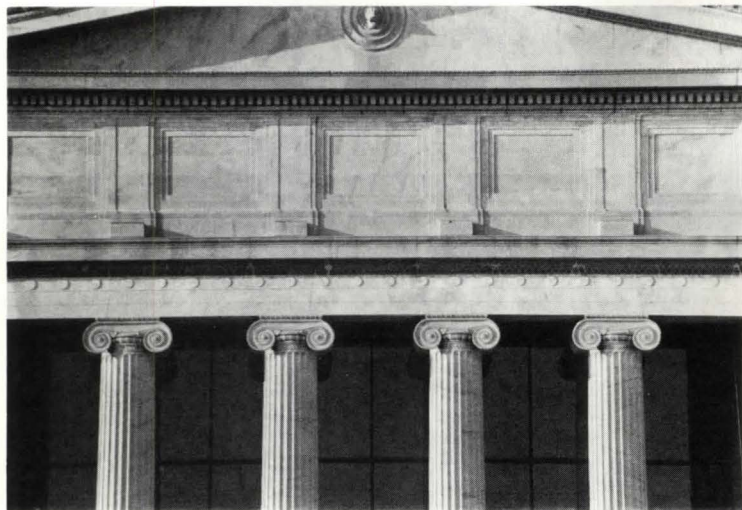
Orgatechnik, 5th International Office Trade Fair, Cologne. Contact Messe und Ausstellungs-Ges.m. b.H. Koln, Postfach 2107 60, 5000 Cologne, W. Germany (0221) 821-1.

**November 3**

Professional Success: Strategies for Getting Ahead. Conference for Young Design Professionals, Boston. Contact Melissa B. Bennett, Boston Society of Architects (617) 451-0200.

**November 7-9**

Capital Design Week. Washington Design Center, Washington, D.C.



Detail, Field Museum of Natural History, Chicago ArchiCenter, through Nov. 26.

**October 28-30**

Pan Pacific Lighting Exposition, San Francisco. Contact Robert Zinkhon, Pan Pacific Lighting Expo, 2 Henry Adams St., San Francisco, Calif. 94103 (415) 563-7022.

**October 29-30**

Applications on the Leading Edge, Third Annual Pacific Northwest Computer Graphics Conference. Hult Center for the Performing Arts and Conference Center/Hilton complex, University of Oregon, Eugene, Ore. Contact Conference Manager, University of Oregon Continuation Center, Rm. 333 Oregon Hall, Eugene, Ore. 97403 (503) 686-4231.

**October 31-November 2**

The Buildings Show, National Commercial Buildings Exposition and Conference, A.J. Cervantes Convention Center, St. Louis, Mo. Contact Marvin Park Associates, Show Management, 600 Talcott Road, Park Ridge, Ill. 60068.

**November 1-2**

Excavation Failures: Causes and Prevention. Architectural and Engineering Performance Information Center, University of Maryland, College Park, Md. Contact AEPIC, University of Maryland, 3907 Metzger Rd., College Park, Md. 20742 (301) 935-5544.

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AIA Indoor Air Pollution Symposium, Oakland, Calif. Contact George Royal (202) 626-7524 or Vicki Thacker (916) 448-9082.

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Computer-aided Space Design & Management Conference, Omni Park Central, New York. Contact Gralla Conferences, 1515 Broadway, New York 10036, 800-223-6767, New York State residents call collect (212) 869-1300.

**November 13-16**

Fourth Annual Construction Insurance Conference. The Westin Hotel, Galleria, Dallas, Texas. Contact International Risk Management Institute, Bldg. III, Suite 208, 10300 N. Central Expy., Dallas, Texas 75231-3390 (214) 363-9656.

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Building Redesign and Energy Challenges, AIA National Conference. Park Plaza Hotel, Boston, Mass. Contact Kim Leiker, AIA Foundation (202) 626-7560.

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International Symposium on Architectural Fabric Structures: The Design Process. Hyatt Orlando Hotel, Orlando, Fla. Contact David L. Stumph, Symposium Manager, 1800 Pickwick Avenue, Glenview, Ill. 60025 (312) 724-7700.

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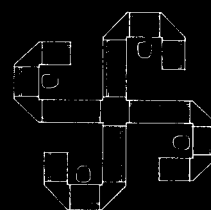
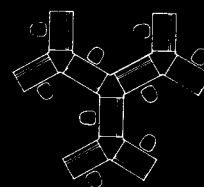
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# P/A Practice

## Expert systems

Computers are assisting architects in an increasing number of design and production tasks, including structural, HVAC, and spatial analysis, as well as drawing and specification production. But these applications hardly represent upper limits; indeed, computers soon may become "partners" in the design process, providing expert knowledge and advice on numerous aspects of building design and construction.

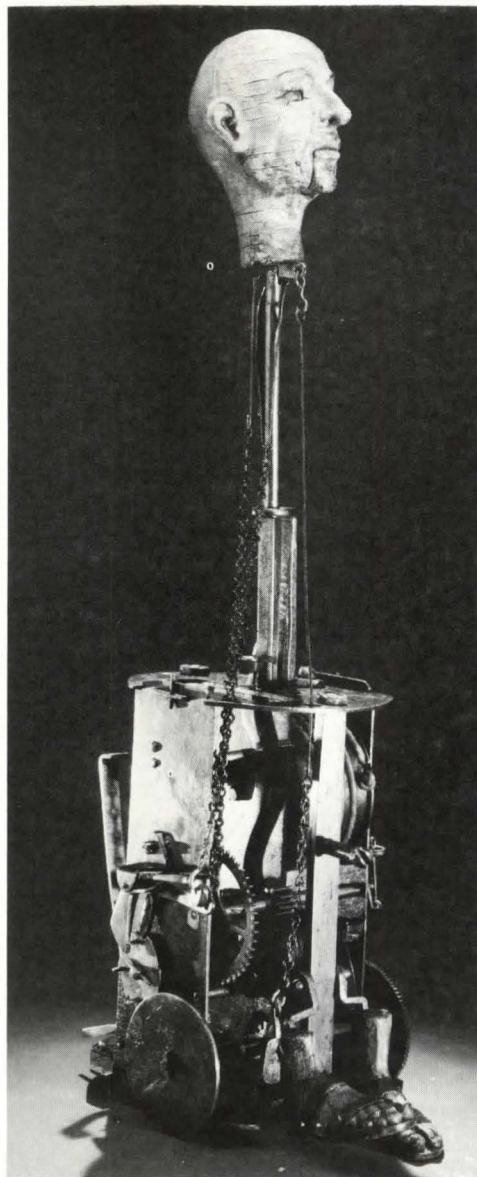
An exciting area of computer application is the "expert system," sophisticated software that, in one popular form, can be thought of as an expert technical consultant. Such systems permit us to engage in a dialogue during which the machine-based "expert" asks questions to define the problem at hand, applies its knowledge to problems of that type, suggests solutions, and recommends courses of action. It responds as we would expect of a human consultant, even explaining the logic underlying some decision or action.

Expert systems already have come to the attention of such professionals as physicians, geologists, and computer system designers who spend much of their time either serving as consultants or seeking advice from consultants. Architects also serve their clients as expert consultants and must themselves consult other technical experts. Where and how, then, will computer-based expert systems fit into the building process? Will they threaten or enhance the architect's professional role?

### Expert systems

Typically, expert advice is sought to help solve problems that are reasonably well defined, for which no quick-and-easy "handbook" solutions are available, and for which only relatively few individuals have the needed knowledge and experience. Design consultants approach problems by establishing design constraints, proposing alternative solutions, and evaluating these alternatives against design requirements. To emulate the problem-solving behavior of human experts, an expert system must ask questions that properly define the problem, chain together networks of "if . . . then . . . else . . ." rules, and apply its knowledge to the evaluation of the problem. Moreover, expert systems must be able to explain the logic behind their recommendations. For these reasons, they are interactive programs.

Perhaps the most significant aspect of expert systems is their characteristic separation of expert knowledge, problem-specific



16th Century automaton, Smithsonian Institution.

knowledge, and inference-making procedures. Expert knowledge within an individual domain or field of study can be applied to the solution of many related problems. Problem-specific knowledge concerns the state of knowledge about a single problem at any moment during a given consulting session, and would include lists of actual design decisions already made. (It may be thought of as the expert's scratch pad.) Inference-making procedures sequence the "if . . . then . . . else" rules drawn from the expert knowledge base. Data needed to resolve those rules may be contained within the problem-specific knowledge base or, if the

expert requires a new piece of information to process a rule, the system can query the user directly via the interactive display terminal. Thus, the inference-making procedures move the session from initial question-asking, when the expert system is building its understanding of the problem at hand, to final conclusion or recommendation. New expert systems will provide "empty space" for the inclusion of specialized knowledge, allowing advanced users to tailor their own expert systems.

### Applications to the building process

Expert systems apply to the building process in at least three broad categories:

**Design exploration.** To generate alternative designs, designers must translate their perceptions of the problem into representations of physical solutions that work within given constraints. While the mental processes for making such translations are not well understood, it seems clear that designers apply a complex set of rules, drawn from their training, professional experience, and creative insight, that form a personal design grammar. A computer program emulating the behavior of designers might significantly reduce the amount of time they spend manually generating preliminary design schemes, increasing the time available for design development. Design educators also could illustrate how famous architects might have responded to a given design problem with expert systems that "emulate" the design behavior of these masters.

At least one such system already exists on an experimental basis. Having deciphered, at least in part, the basic grammar or rule set underlying the geometric development of Frank Lloyd Wright's prairie houses, H. Koning and J. Eizenberg<sup>1</sup> have developed an expert system capable of designing hypothetical prairie houses that are hard to distinguish from the real buildings. The rules derive from an extensive analysis of functional and geometric relationships underlying Wright's prairie houses built between 1898 (the Winslow house) and 1909 (the Robie house). Through use of the grammar, Wright-like prairie style houses can be constructed by first establishing the fireplace (the logical center of Wright's designs), and then adding interdependent layers of spatial blocks about three observable axes of growth. The set of rules not only emulates house design, but given the initial location of the fireplace on the site, emulates prairie style site planning as well. Such analyses of spatial organization and definition form the basis of all preliminary building design.

*Fred I. Stahl discusses the computer as 'consultant,' page 61.  
Norman Coplan discusses how to word contracts to limit liability for negligence, page 63.*



As a further aid to the design development process, expert systems may provide computer-based design assistants, capable of performing numerous time-consuming and tedious tasks and freeing members of the design team for more creative activities. During design development, for example, such "assistants" might review handbooks, search product literature and specifications, and check building codes. They also could check designs against programmatic criteria or other checklists, recommending design modifications along the way.

Eventually, expert systems may also manage the design process itself, assisting the designer in selecting analysis or design software appropriate to a given project phase. Once the expert system initiates a particular software package, it then assists the designer in its effective—and correct—use.

**Building diagnostics.** While facility managers must pay particular attention to the day-to-day condition of the physical environment, they may not be expert architectural or engineering diagnosticians. Moreover, needed expertise may not be available in-house, and time limitations may preclude retaining an outside consultant. Computer-based expert systems could be of real value here. They could, for example, trace the source of water and other fluid leaks, respond to anomalous indoor air quality measures, and modify functionally ineffective room arrangements. Computer-based "building diagnosticians" also could provide building managers with the capability of making initial diagnoses, offering alternative solutions and recommending specific courses of action requiring the manager to retain human experts.

**Construction management.** Like building managers, construction managers and contractors also must make decisions concerning building operations using empirical rules that have evolved over the years. However, these rules may not always represent the best balance between safety and economy. An expert system containing well-defined methods for evaluating field work could help decision-makers at the job site review code provisions applicable to building operations, size members for anchoring, scaffolding, and other temporary construction, schedule activities on-site, and order materials.

#### Impediments to use of expert systems

Despite such prospects, proven expert systems are not yet commercially available to the architectural and engineering communities, and several problems are likely to thwart their widespread use.

One significant problem concerns perceived threats to traditional consulting practice. If architects were to obtain preliminary engineering advice from expert systems rather than human consultants, consulting engineers could become disenfranchised from a critical phase of building design. This not only has unpredictable implications for design quality, but also affects the range of many consultants' services. On the other hand, design quality may ultimately be improved by the introduction of expert systems, since, rather than relying on the knowledge and experience of a single consultant or consulting firm, the expert system can give

the architect access to a knowledge base comprising the diverse experiences of many human experts. Expert system data bases may even contain highly specialized technical knowledge unavailable to many consultants. Moreover, practicing consultants could profit by licensing their expertise in the form of expert systems.

These scenarios, however, presage some questions likely to be raised with the use of expert systems. For instance: What incentives will be needed to induce technical specialists, who sell their knowledge and experience for a fee, to divulge their "secrets" and contribute to the formation of expert systems? What protections will be available to the human expert once the specialist's knowledge has been licensed for widespread use by others? What changes in design practice and building regulation may be required before expert systems can assume a useful role?

Another impediment to the widespread use of expert systems in the building industry is the present lack of qualified expert-system builders to observe and record characteristics of problem-solving and consultation behavior, to formalize problem-solving rules, and to design data structures to gain access to (and expand) knowledge bases. The building industry may be at a special disadvantage here because, while its members are quickly becoming capable computer users, extremely few seem concerned with advanced computer system development, per se.

Computing-power requirements present additional problems. Most expert systems worth having are not usable with personal computers. In addition, computer-based consultants are not likely to be easily "added to" the present generation of turnkey drafting systems. While it may be useful to supply expert systems on specially designed and dedicated machines, one promising means for providing expert systems is through computer service bureaus, in which the building professional could obtain assistance from numerous expert systems by dialing into a large computer network.

Certainly some of the most complex impediments to the use of expert systems stem from unresolved issues of professional liability. Questions of liability continue to pervade virtually all aspects of computer-aided building analysis and design. At a time when architects are being warned that *failing to apply* some computer-based tool may result in legal action, how should design professionals respond to this newest, and perhaps most controversial technological invasion? Clearly, the legal ramifications of expert systems must be resolved to the satisfaction of clients, designers, and building regulatory authorities before these systems can legitimately be included in the professional's tool kit.

#### Consultants of the future?

Experimental work on expert systems for the building industry is in progress. Research at Stanford University, a center for this development, has led to SACON, a computer-based Structural Analysis Consultant.<sup>2</sup> In addition, a recent study by the Rand Corporation considered expert systems for tracing hazardous waste spills in completed facilities.<sup>3</sup> Finally, current research at the National Bureau of Standards' Center for Building Technology is exploring the poten-







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tial for applying expert system technology to concrete durability assurance and air leakage diagnosis.

The concept of computers as partners in the design process is still quite novel, and professional practitioners may well be justified in their skepticism about expert systems. The complex technical, practical, and legal impediments to their development ensure that the implementation of this technology will be gradual. As they become knowledgeable about the potential benefits, and shortcomings, of expert systems, design practitioners themselves will determine whether expert systems become—to any significant degree—the consultants of the future. ■

**FRED I. STAHL, Ph.D.**, is a research architect with the Computer Integrated Construction Group, Building Equipment Division, National Bureau of Standards.

#### References

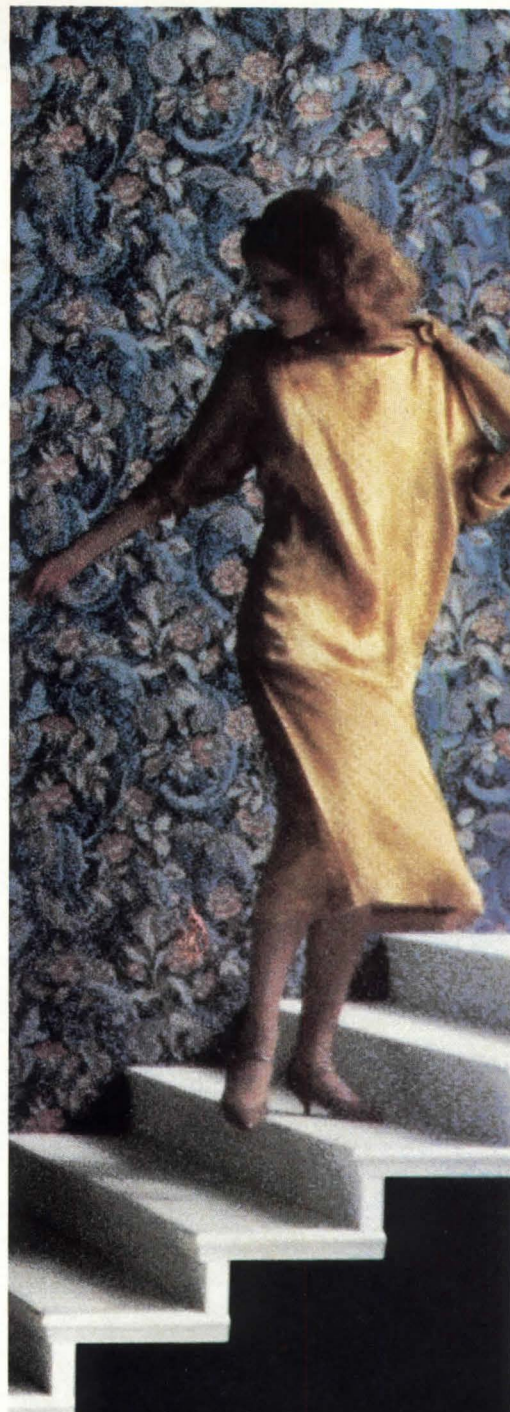
- 1 Koning, H., and J. Eizenberg, "The Language of the Prairie: Frank Lloyd Wright's Prairie Houses." *Environment and Planning (B)*, 1981, vol. 8, pp. 295-323.
- 2 Bennett, J., L. Creary, R. Englemore, and R. Melosh, "SACON: A Knowledge-Based Consultant for Structural Analysis." Stanford Heuristic Programming Project Memo HPP-78-23, Computer Science Department, Stanford University, September 1978.
- 3 Waterman, D.A., and F. Hayes-Roth, "An Investigation of Tools for Building Expert Systems." Santa Monica, Calif., The Rand Corporation, 1982.

### *Limiting liability through contract language*

In recent years there has been a significant increase in the scope of the architect's potential liability arising from claims of negligent performance. This trend has been established by judicial decisions that make no distinction between professional performance and business or manufacturing performance. As a consequence, architects are often advised or urged to attempt to limit such liability through contractual language: for instance, placing a ceiling on the maximum sum for which the architect may be subject to liability; limiting the time in which the architect can be sued; or restricting the nature of the claim that can be asserted against him.

Attempts to limit liability in the owner-architect agreement or in the construction contract documents are often unsuccessful because of owner or contractor resistance or because such proposed limitation may violate public policy. Further, limitations of liability that bind the owner or other parties involved in the construction process cannot bind third parties, such as persons injured at the project site; consequently, these limitations offer little protection against such claims. Nevertheless, efforts to limit potential liability through contractual disclaimers or limitations are desirable and find support and encouragement in the decision of the New York Court of Appeals in *Kalisch-Jarcho, Inc. v. City of New York* (see "It's The Law," P/A, Sept. 1983), which upheld a contractual provision that excluded a contractor's claim for delay damages even though they were caused by the owner.

As contract documents in common use are modified to restrict claims or limit liability, litigation is engendered to resolve the interpretation of their language. For example, in a recent case (*Novak & Co., Inc. v. Housing*



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Authority) the issue concerned whether a claim for extra compensation was available to a contractor who was required to perform additional work caused by vandalism which, the contractor contended, resulted from the fault of the owner. The owner, in resisting the claim, relied on contract provisions that required the contractor to hold the owner harmless against any damages resulting from certain risks, including vandalism. The owner also relied on the further provision that filing a notice of claim within a limited period of time was a condition precedent to the recovery of extra compensation or damages.

The court, in rejecting the owner's contention that work necessitated by vandalism was not included in the definition of "extra work" contained in the contract, ruled that that definition was inapplicable, and that the con-

tractor's claim was really one for damages allegedly resulting from the owner's negligence. In respect to the argument that the contractor was to indemnify the owner against damages resulting from vandalism, the court pointed out that the contract, by its terms, specifically excluded from indemnification "those risks which result solely from active, affirmative and willful acts performed by the Authority." Consequently, concluded the court, if the contractor could establish that the vandalism occurred as the result of the owner's gross negligence, the indemnification provision would be inapplicable. The court said:

*"Despite the preponderance of risk shifting clauses it is unlikely that the parties contemplated defendant's alleged gross negligence or willful misconduct in allegedly taking any action to prevent the vandalism. Such unforeseen conduct of the de-*

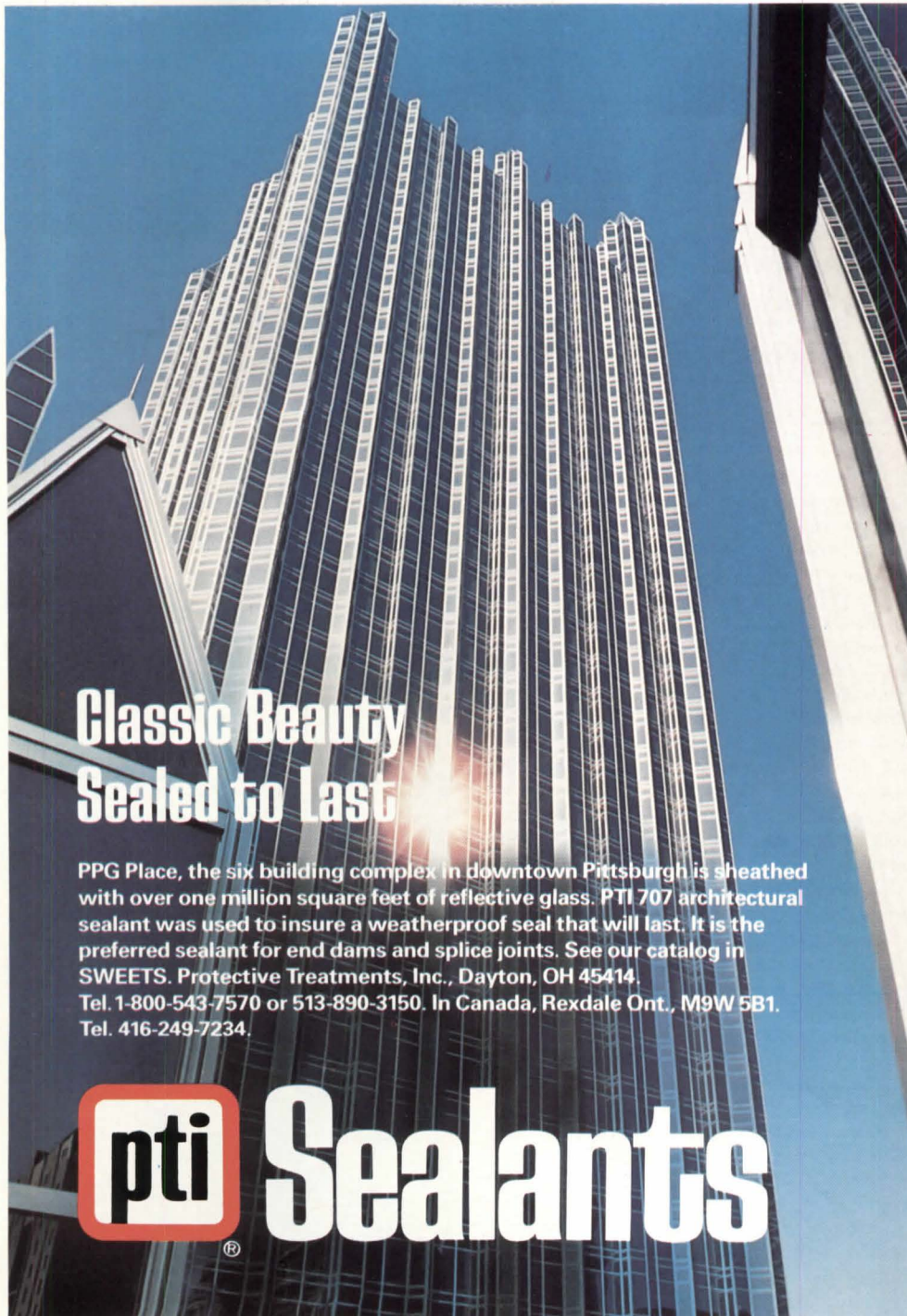
*fendant is qualifiedly different from the contemplated vandalism by third parties."*

As to the owner's claim that the contractor failed to file a timely notice of claim, the court pointed out the contractual stipulations that limit the right to sue to a shorter period than that granted by statutes (a situation analogous to filing a claim within a limited period) had not been looked upon by the courts with favor, but that such judicial antipathy has more recently given way to judicial approval and is particularly favored in respect to municipal construction contracts. However, it is also established public policy, stated the court, that a party will not be permitted to take advantage of a contractual short period of limitation if the claim is premised upon willful misconduct. The issue, therefore, was whether a claim for gross negligence was subject to the same public policy considerations.

In ruling in favor of the contractor and against the owner on this issue, the court relied upon the rule as enunciated in *Kalisch-Jarcho, Inc. v. City of New York* to the effect that "an exculpatory agreement, no matter how flat and unqualified its terms, will not exonerate a party from liability under all circumstances" and that "under announced public policy, it will not apply to exemption for willful or grossly negligent acts." Consequently, concluded the court, the enforcement of a short period of limitation for the filing of a claim premised upon gross negligence is contrary to sound public policy, and such policy overrides the intentions of the parties.

Although, as illustrated by the above case, limiting liability through contractual stipulations is surrounded by difficulties, that approach is one that the architectural profession should pursue as a matter of economic necessity. ■

**NORMAN COPLAN**, Hon. AIA, is a member of the law firm *Bernstein, Weiss, Coplan, Weinstein & Lake*, New York.



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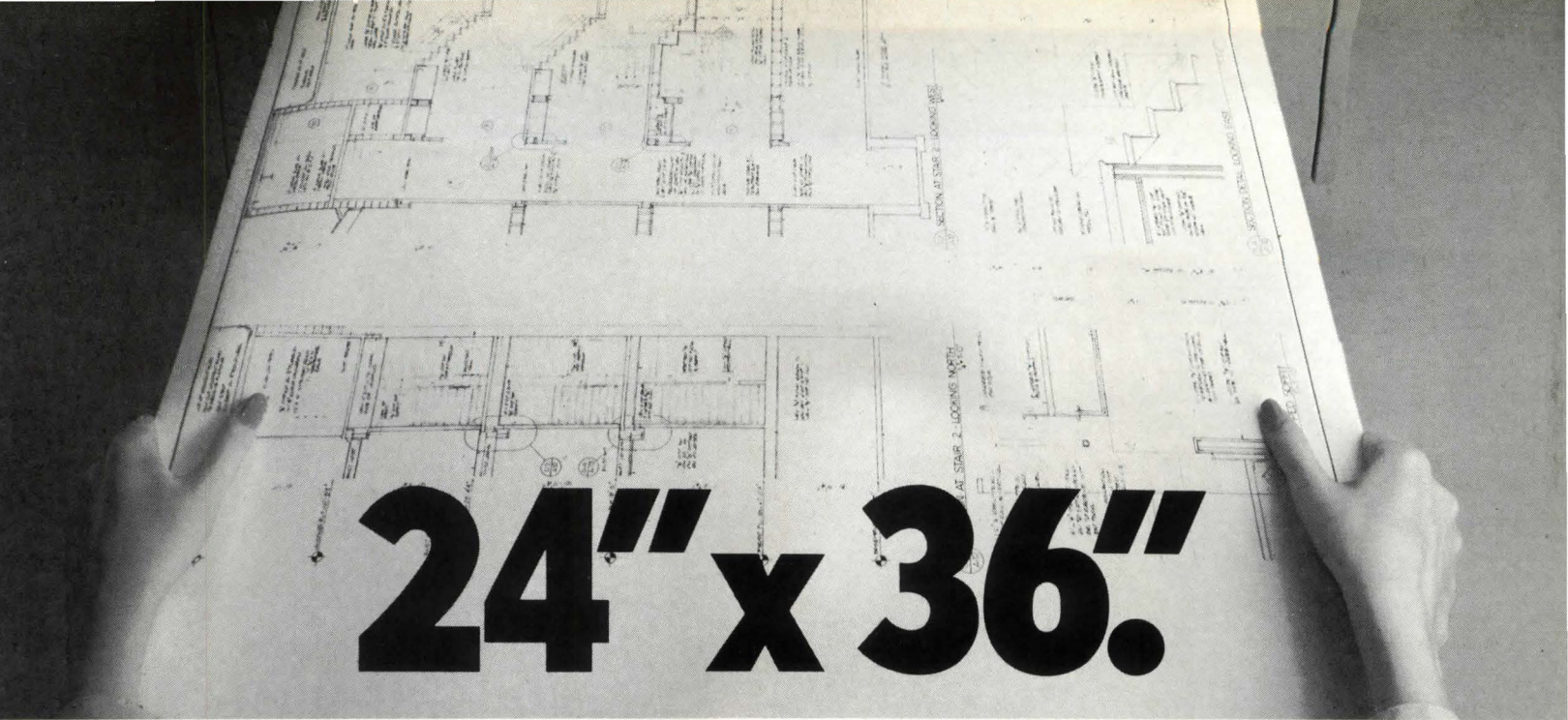
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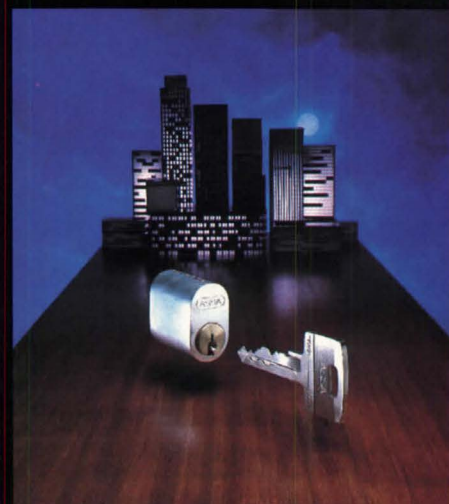
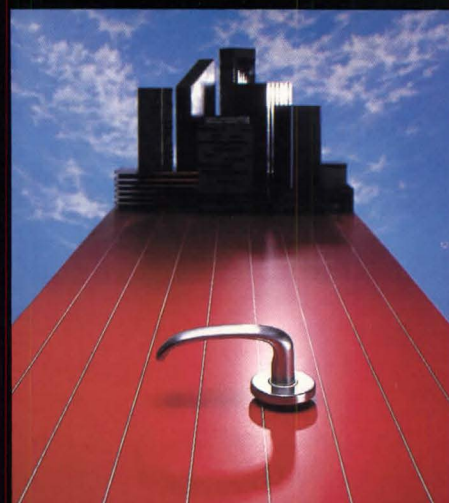
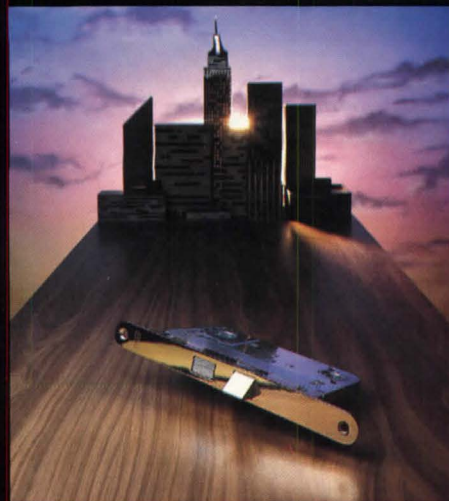
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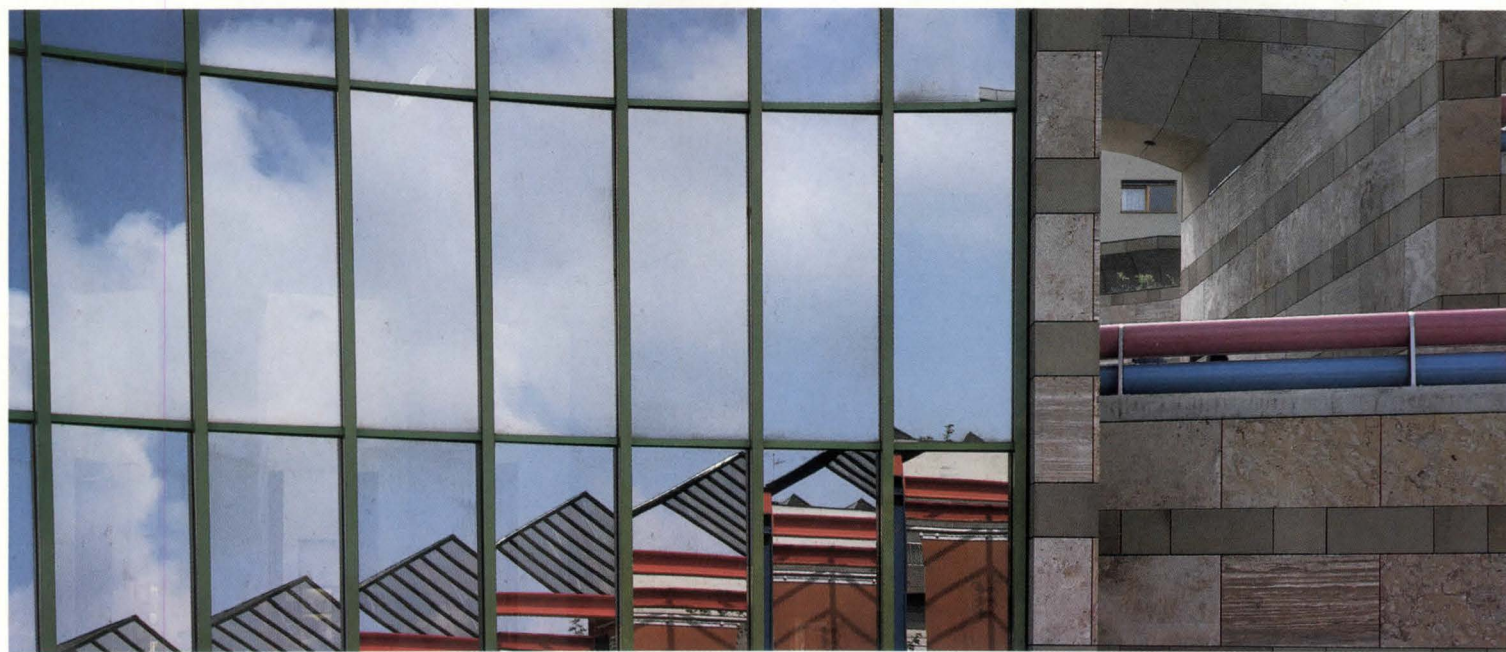
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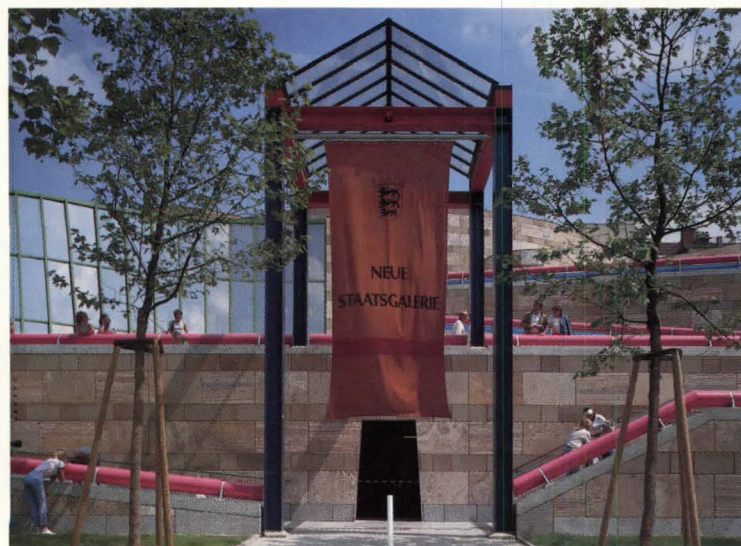
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geometry which was developed through work on several earlier, unbuilt projects.

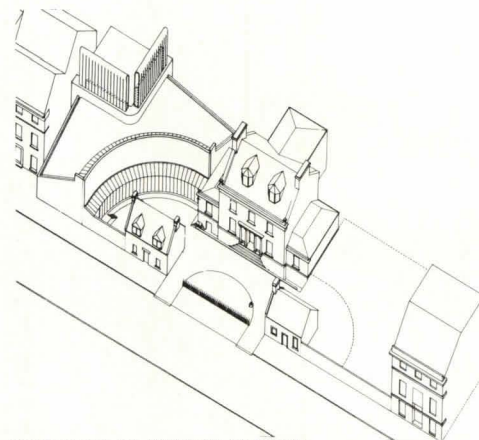
On these two pages, this development is traced, especially with respect to urban design aspects. On page 74 begins an album and a discussion of the museum complex as a whole. Then follows an examination of the inspirational sources for elements in the design. The coverage ends with a review of Stirling/Wilford projects in progress.

In the Arts Center, St. Andrews University, Scotland, 1971, as in subsequent museums,

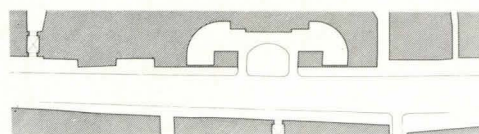
Stirling takes the opportunity to return a gift to the public, in the form of an outdoor space carved out of the site. Here, as in the larger scaled Derby Town Centre competition entry designed with Leon Krier a year earlier, the outdoor space is embraced by symmetrical quarter-circle segments that extend the facilities of a central, 18th-Century building, originally a house. The intimacy of the space is increased and the entry marked by two flanking existing lodges of historic value.

The Wallraf-Richartz Museum, Cologne, 1975, designed for an invited competition, called for the development of an area between the historic Cathedral and the Rhine. The north side is mixed use; the south (left in the upper drawing), the Museum. Matching buildings, which reiterate the Cathedral towers and create a gateway framing the railway footbridge, are entered by ramps from the river's edge. Elements in the Museum to evolve and reappear in Stuttgart include: the site as public passageway and raised plaza; a circular court (here, under the upper-level theater in the gateway building) and an evocative sculpture court (here, in the shape of the Cathedral); a curved glass lean-to as entrance hall; and exterior walls of wide and narrow bands of masonry.

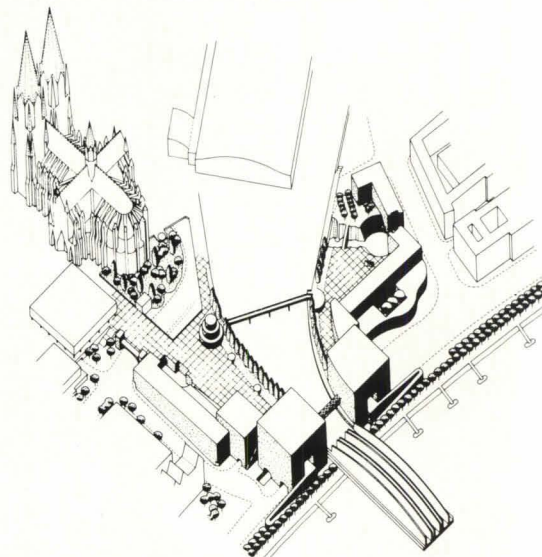
Northrhine-Westphalia Museum, Dusseldorf, 1975, also submitted upon invitation to a limited competition, is a masonry-clad museum that resembles the Stuttgart one. Most striking is the public footpath, which penetrates the site and passes through a central circular void. As in Stuttgart, the front plaza is raised above street level, with parking underneath; a curved, glazed lean-to at the entrance hall contrasts with the rectilinear building block, and a freestanding pavilion signals the entry. The latter, in Dusseldorf, is clearly Neo-Classical in origin, is much



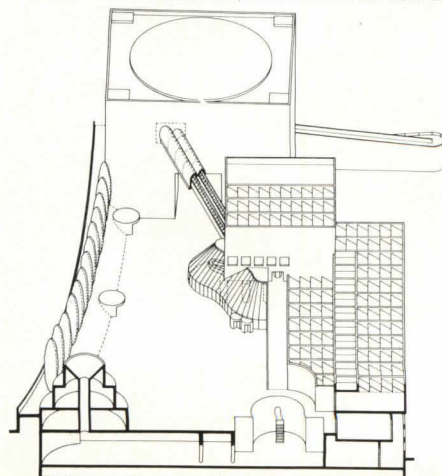
ARTS CENTRE, ST. ANDREWS: ISOMETRIC



ST. ANDREWS: FIGURE/GROUND PLAN



WALLRAF-RICHARTZ MUSEUM, COLOGNE: ENTIRE COMPLEX



COLOGNE: CUT-AWAY OF MUSEUM



larger and more prominent than in Stuttgart, and marks the position of an earlier building on the site. Inside, unlike at Stuttgart, galleries are entered, Uffizzi-like, from the central corridor around the void. At Stuttgart, Stirling did retain several of the buildings on the site, but in Dusseldorf, he was even more—much more—reclusive: Much of the building is buried within the existing block and behind existing façades.

The Staatsgalerie extension/Chamber Theatre in Stuttgart, 1977–84, is a major addition to a 19th-Century museum with a collection that comprises historical and contemporary art. It is a mountain of a building that ties together assorted elements by a unity of materials: stucco issuing from a banded masonry case.

Most intriguing is the development of the circular court seen in Dusseldorf. Here, with the U-shaped gallery level embracing it, the central drum's Classical nature is perfected: Reading the double line of front trees as a colonnade, the plan derives unmistakably from Schinkel's Alte Museum. On the other hand, roofless (like the "colonnade"), releasing rather than concentrating interior space, and with a bushy rim of planting, it becomes a romantic landscape element whose symmetry is denied by the ramp that winds its way up one half; asymmetrical lighting will further dramatize this audience/amphitheater split.

In Stuttgart, the pedestrian passage has become intimately wed to the building. Not only does it avoid dividing the museum's parts as a simple solution might have, it also manages to enrich the museum as it thrusts its way through.

To anchor the composition and create a rhythm on the street, the Chamber Theatre's strong rectangular pavilion at the south re-

peats the original Staatsgalerie's two pavilions at the north. At the rear of the museum is the administrative/archive wing, and tucked into an inner recess of the site is the piano-shaped Music Academy extension.

### Urban considerations

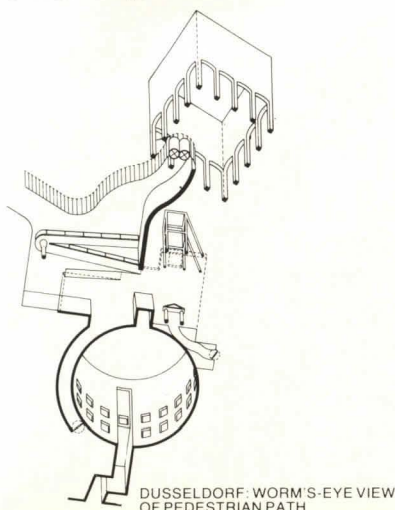
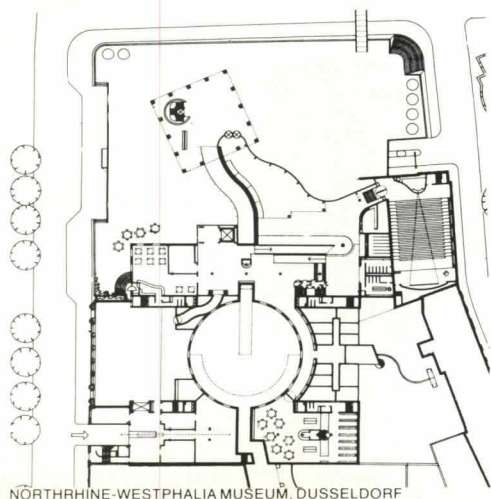
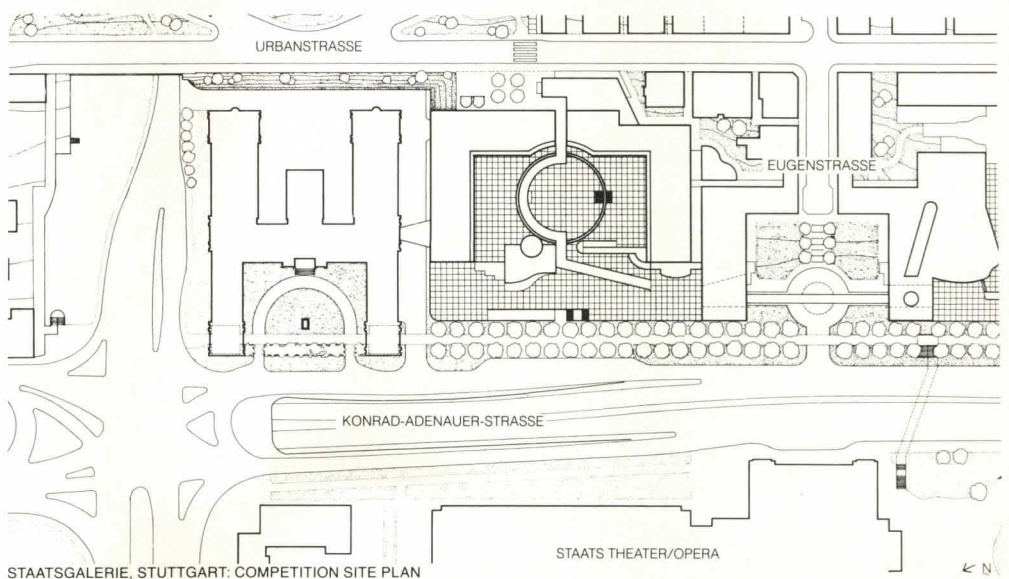
World War II and postwar highway planners had subverted Konrad Adenauer Strasse from its state as a pleasant boulevard lined with Neo-Classical buildings (the 1838 Staatsgalerie was one of the earliest, and one of the few to survive) into an eight-lane highway, virtually isolating the hill with its cultural institutions from the Park and center city to the west.

The new Staatsgalerie, built on an enclosed parking podium (a programmatic requirement), creates an upper-level plaza repeating the street-level court embraced by the old Gallery's wings; it continues the sidewalk passage that had been cut through the old

building and establishes an upper-level path parallel to the street. The competition design proposed to extend these elements by rebuilding the block south of the site, completing a landscaped court curtailing Eugenstrasse, on axis with the old Opera across the street, and creating another upper-level plaza connected to the Staatsgalerie's by a bridge. Stirling/Wilford may well be given the commission to build a Music Academy on this site.

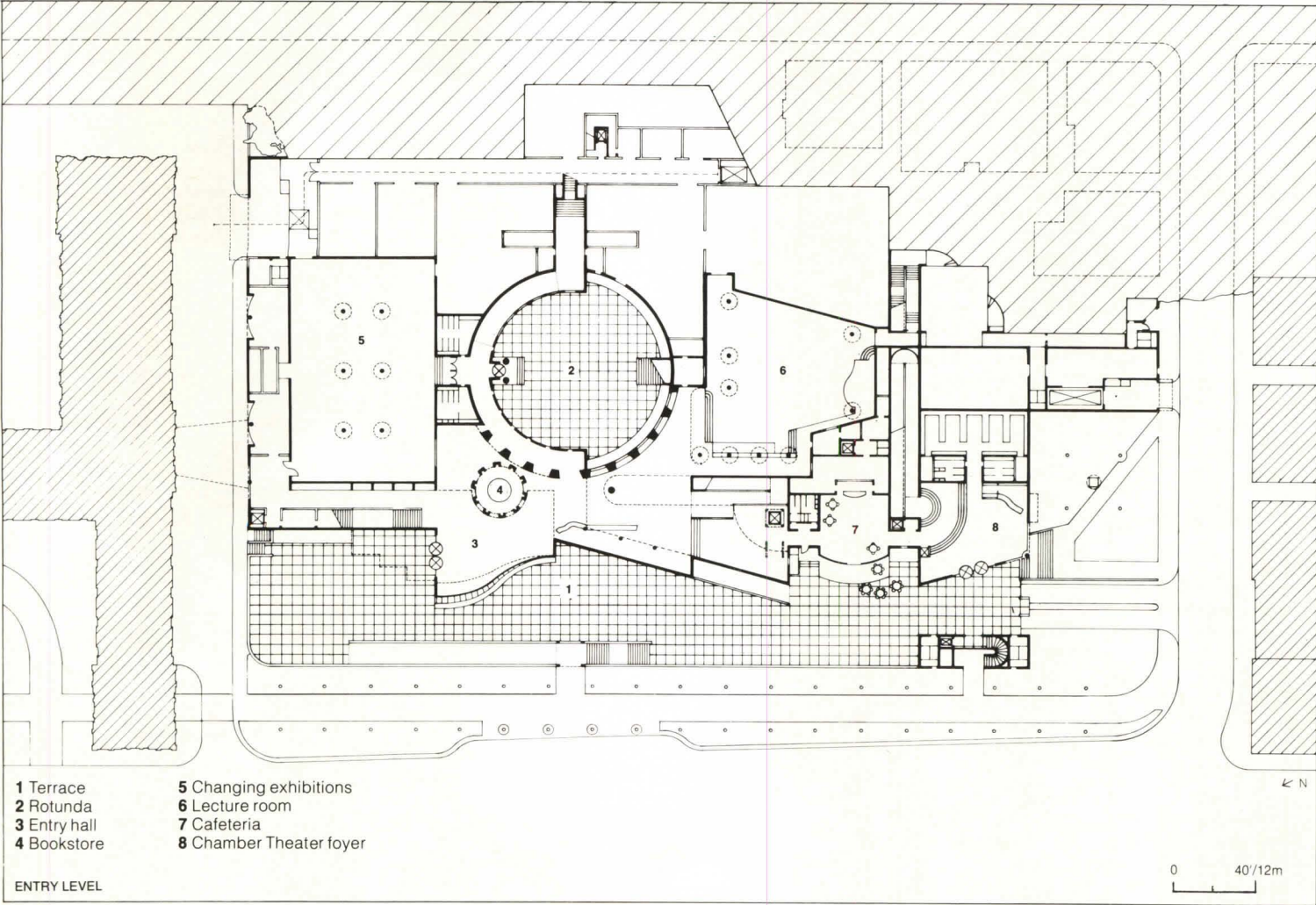
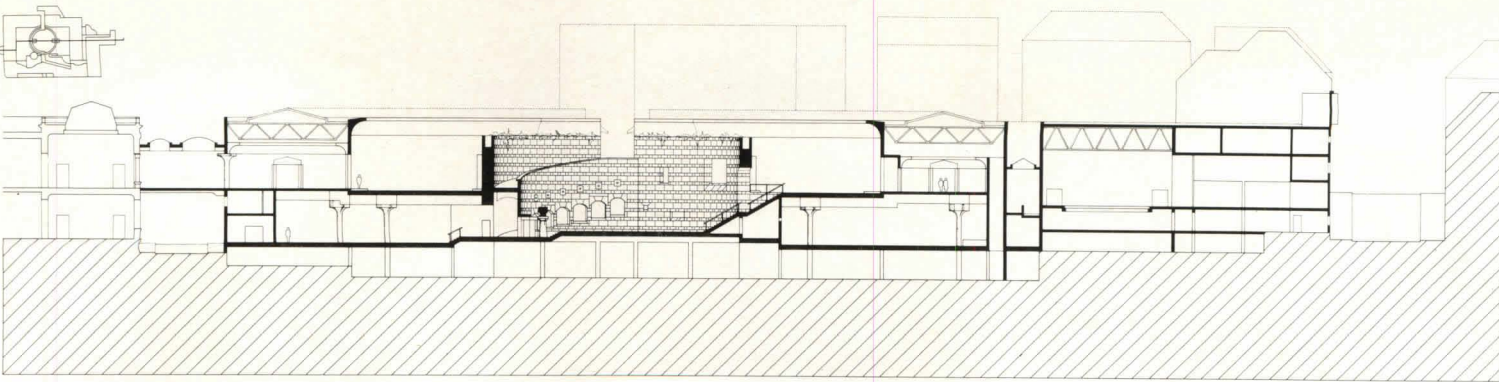
Stuttgart is likely to hold a competition to redesign the highway roadbed and add a front to the banal modern Theater facing the museum. Stirling has whimsically suggested replacing the highway with a lake, but as a probable competitor, he is not yet committing himself.

The original V-formation of the streets behind the museum, eroded by parking lots, is being redefined by landscaping, as per Stirling's proposal. [SUSAN DOUBILET]



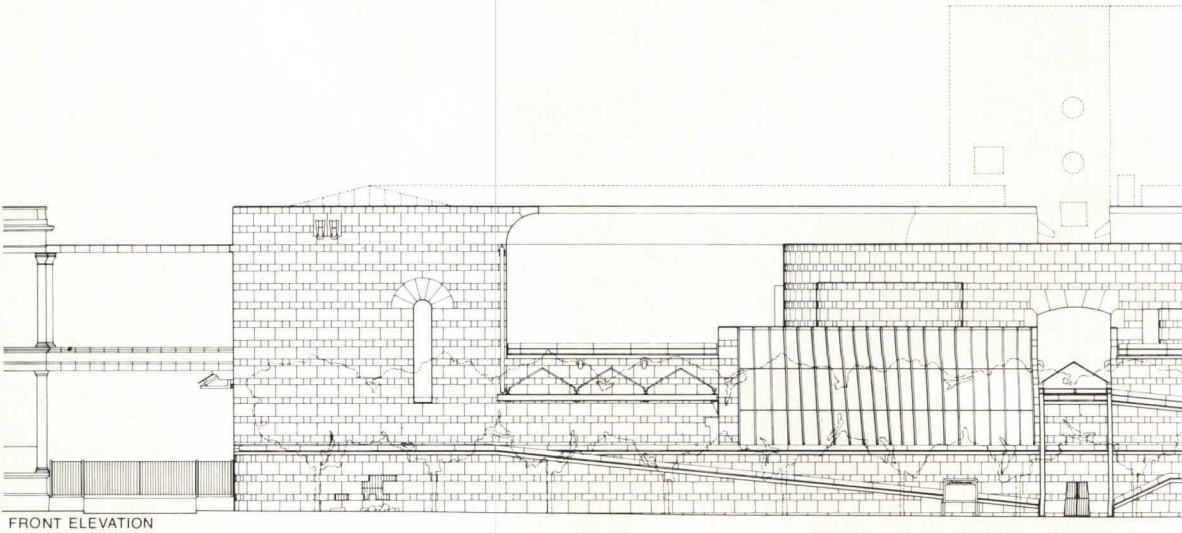
*The 1838 Staatsgalerie in Stuttgart (above), originally U-shaped and later enlarged into an H, has been extended by the major building to its south. The new galleries are arranged in a U and are connected to the old ones by a bridge over a service road. The new two-storied building stands on an enclosed parking podium, and is penetrated by a meandering path from front to back, with a roofless circular court at its center. To the south, and part of the complex, is an L-shaped Chamber Theatre which Stirling hopes to mirror (site plan above) to form a landscaped court and connect to a new raised plaza to the south.*





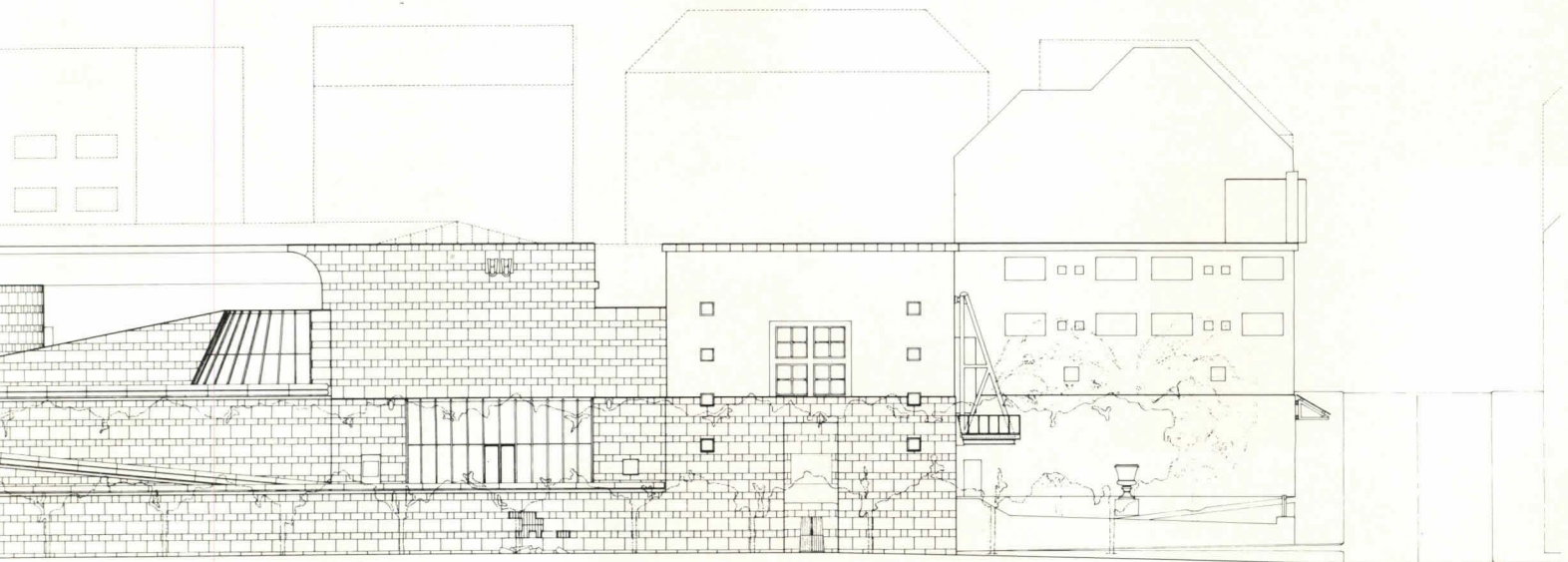
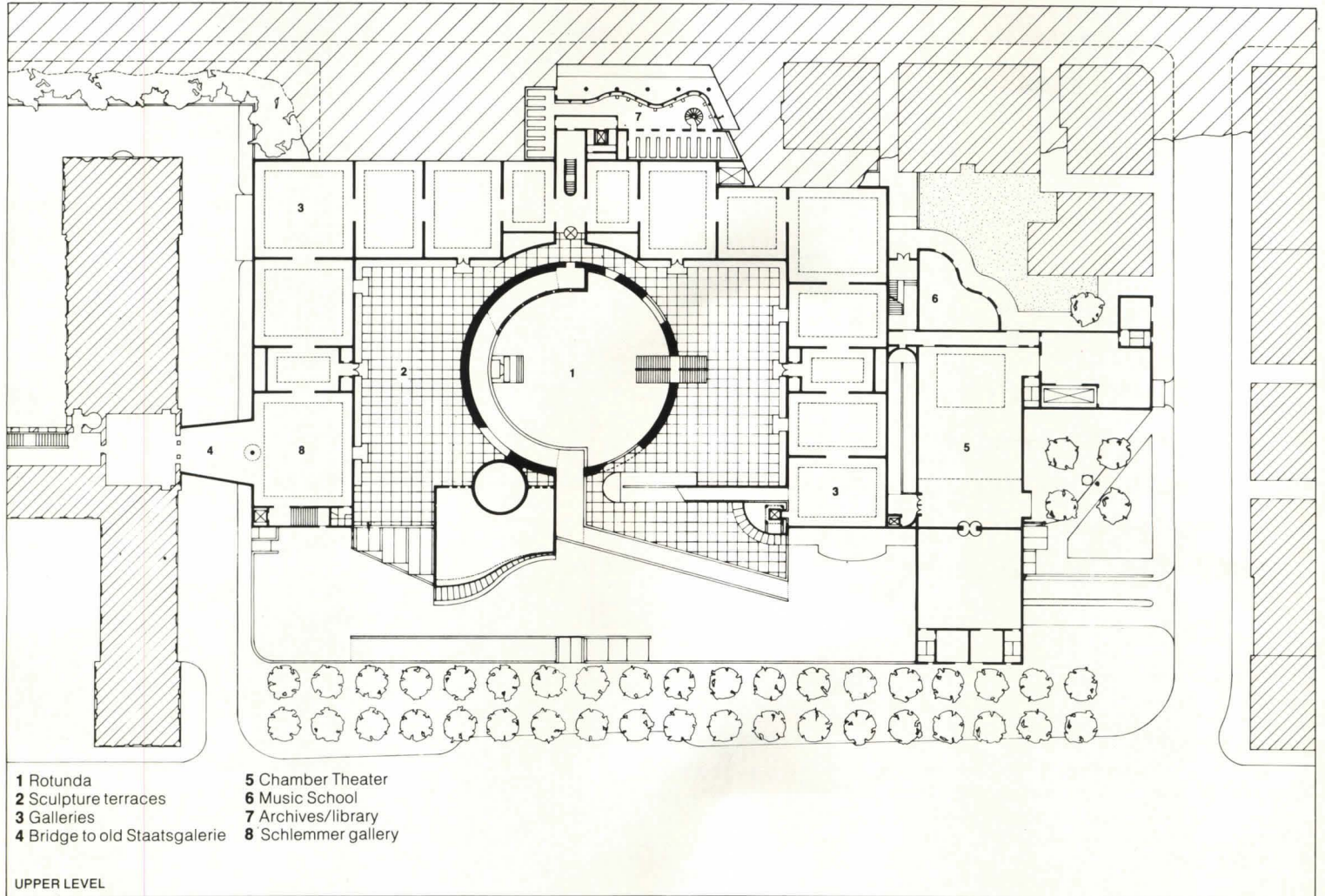
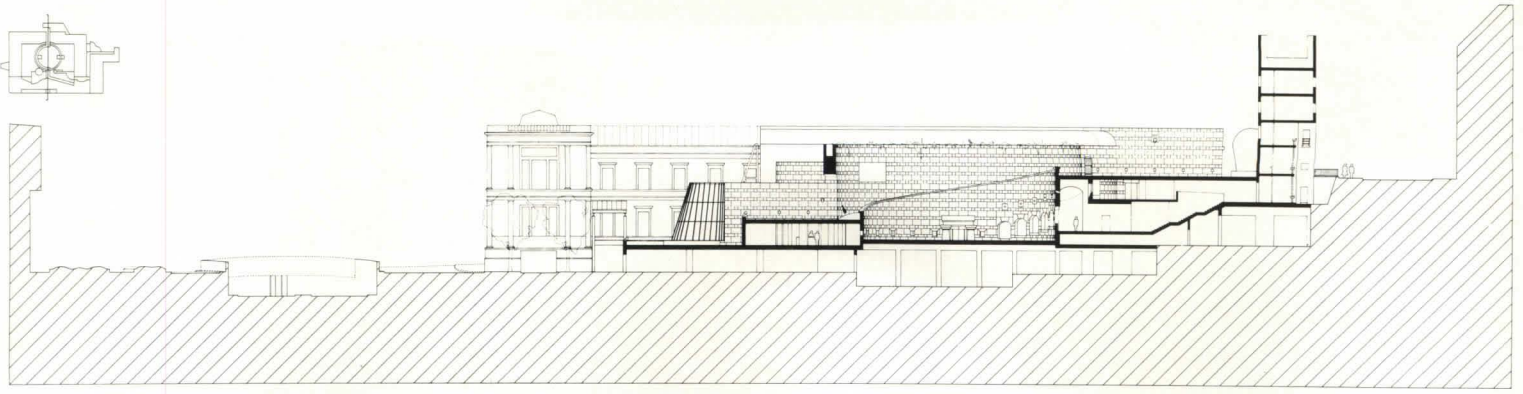
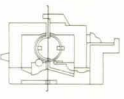
- 1 Terrace
- 2 Rotunda
- 3 Entry hall
- 4 Bookstore
- 5 Changing exhibitions
- 6 Lecture room
- 7 Cafeteria
- 8 Chamber Theater foyer

ENTRY LEVEL



FRONT ELEVATION







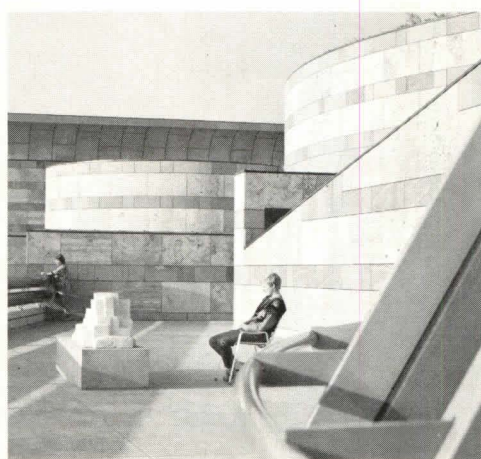
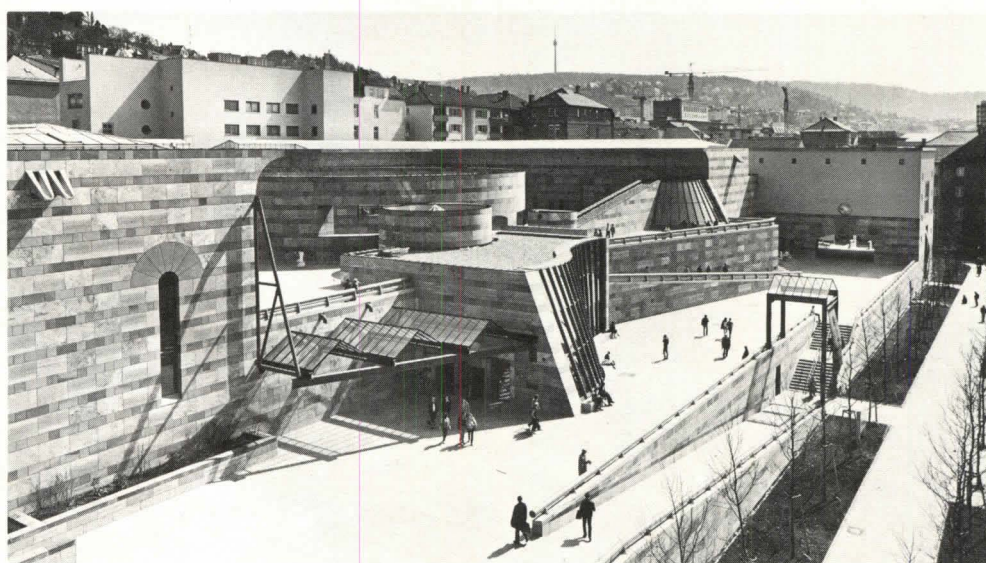
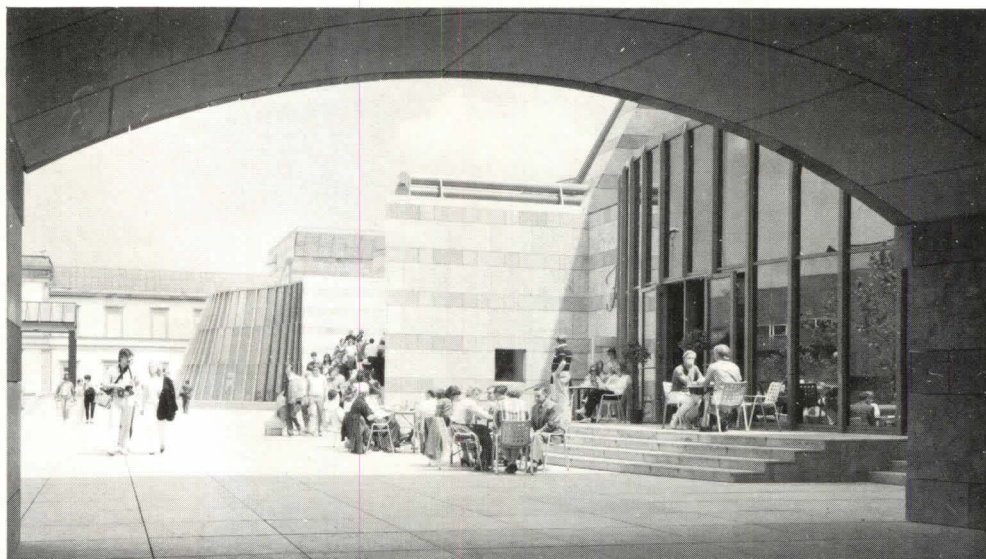
# The talk of the town

Photographers pose fashion models against the golden stone walls and the great curved window of the Stuttgart Staatsgalerie. Students lounge on the café terrace and in the open-air rotunda. Even conservative natives who despise the contemporary art exhibited within proudly bring out-of-towners to see their new museum.

Difficult as it is to please almost everyone, the architects have aimed to do that by pleasing themselves, and have succeeded. "We hope the Staatsgalerie is monumental," says James Stirling, "because that is a tradition for public buildings. But also we hope it is informal and populist."

*The Stirling/Wilford art museum complex—a hybrid of mountain and building—is a resounding architectural and popular success.*

The result is a camel, golden, exotic, and particularly adapted to its purposes. The curators are pleased—they have well-proportioned galleries, both artificially and daylighted, with which to work. The client, the State of Baden-Württemberg, which provided a generous budget, is happy—the endeavor has received international acclaim. The director of the museum, Dr. Peter Beye, is thrilled—he got the best of Stirling, he feels; like the director of Hans Hollein's Mönchen-Gladbach Museum, he wanted, and has achieved, a "different" building, and he has tweaked the noses of local conservative Modernists. Germany is proud of its



One can climb this great masonry mountain and traverse the site without entering the building, if desired. The front terrace (top and above) over an enclosed parking level can be used for changing exhibitions and for outdoor eating. Upper-level terraces (left) exhibit sculpture. Metal structures mark events en route: the four-legged taxi pavilion, the constructivist canopy over the entrance to the S-glazed hall (above), and the huge handrails/lighting fixtures that edge the ramps (opposite).

Waltraud Kruse











prominence in the contemporary art scene, and its cities are vying for recognition by building not only massive convention centers, but also unusual museums. Stuttgart is proud to report that the new wing has attracted 900,000 visitors since it opened six months ago, bringing the Staatsgalerie to third among German museums from fifty-second in attendance figures.

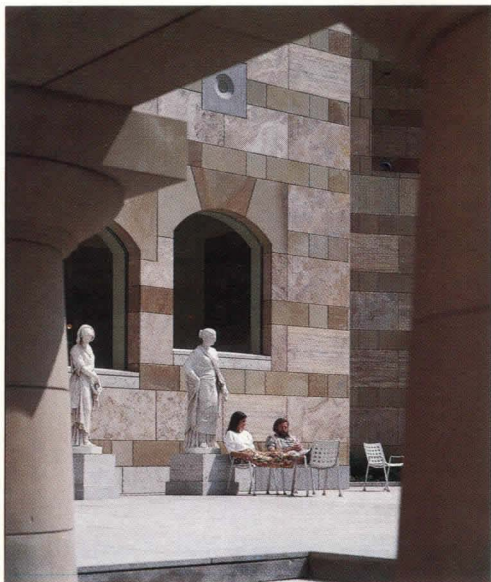
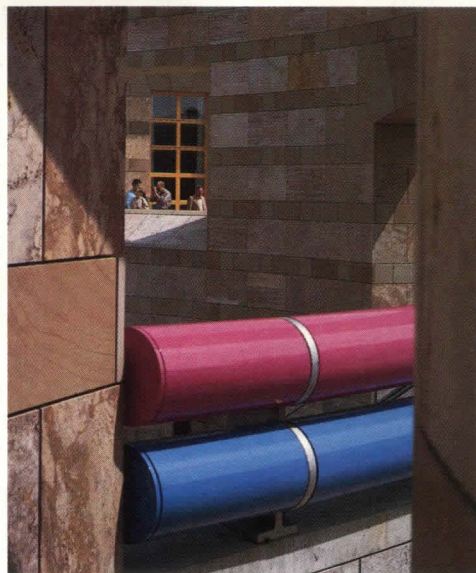
#### The plans are laid

This happy tale begins in 1977, when the State of Baden-Württemberg held a limited

competition to select an architect to design an extension to the 1838 Staatsgalerie, as well as a Chamber Theatre and a small Music School in its capital, Stuttgart. The Staatsgalerie's collection comprises historical and 20th-Century art, with the latter holdings burgeoning: Acquisitions are made with profits from the state lottery (Baden-Württemberg being one of the few German states to siphon off some of these funds, which mainly subsidize amateur athletics, to support the arts). The museum possesses the best Picasso collection in West Germany, and

the finest collection in the world of the work of Bauhaus painter and sculptor Oskar Schlemmer; it has, in fact, according to Director Beye, the best collection of modern art in the country. Given the size of the entire collection, the 33,000 square feet of exhibition space in the Neo-Classical building was grossly insufficient.

In the competition for the new Gallery, the submission by James Stirling, Michael Wilford & Associates was selected for its unusual and relaxed treatment—the judges were *not* looking for a cool cube—as well as



*The museum and the pedestrian path focus upon a central roofless rotunda (this page and opposite) lined, as is the major part of the exterior, by bands of travertine and sandstone. While the pivotal circular space enforces the strict symmetry of the gallery plan, it takes a deliberately ambiguous attitude because of the asymmetry of the path winding its way up along one half of the circumference. This amphitheatrical effect is underscored by asymmetrical lighting. "Players" and "audience" can make dramatic entrances and take glimpses of the action through wide*

*openings from surrounding levels, and can look out towards the old Staatsgalerie (opposite page) and the sky beyond. Plantings along the top edge of the drum, when grown, will soften the geometry. An entrance portico into the museum (opposite page right corner, this page top left) is inspired by a sketch by Karlsruhe architect Friedrich Weinbrenner.*



## Neue Staatsgalerie

for its handling of the mandated public walkway which, unlike those in the other entries, came into contact with the building without dividing the site. In the completed building, the monumental and Classical nature established by the use of masonry and the strict order of the galleries is contrasted with informal aspects: the absence of masonry joints, the shiny bright abstractions of the oversized ramp handrails and the piano-shaped glazed entrance hall *lean-to*, and the casual layout of the entrance level and its acid green rubber floor.

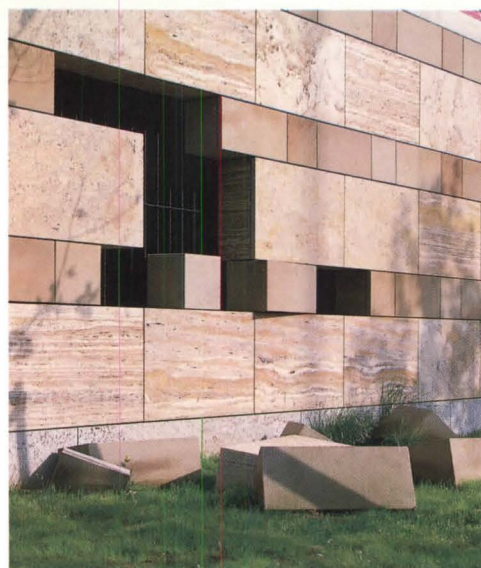
From competition decision onward, the realization of the building proceeded smoothly. Only a few changes were made in the design: For budgetary reasons, columns were introduced to reduce spans in the temporary exhibition space and lecture hall, and masonry veneer was replaced in some areas by stucco or (on the monumental exterior coves) by precast concrete; and windows in the rotunda were changed from Gothic to Classical, because of the clients' feelings about stylistic appropriateness. Overall, says Stirling, the experience was a pleasure: "The

budget seemed reasonable and the standards of workmanship have been of the highest; we have been able to use fine materials and achieve complex detailing; and we were not subjected to contractual hostilities."

### Design objectives

The architects' report submitted for the competition made clear the objectives for the Art Museum, the Chamber Theatre, and the Music School, as well as for the site and town planning discussed above (p. 71).

For the new 124,000-square-foot Museum,



*The beautifully crafted masonry bands, made up of randomly matched and unpolished travertine and sandstone, are a veneer, with joints left completely unfilled. Yet they seem deeply three-dimensional from afar, and in certain details (both serious ones—the ecclesiastical window, left; and playful—the environmental sculpture “fallen” from the base, top right). Contrasting with the natural stone walls are highly colored constructivist metal structures, reminiscent of Stirling's past work. Above, a detail from the Chamber Theatre canopy.*



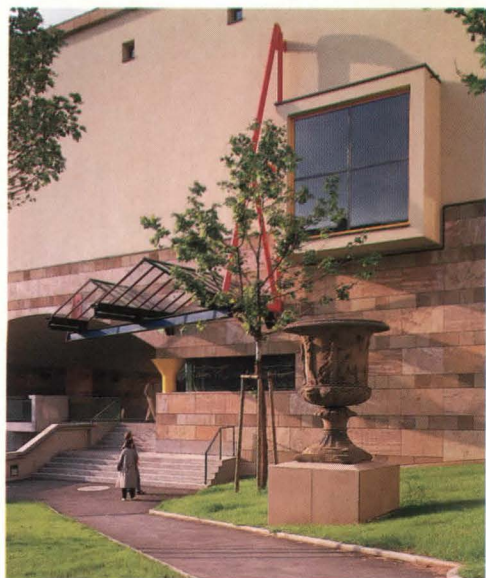
the architects aimed to create well-defined gallery rooms, avoiding "endless flexible space," with diffusing glass ceilings allowing the transmission of natural light. They designed the connection from old to new building with no change in floor level or other cues that a bridge is being crossed, and envisioned the flow through the galleries as a chronological journey through the history of art (the exhibits, however, are by necessity in the hands of the curators). Outdoor sculpture courts occur in the central rotunda and on gallery level terraces.

The 24,000-square-foot Chamber Theatre is sited across from the existing Staatstheater, as envisioned in the program. Its upper level, the "black box" theater itself, spans the raised front terrace, with a wide archway giving access to its terrace-level box office and foyer.

The Music School, located near the older Music Academy across Urbanstrasse, is in a quiet inner corner of the site. When larger school quarters are built elsewhere, this space will become available for use by the Museum.

#### Associations

"I'd like the visitor to feel this building 'looks like a museum,'" says Stirling, "and as precedents I find 19th-Century examples more evocative than 20th." He finds appealing, for instance, an enfilade of rooms because "even when small they have a certain monumentalism." He admits that "it is no longer acceptable to do Classicism straight," and points to the building's frequently compromised axiality, the central pantheon that is actually a void, and the histrionic cornice that is not completed in the round but follows



*A full double canopy marks the Chamber Theatre entrance (top left and right) while another pair of metal "events" occurs at the rear of the site (above right)—two giant mechanical outlets, dubbed Max and Moritz by the Germans. Two stucco structures are the piano-shaped Music School (above left) tucked into a quiet inner corner of the site and the administrative/archive wing (above right), an homage to early Modernism and late Le Corbusier.*







only the inner sides of the U to define the sculpture terraces.

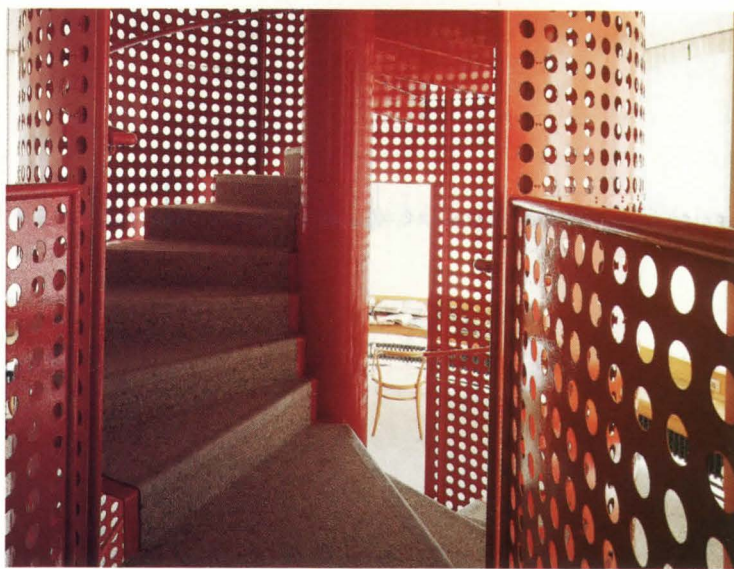
He delights in the term "the monumentally informal," enjoying the juxtaposition of stone walls and highly colored metal assemblies, and the use, in the temporary exhibition hall, of a ceiling light grid that "may remind us that, as in shopping malls, there is a market side to art and exhibitions." Stirling welcomes "the passing of the revolutionary phase of the Modern Movement" and relishes the license to "regard the whole of architectural history as our background."

#### The camel

"Liking" the building is, of course, a matter of taste, and it is hard to respond to the number of critics who find the museum "crazy" or "concerned with private theories." Colin Amery's article in the *Financial Times* of July 9 (in which he declares the museum "Stirling's best building" and "a triumph") finds fault with the giant modern constructs: "I do not feel that the overscaled and brightly colored handrails or the assemblies of steel and glass elements . . . do much more than air the unsuitability of such industrial frag-

ments for a serious architectural setting." This criticism again lies in the realm of taste and is a judgment with which this observer, for one, does not agree.

More difficult to counter is the matter of face—the building has no traditional façade that creates a single first image; nor does it present itself as a modern building might, as an identifiable freestanding sculpture on a plane. The lack of face is an aspect that Peter Cook, in the *Architectural Review*, March 1983, finds disappointing at least at first sight, and about which Colin Rowe, in his



The 15 galleries are individual rooms (opposite and this page, top photos) connected enfilade by Post-Modern portals. They vary in size from 650 to 2500 square feet, with proportionate heights of 12 and 19 feet. Galleries are lighted by artificial and natural sources above a diffusing glass sandwich ceiling that only partially masks the steel structure and electronically controlled louvers. Additional illumination is provided, asymmetrically, in the corner galleries by uplights in cantilevered "moldings" (top right). The Oskar Schlemmer collection of dancing figures (top left) is permanently

displayed in an end gallery connected to the old building. The lecture theater (above left) can serve as an extension to the changing exhibition space. Its mushroom columns are cropped, visually, just above the "crucial" point by an eggcrate ceiling traversed by mechanical ducts with Mercedes bus exhaust outlets. In the archives (above right), perforated metal encloses the spiral staircase.



## Neue Staatsgalerie

introduction to the new Rizzoli book *James Stirling, Buildings and Projects* (forthcoming) expresses his reservations. Writes Rowe: "It is just the issue that, when considering intercourse with a building, its *face*—however veiled—must always be a desirable and provocative item."

And yet—and yet—the Staatsgalerie does have a face of sorts, a face limned in by both architectural and landscape elements. The Chamber Theatre and the old Staatsgalerie form architectural bulwarks, between which spans the colonnade of trees that screen a

masonry mountain with brightly colored fruit. And the entire compositional sketch must be meant by Stirling to be seen, as Cook surmises, from a preferred set of reference planes and reference points, as the whole is too large and the street too narrow, relatively, ever to allow a full frontal view. Then, in response to the ambiguity of the boulevard (more an autobahn than a street), explains Stirling, "The front recedes, presenting a series of incidents adjacent to the walking movement into, through, and across the building. No elevation drawing, and no

photograph, can reproduce the experience.

"In the city it's essential to have landmarks," says Stirling. "A city without monuments would be no place at all." The Staatsgalerie performs this role for Stuttgart. It is, moreover, one of the very few architectural landmarks of our time. [SUSAN DOUBILET] ■



As rigorously ordered as the gallery level is, so the entrance level is informal. The great curving glass wall of the entrance hall (opposite page and above) and the screamingly green, acoustically practical rubber flooring suit the informality of today's young Germans. In a similarly popular vein, the glass elevator (top right) gives gallery-goers a full two stories of Portmanesque experience; its aggressive structure also refers to Centre Pompidou which, of course, owes credit to Stirling's Leicester University building. The small bookstore (above and top left) is a glass-covered rotunda, homage to Asplund.

**Project:** The Staatsgalerie New Building, New Chamber Theatre, and Extension to the Music School, Stuttgart, West Germany.

**Architects:** James Stirling, Michael Wilford & Associates, London and Stuttgart (associates: Ulrich Schaad, Russell Bevington, Peter Ray, Siegfried Wernik; assistants: A. Pontvik, J. Tuomey, J. Cannon, M. Geiger, P. Keogh, J. Cairns, U. Wilke, A. Munkenbeck, P. Schaad, S. Tomoe, C. Macdonald, T. Tafel, R. Schwarz, P. Riegert, L. Glaser, J. Bub, H. Hamann, C. Ohm).

**Client:** The state of Baden-Württemberg, administrator H. Fecker.

**Site:** a superblock south of the 1838 Staatsgalerie, at the foot of the hill rising from the central park and downtown, and divided from the latter by an eight-lane roadway.

**Program:** 124,000-sq-ft art museum, with administrative/archive wing, 24,000-sq-ft Chamber Theatre, and 5000-sq-ft Music School.

**Structural system:** reinforced concrete, with columns and structural walls. Steel trusses over gallery and theater.

**Major materials:** Exterior walls: veneer of unpolished, unfilled local

travertine and sandstone; stucco; precast concrete coves; enameled steel details. Interior walls: painted plaster, plaster coves; rubber flooring, entry level; hardwood flooring, gallery level; stone bases. Gallery ceiling: diffusing glass sandwich panels.

**Mechanical system:** underfloor heating; air-conditioning ducts accommodated between steel trusses; air intake and exhaust in galleries via reveals above bases, below cornices.

**Consultants:** State Building Administration and Davis, Belfield & Everest, U.K., quantity surveyors;

Boll & Partners in conjunction with Ove Arup & Partners, U.K., structural engineers; Eser Dittman Nehring & Partner, in conjunction with Ove Arup & Partners, mechanical and electrical engineers; Oskar Gerber & Partner, building physics and acoustics consultants.

**Site management:** State Building Administration, Klaus Wilkens, Hermann Reichenecker, administrators.

**Site coordinator:** Hans Eckenreiter.

**Costs:** 89,000,000 DM 1981 (approximately \$33 million).

**Photography:** Richard Bryant.







# The joy of quoting

More than any "PM" structure in recent years, the Staatsgalerie has been contrived with a wealth of references and events carefully, indeed lovingly—and sometimes wryly, sometimes slyly—worked out. As references are traced, however, it should be remembered that this is no mere collage of two-dimensional quotations. A combination of joy, understanding of history, and love of materials and craftsmanship invest this work with life. Furthermore, this is no grab-bag of haphazard reminiscences. A number of references are taken from the broader history of Western culture, but many are local: here, wit is—as it must be—to the point.

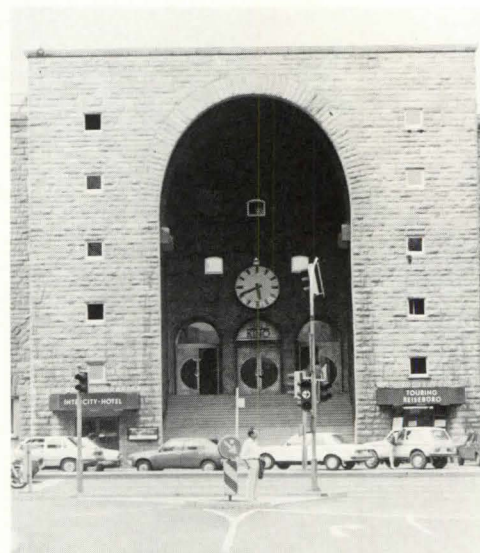
*For precedent hunters and seekers of innuendo, Stirling/Wilford's Art Museum, Administrative Building, Chamber Theatre, and Music School provide rich mines to explore.*

Precedent-hunters will be delighted to search and analyze the Staatsgalerie, and would be advised to take along as guidebook the imaginative and well-researched publication by Staatsgalerie staff historian Thorsten Rodiek, *James Stirling: Die Neue Staatsgalerie Stuttgart* (Verlag Gert Hatje, 1984, in German only). The book places the building within the context of Stirling's career and of history, and traces probable design sources, both conscious and unconscious, on the part

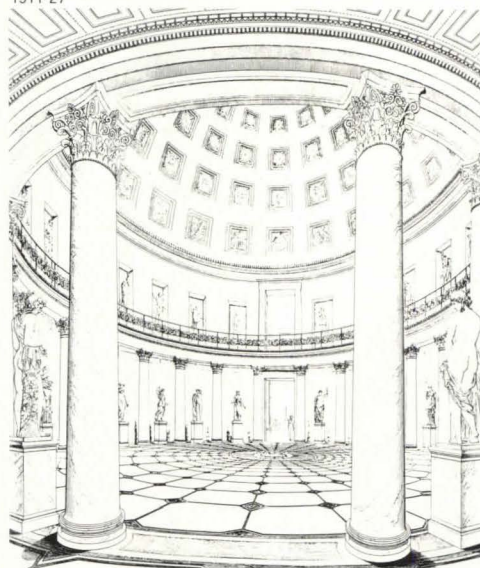
of Stirling. Some are shown on these pages.

The Alte Museum plan as generator of the gallery level (with the rotunda, that intensifier of internal centrality, un-domed, and the front wall replaced by a colonnade of trees) is discussed, of course, along with other important designs with central rotundas, some unroofed—Boullée's 1783 sketch for the Bibliothèque Nationale, Asplund's 1920 Stockholm Library, Raphael's 1517 Villa Madama, the 16th Century Charles V Alhambra Palace at Granada. Most fascinating is the 1575 copper engraving by Etienne Du Pérac of the Augustus Mausoleum in ruin in Rome, with a roofless rotunda landscaped and overgrown with vines, paralleling Stirling's own intent for Stuttgart, where planters lining the top edge of the rotunda will in time soften the geometric form. Here is Stirling's picturesque British side revealed, as he plants the seeds that will quicken the reversion of the Classical man-made structure to its natural state. The disposition of the masonry veneer, too, exposes this double intent. From a distance, the walls are of classically laid masonry. From close, the stone is obviously a veneer, with joints uncaulked to allow the wall to breathe, but also to allow natural growth to work its way in and out; and the stone (travertine alternating with sandstone) is planed but not filled and polished and, for liveliness as well as a "natural" look (not to mention to reduce material wastage), unmatched as to grain.

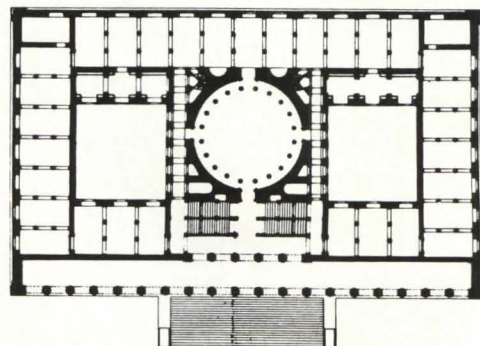
Not only are Classical and Romantic cues overlaid, but technological and popular ones are as well. The technological impulse is seen in various metallic divertissements: in two enormous painted metal air intakes (Max and Moritz, the Germans call them, after two 19th-Century comical literary figures; homage to Pompidou, say Rodiek and others; homage to Pompidou's homage to Leicester, counters Stirling, whose own history is



PAUL BONATZ, SIDE ENTRY TO STUTTGART RAILWAY STATION, 1911-27



KARL FRIEDRICH SCHINKEL, ALTE MUSEUM ROTUNDA



ALTE MUSEUM, FIRST FLOOR PLAN



cumulative in this museum); in a set of three Constructivist steel and glass canopies over the entrances (triple peaks for the museum entry, double for the Chamber Theatre, single for the administration/archive building); in the central drop-off pavilion; inside, in the oversized structure for the glass elevator; and, as an ironical statement, in the stubby metal-clad concrete column at the corner of the Chamber Theatre foyer window. The popular impulse, reflecting the attitude of Germany's antiestablishment youth, is expressed by hectares of acid-green rubber flooring in the entrance lobby—practical, inexpensive, and the color of the peripatetic Volkswagen Rabbits driven by everyman along Germany's highways; by the huge shocking pink and blue metal handrail/lights that delineate the ramps, and that contrast rudely with the subdued stone; and by the Portmanesque glass elevators connecting first and gallery levels.

Specific architectural references abound. The stubby portal into the museum from the circular court is inspired by a 1795 sketch for an arsenal (unbuilt) in Rome, by F. Weinbrenner, renowned architect from Stuttgart's neighboring town, Karlsruhe. The banded rectangular Chamber Theatre, with its rows of small square windows allowing limited light into the "black box" theater, is reminiscent of Hoffmann, but Rodiek points out that it is similar in form to the side pavilions of the nearby central railway station of 1911–25 by Paul Bonatz.

Clear is the Corbusian inspiration of the administrative/archive wing, from the office windows of which can be seen the Weissenhof settlement. Rodiek compares this wing to Le Corbusier's two-family house at Weissenhof and to Villa Savoye, noting the addition of a balcony of later Corbusian vintage, from Vaucresson. The top level openings on this wing's long side are square and

heavily framed, on the other hand, and decidedly not Corbusian. They, in fact, deliberately negate structure, as the voids align with the pilotis, and will contain round-trimmed topiary: naturalistic capitals, if you will.

The sinuous glazed entrance lobby wall, a feat of technical skill, realizes an Art Nouveau inspiration through high-tech means. It also repeats the piano-shaped footprint of—what else?—the Music Academy wing.

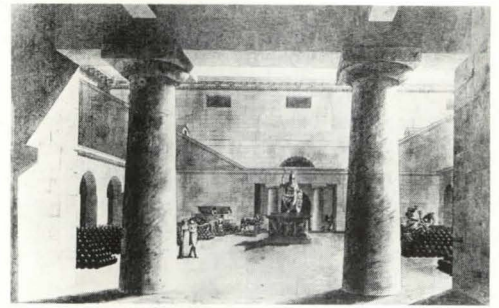
Rodiek has tracked down a "precedent" for the Post-Modern forms that frame the gallery openings: Uncannily similar is the side entrance, which Stirling cannot recall noticing, of the Opera House across the street.

Also to be noted are the art references—the Pop Art colors of the giant handrails, the Mondrian primaries of the canopies and other high-tech structures, and the environmental sculptures consisting of masonry blocks "fallen" (homage to SITE) from the parking base wall, randomly, or so it seems, until you observe that there is a second identical one symmetrical about the central axis.

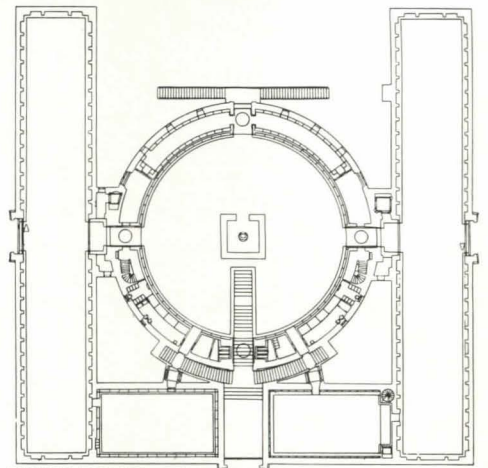
Abstract art deliberately restates representational: The central four-legged drop-off pavilion, with flag, comments upon the old Staatsgalerie forecourt's horse and rider statue, with drawn sword.

For collectors, there are windows: strip, square-framed, round, arched, S-curved; columns: Doric, pilotis, flared; and furniture: In the galleries, offices, and archive library, furniture selected by Stirling forms a veritable catalog of classical Modern design by 20th-Century architects—Aalto, Breuer, Le Corbusier, Mies, Hoffmann, and others. Modern design, of course, is now part of history, and collectible.

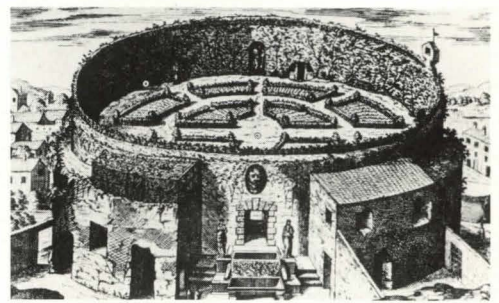
And for the painstaking, as Stirling says, "there is much more innuendo to be discovered." [SUSAN DOUBILET]



FRIEDRICH WEINBRENNER, SKETCH FOR ARSENAL, ROME, 1795



GUNNAR ASPLUND, STOCKHOLM LIBRARY, 1920-28



ETIENNE DU PERAC, AUGUSTUS MAUSOLEUM, ROME, ENGRAVING, 1575



# Stirling & Wilford in progress

The architects' current projects all reflect an interest in contextualism and with it, as appropriate, the use of masonry cladding. They also all exhibit, to some degree, an abstract/representational mix, but none as fully orchestrated as the Staatsgalerie. From this vantage point, the clearest and yet most provocative images occur in the Latina public library (not illustrated here) and the Berlin Science Centre.

The largest of two projects for Italian sites is Casecchio, a new town outside of Bologna, planned for a population of 10,000. The proportion of housing, offices, and shops is being reconsidered, and earlier designs will require alteration.

*Stirling's stated interest in contextualism and a representational/abstract mix link the projects underway in the office.*

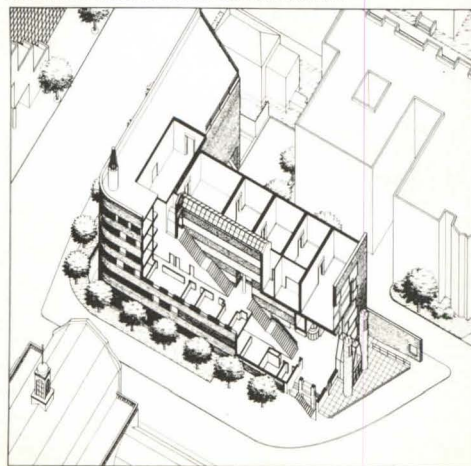
The public library for Latina, south of Rome, sits on a triangular site that will be treated as a garden, with trees and a canal. At the tip stands a 1930s Rationalist garage, Terragni style, which will become an information center and café. In the center, to become a town museum, is a historically important hospital: Here died workers who had contracted malaria draining marshes at Mussolini's behest. Along the end is the new library itself: Two grand masonry-clad drums at the feet of the triangle contain, respectively, the reference and lending functions, and are connected by a gallery.

[SUSAN DOUBILET]

Sackler Art Museum  
Cambridge



ENTRANCE FACADE UNDER CONSTRUCTION



CUT-AWAY ISOMETRIC

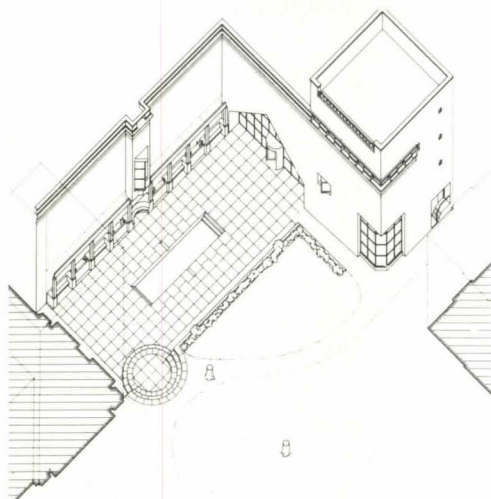
## Sackler Art Museum

The 60,000-square-foot extension to Harvard University's Fogg Museum (P/A, June 1979, p. 23) in Cambridge will house the permanent collection of Ancient, Oriental, and Near Eastern Art, and will open in fall 1985.

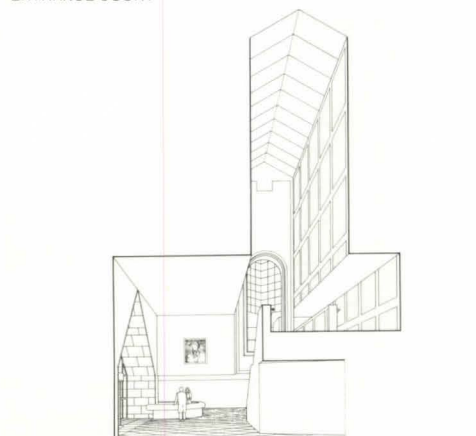
The interior of the building contrasts compressed and released spaces, while the exterior attempts to accommodate both the highly diverse voices of the neighboring buildings and a random window pattern by subsuming all within wide bands of contrasting brick. The entry side, on the other hand, is dominated by a monumental "rusticated" stucco frame encompassing the doorway and an upper-level bridge, as yet unbuilt, planned to connect to the older Fogg.



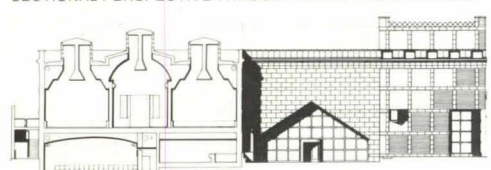
### Clore Gallery London



ENTRANCE COURT



SECTIONAL PERSPECTIVE THROUGH LOBBY AND STAIRCASE

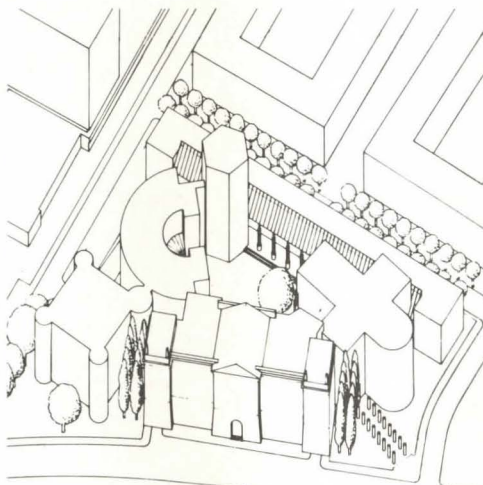


SECTION THROUGH GALLERIES

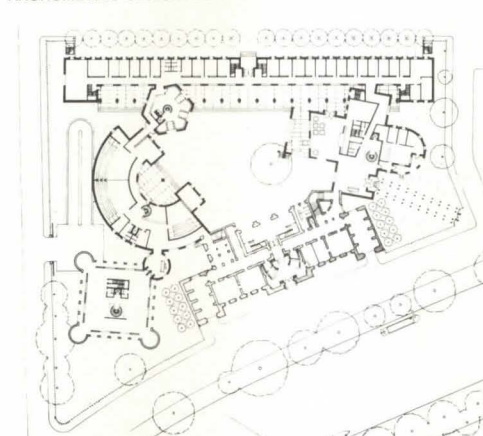
### Tate additions

Stirling/Wilford's Clore Gallery (P/A, Nov. 1981, p. 26) is under construction and will open in November 1985. The firm is now designing another building for the Tate Gallery in London, in keeping with their master plan commissioned several years ago, when the adjacent hospital complex was given over to museum use. This latest building, whose design has not yet been revealed and for which monies have yet to be raised, will house contemporary art. With the Clore exhibiting the Turner collection, the original Tate building will serve exclusively for the display of pre-20th-Century art.

### Science Centre Berlin



AXONOMETRIC OF COMPLEX



GROUND FLOOR PLAN

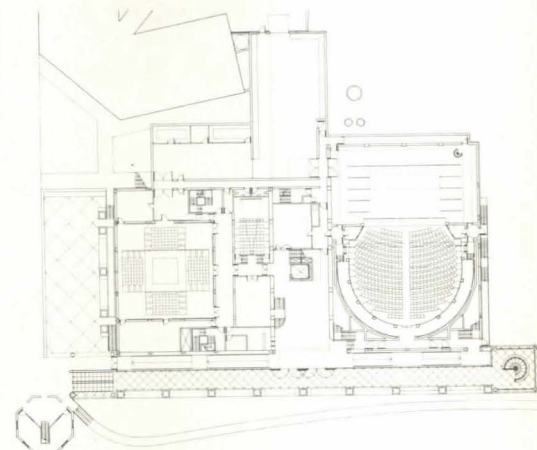


SIDE ELEVATION

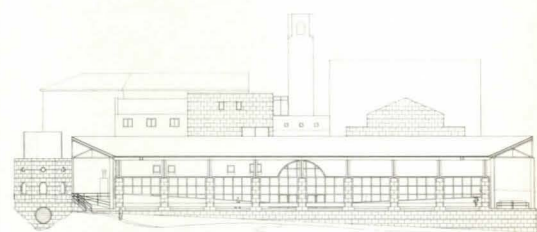
### Berlin Science Centre

Working drawings are now being prepared for the Science Centre (P/A, Jan. 1982, p. 203), awarded to Stirling/Wilford in an IBA-staged competition (P/A, Jan. 1982, p. 201), and construction is expected to be complete by 1987. The design is a complex of five discrete building forms—a basilica, a stoa, a hexagonal tower, a semicircular theater, and a Norman keep, one might call them—together with an existing building, clustered around a central garden. The forms are tied together by a continuous wall treatment of wide horizontal bands, as at the Fogg, and regular, heavily framed windows.

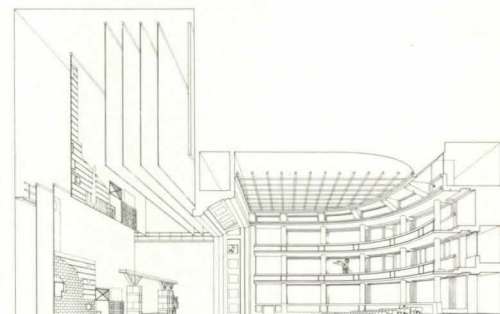
### Cornell University, Ithaca, N.Y. Performing Arts Center



MAIN FLOOR PLAN



NORTH ELEVATION, LOGGIA



SECTIONAL PERSPECTIVE OF PROSCENIUM THEATER

### Cornell University Performing Arts Center

Working drawings are now being completed for this theater building in Ithaca, New York (P/A, Mar. 1984, p. 30), and completion of the entire project (not just the first phase, as originally planned) is expected in two years time. It contains a 180-seat flexible theater, a 500-seat proscenium theater, a dance studio, and classrooms and offices. Tying the components together is an open-air loggia overlooking a gorge. ■

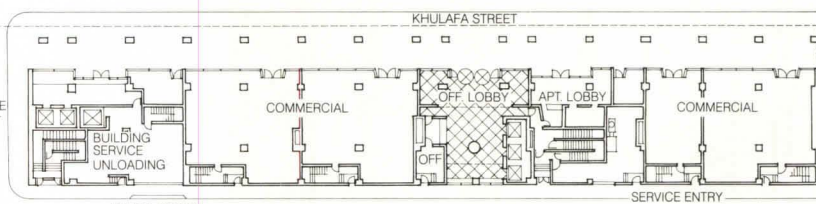
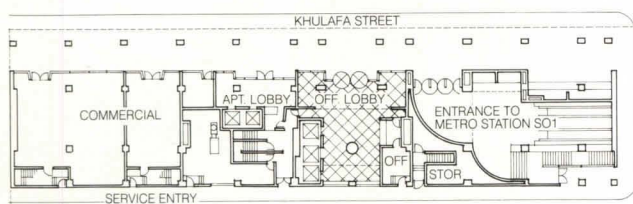


# Venturi, Rauch & Scott Brown

Among the many projects now underway in the Philadelphia offices of Venturi, Rauch & Scott Brown, the following four demonstrate the firm's penchant for diversity. A mixed-use development covers a block and a half of Baghdad, Iraq (a project now suspended because of the Iraq-Iran war). Scheduled to open in 1985 is the new Molecular Biology Building at Princeton University, for which VRSB, as associate architects for Payette Associates,

*From a children's zoo to a massive mixed-use development, four projects illustrate the firm's idiosyncratic, thoughtful brand of contextualism.*

are responsible for exterior design, site planning, and landscaping. The building's strategic location on campus is not a new problem; VRSB faced a similar challenge successfully at Princeton's Wu Hall, completed last year. Finally, a children's zoo and a new primate facility at the Philadelphia Zoological Garden, both of which will open next year, exemplify the new breed of zoo design, in which animal displays forgo the out-of-context, cage-and-sign syndrome in favor of environmental exhibits that offer visitors a vivid glimpse of the context itself. [PILAR VILADAS]



N 40/12m

**Project:** Khulafa Street Development, Baghdad, Iraq.

**Architect:** Venturi, Rauch & Scott Brown/Amman & Whitney, Inc., in joint venture (David Vaughan, associate in charge; Robert Venturi, design principal; John Rauch, management principal; John Chase, Reyhan Larimer, Tim Lisle, James Timberlake, major project development; with Margo Angevine, Jim Bradberry, Rick Buckley, Eric Gees, Sam Harris, John Hayes, Steven

Izenour, Mark Kocent, Michael Levin, Bob Marker, Christine Matheu, Daniel McCoubrey, Ronald McCoy, Miles Ritter, David Schaaf, Denise Scott Brown, Rob Schwartz, Simon Ticknell, Maurice Weintraub).

**Associate architect:** TEST Technical Studies Bureau.

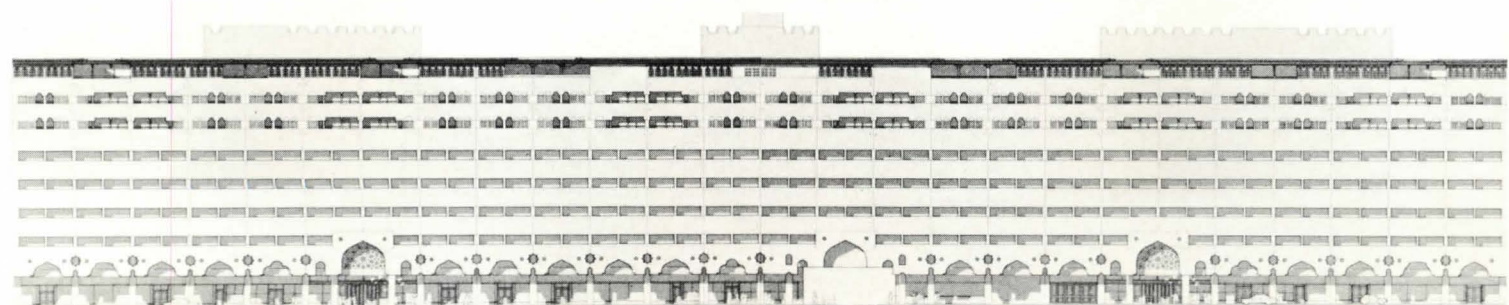
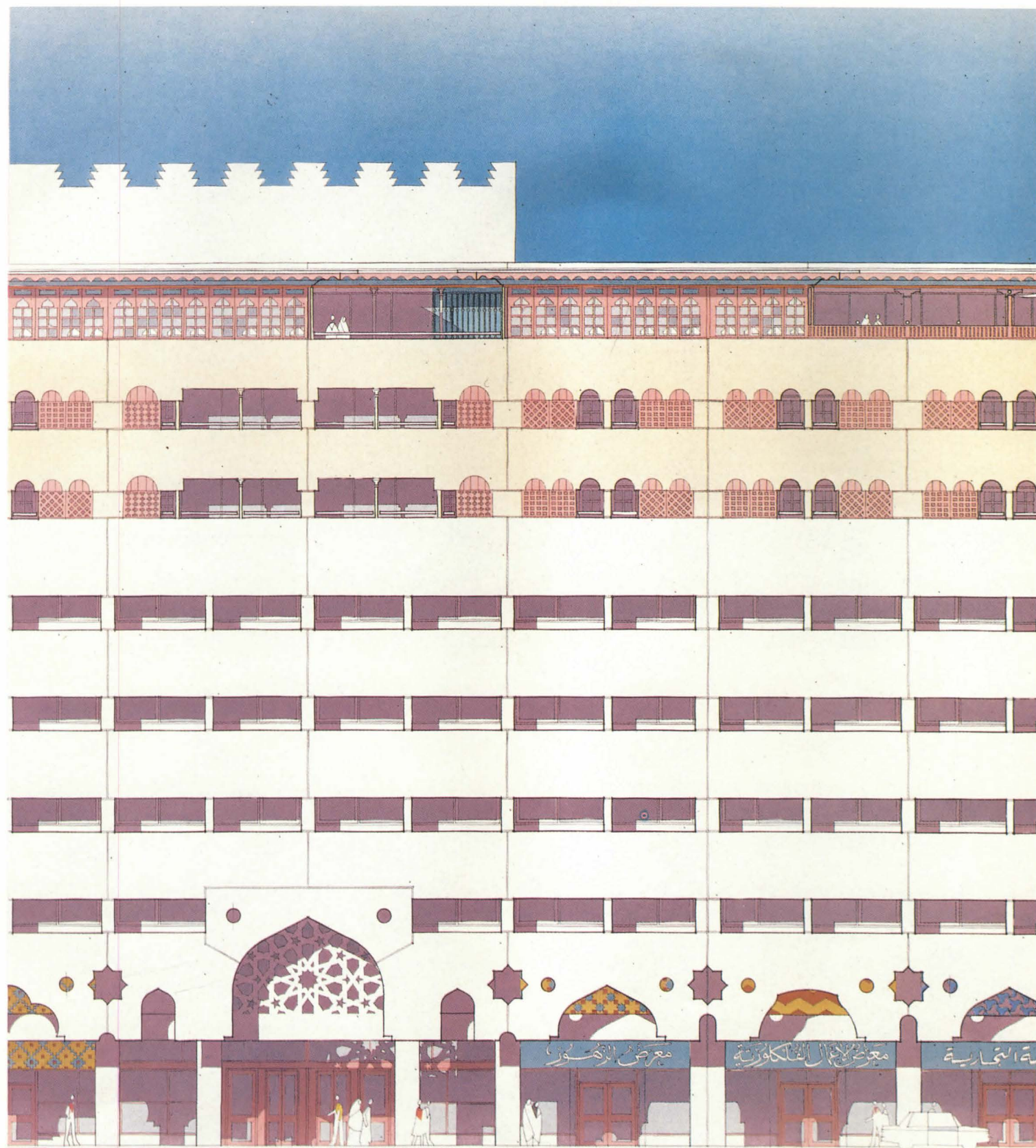
**Client:** Amant Al Asima of Baghdad (Baghdad City Development Agency), Republic of Iraq.

**Photography:** Tom Bernard.

**Program:** a mixed-use, 409,000-sq-ft, nine-story building, part of a major redevelopment plan. The ground floor and mezzanine house retail space behind a deep arcade. Four office floors are topped by three apartment floors, with a meeting facility and a day care center. The cast-in-place concrete structure, while fully air-conditioned, is shaded by continuous, precast concrete screen walls, punctured for light and views, along the two main façades. Open-

ings, wood screens, and decorated enameled metal panels evoke traditional Iraqi architectural forms. The design is meant to impart a more urban quality to the universal form of the high-rise slab, while the brise-soleil becomes a decorative as well as a functional element.

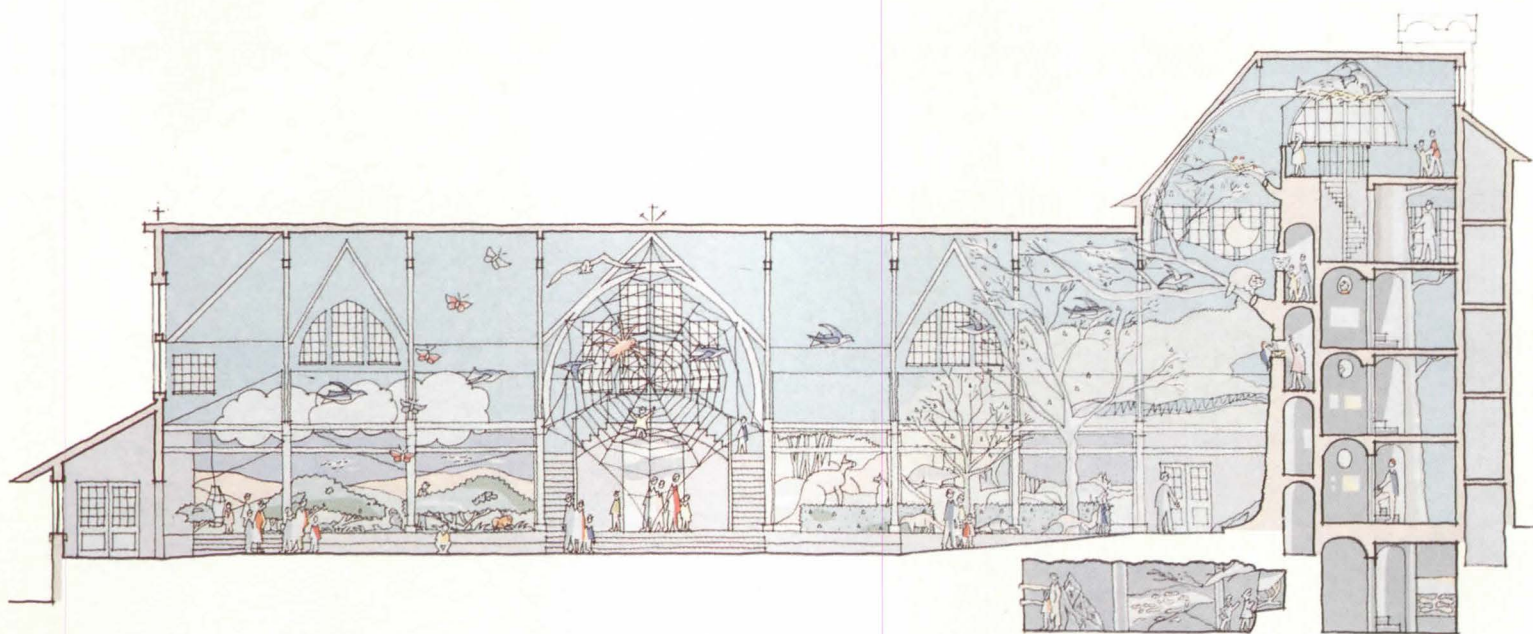
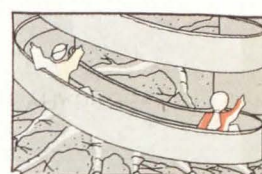




KHULAFI STREET ELEVATION



Venturi, Rauch & Scott Brown  
Children's Zoo



**Project:** George D. Widener Memorial Treehouse, Children's Zoo, Philadelphia Zoological Garden, Philadelphia, Pa.

**Architect:** Venturi, Rauch & Scott Brown (Steven Izenour, associate in charge; Dan McCoubrey, Christine Matheu, Lou Rodolico, project architects; with Steve Brown, John DeFazio, Elise duPont, Frances Hundt, Reyhan Larimer, Gabrielle London, Bob Marker, Ronald McCoy, Francis Read, David Schaaf, Chris Smith, Robert Venturi).

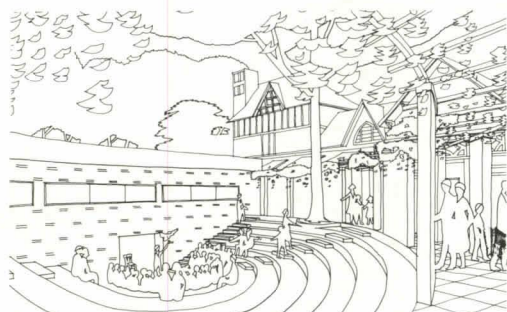
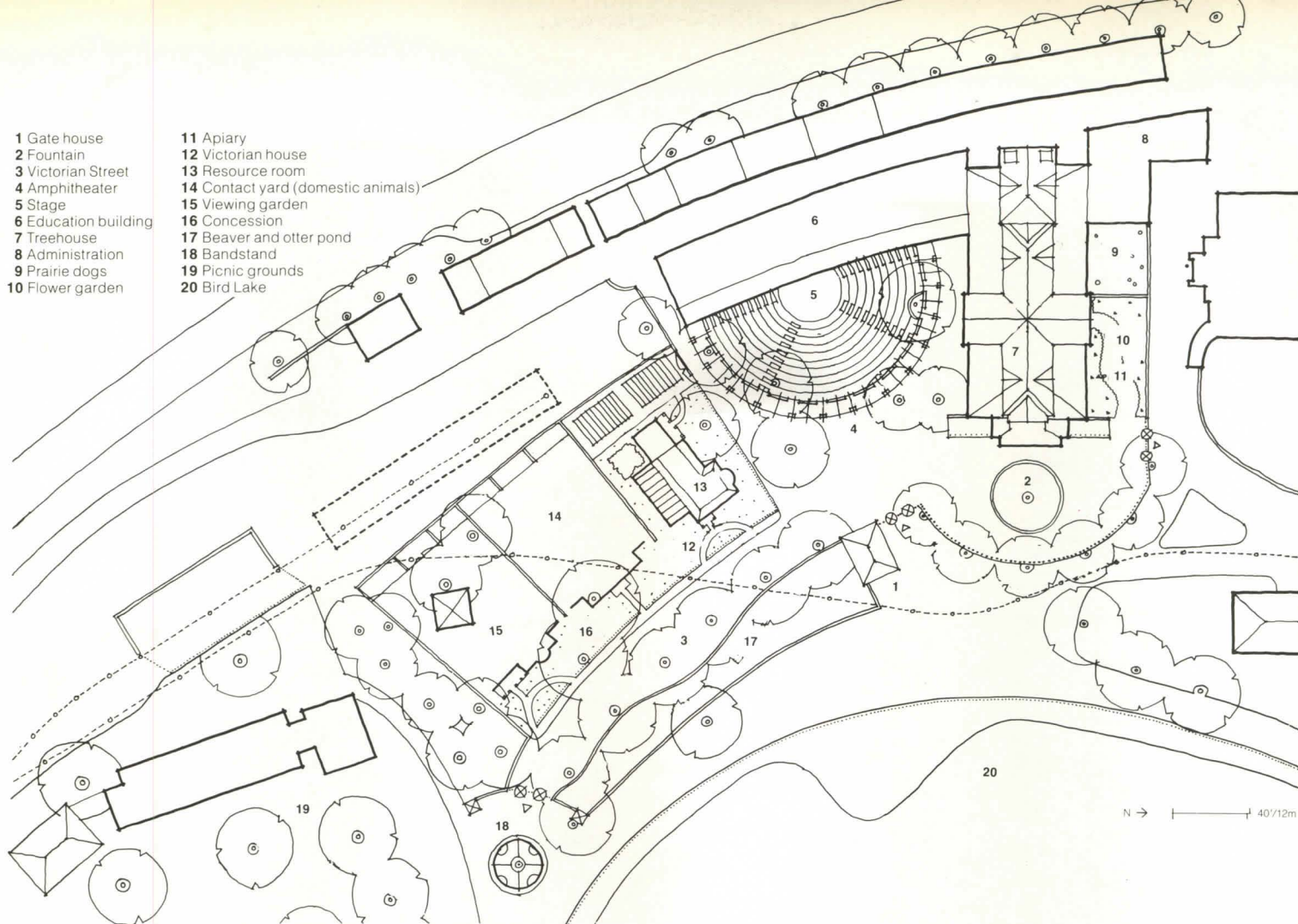
**Consultants:** Mary-Scott Cebul, exhibition conceptual design; Keast & Hood Co., Inc., structural; Dennis Aufrey, Louisa McElwain, murals; Louisa McElwain, scrims; Christopher Speeth, audio; Lou Rodolico, mechanical effects.

**Cost:** \$3 million.

**Photography:** Tom Bernard, Matthew Wargo.



- 1 Gate house
- 2 Fountain
- 3 Victorian Street
- 4 Amphitheater
- 5 Stage
- 6 Education building
- 7 Treehouse
- 8 Administration
- 9 Prairie dogs
- 10 Flower garden
- 11 Apiary
- 12 Victorian house
- 13 Resource room
- 14 Contact yard (domestic animals)
- 15 Viewing garden
- 16 Concession
- 17 Beaver and otter pond
- 18 Bandstand
- 19 Picnic grounds
- 20 Bird Lake



VIEW OF AMPHITHEATER



VICTORIAN STREET LOOKING EAST



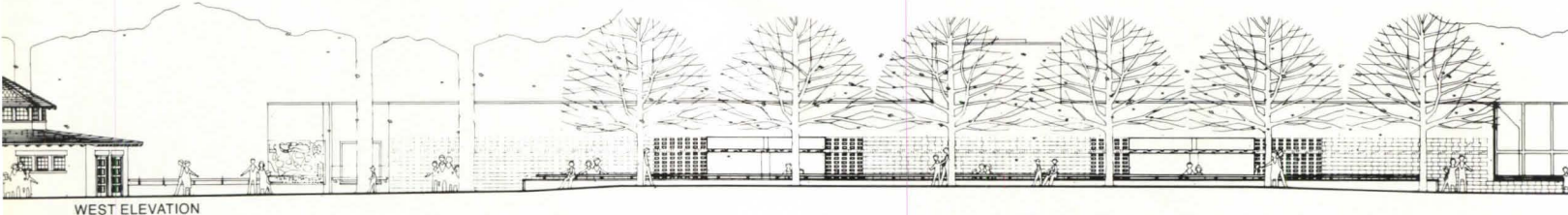
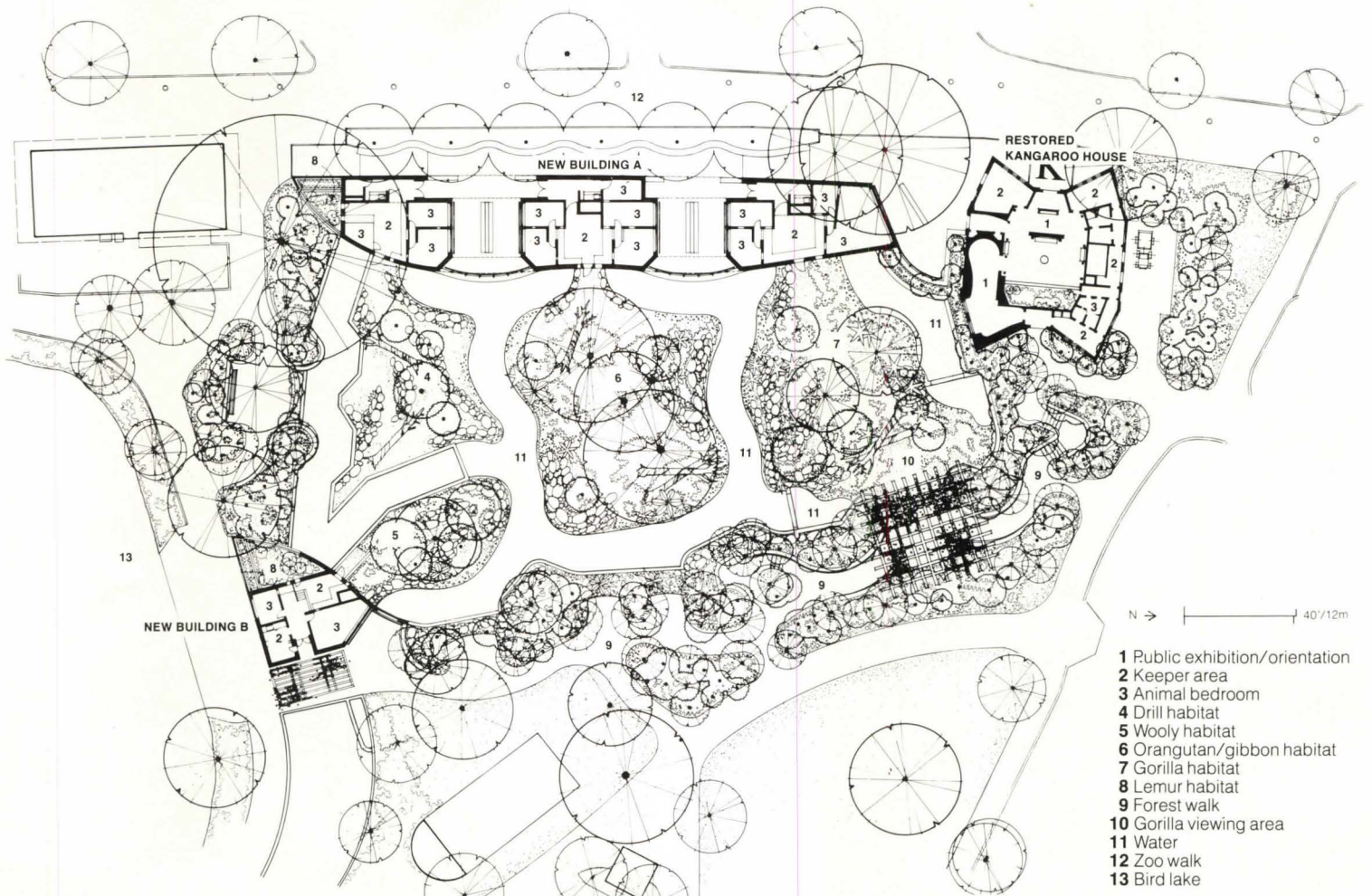
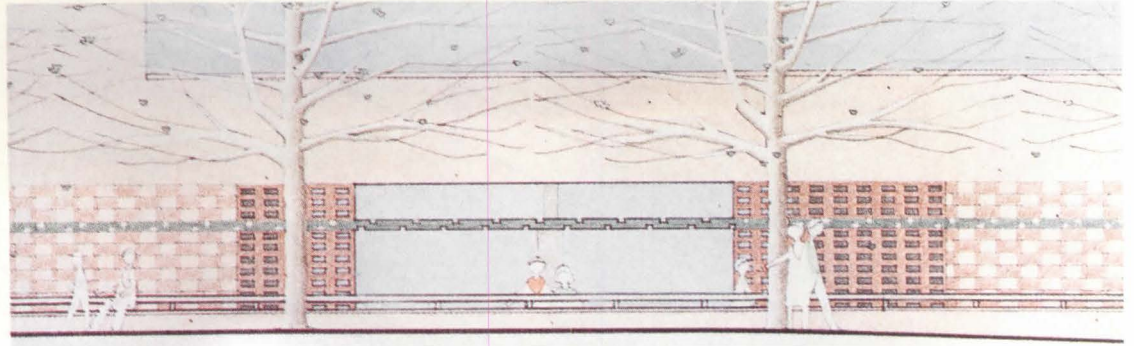
**Program:** a new children's zoo, the centerpiece of which is the reuse of a distinguished Victorian building (the former Antelope House) to house a series of interactive exhibits, depicting different animal and plant environments. "Interactive dioramas" combine available information with an experiential approach that engages the visitor's imagination, a critical factor in examining the sensory capacities of other animals. This nontraditional exhibit style actively immerses the visitor in a real physical context, and can accom-

modate large crowds on high-attendance days. Artificial materials such as fiberglass, building insulation, rubber, and plastic are used to develop artificial trees, vegetation, animal forms, etc., to maintain the illusionistic qualities of the exhibits while enabling them to endure constant handling by the public. Exhibits harmonize structurally and contextually with the existing building: aerial settings are located in high, well-lighted spaces, while subterranean ones are housed in dim basement areas. The design of the

exhibit is intended to give visitors, especially young children, an experiential foundation for later intellectual inquiry: seeing, feeling, and smelling, in as scientifically accurate a way as possible, become the sensory precursors to wanting to know specific facts.



**Venturi, Rauch & Scott Brown**  
**Primate Facility**



WEST ELEVATION

**Project:** Primate Facility, Philadelphia Zoological Garden.

**Architect:** Venturi, Rauch & Scott Brown (Robert Venturi, principal in charge; James Bradberry, project architect; with Margo Angevine, Rick Buckley, Roc Caivano, Vince Hauser, Steven Izenour, Tim Lisle, John Rauch, David Schaaf, Denise Scott Brown, Simon Ticknell, James Timberlake, Ann Trowbridge).

**Consultants:** Hanna-Olin, Ltd., landscape; Mary-Scott Cebul, exhibit conceptual design; Keast & Hood

Co., Inc., structural; Vinokur Pace Engineering Services, mechanical/electrical; International Consultants, Inc., construction management; Grenald Associates, lighting; Glicksman Associates, audio-visual.

**Cost:** \$5.5 million.

**Photography:** Tom Bernard, Matthew Wargo.

**Program:** a 1.1-acre primate exhibition center, to include new buildings, reuse of an existing historic building, and extensive landscaped areas for display of animals. The main facility is the new exhibition area, which will house animals in naturalistic set-

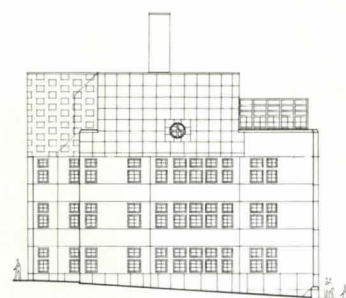
tings, behind nonarchitectural barriers (water, foliage, berms). Large groups of animals will occupy each setting to illustrate each species' natural social behavior. The restored 1907 Kangaroo House will become an orientation and interpretive center, and two new holding buildings for animals will use brick patterns, latticework, and detailing that harmonize with the zoo's other historic building.



# Molecular Biology Building

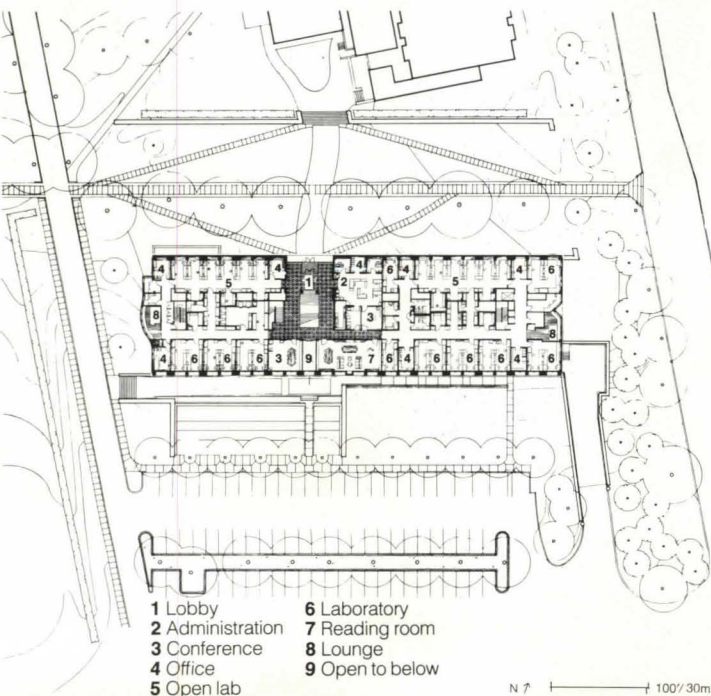
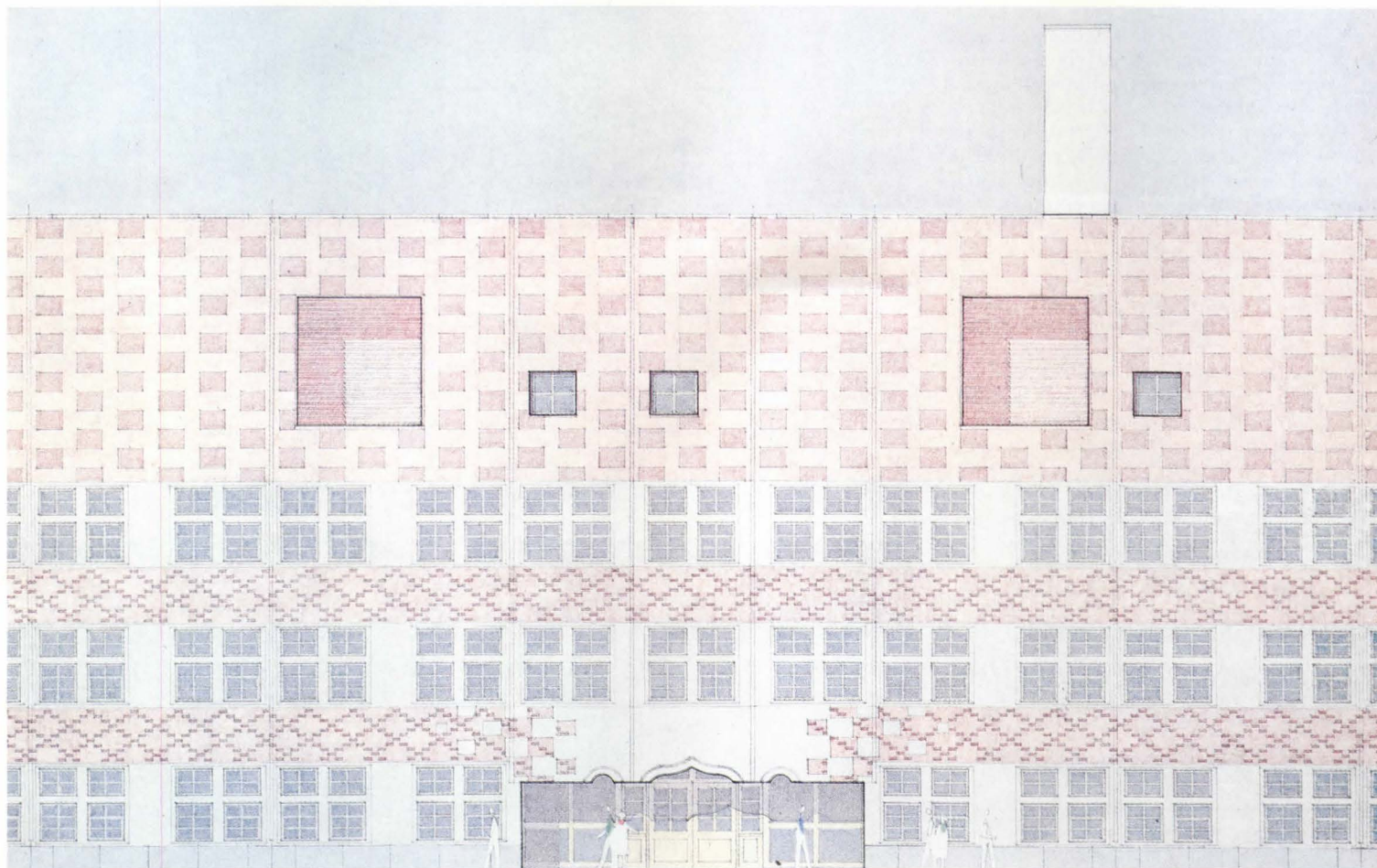


SOUTH ELEVATION



WEST ELEVATION

20/6m



- 1 Lobby
- 2 Administration
- 3 Conference
- 4 Office
- 5 Open lab
- 6 Laboratory
- 7 Reading room
- 8 Lounge
- 9 Open to below

N 7 100'/30m

**Project:** Molecular Biology Building, Princeton University, Princeton, N.J.

**Architect:** Payette Associates, Boston, Mass. (Thomas Payette, principal in charge; David Rowan, project architect; James Collins, project designer).

**Associate architect:** Venturi, Rauch & Scott Brown (Robert Venturi, principal in charge; Ronald McCoy, project architect; with Margo Angevine, Rick Buckley, John DeFazio, Gunther Flaig, Sam Harris, Vince Hauser, Bob Marker, Roger Pryor, John Rauch, Denise Scott Brown, James Timberlake, Ann Trowbridge, David Vaughan, Maurice Weintraub).

**Consultants:** R.G. Vanderweil, mechanical/electrical; Simpson, Gumpertz and Heger, Inc., structural; Barr and Barr, construction management.

**Cost:** \$29 million.

**Photography:** Tom Bernard.

**Program (VRSB):** exterior design, entry points, site planning, and landscaping for a new, 110,000-sq-ft laboratory and classroom building. The building's simple, rectangular form reflects the loftlike layout of the interior, which permits maximum flexibility to meet programmatic requirements. Banded windows between stone courses run around the brick and granite structure, and a recessive brick and sandstone pattern differentiates the upper (mechanical) floor and enlivens the massive front façade of the building. Site planning takes into account the building's importance as the eastern terminus of College Walk, as an "entrance" to the Main Campus of Washington Road from the south, and as identifying with the Guyot Hall complex to the north.



# Art as Architecture

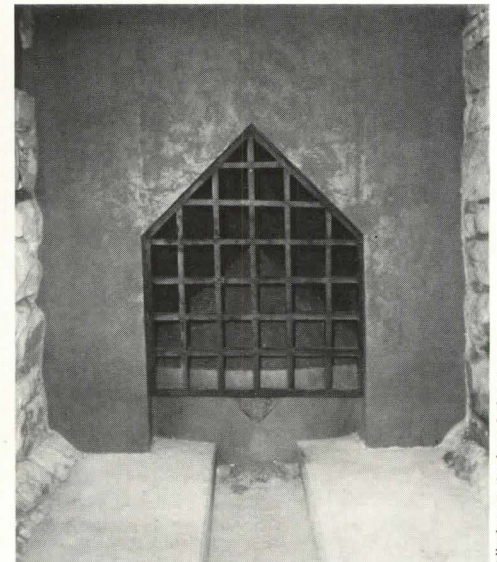
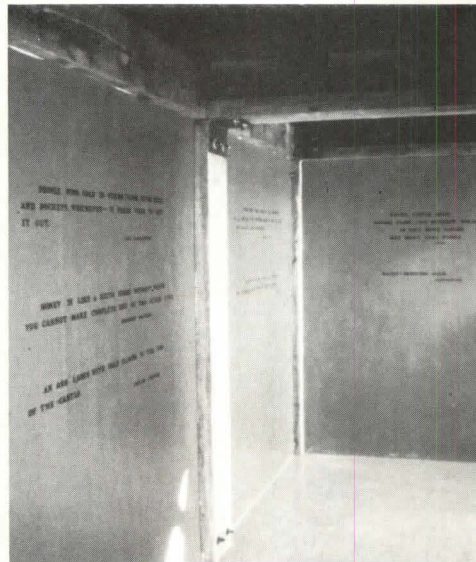
Artists can modify work throughout construction and thereby understand it in ways architects rarely can. Leicester's opportunities during implementation can be seen in the case of "Toth." Discovery of existing sandstone walls from an abandoned gold smelting operation gave the artist an opportunity to turn the nine-foot-diameter stone base of the smelter chimney stack into the central enclosed space of the base. Creative insights came from the experience of fabrication. Unfortunately this cannot be part of the design method of most architects, yet it may partially explain why so much 20th-Century architecture is more convincing on paper than in reality.

To work almost exclusively with architecture as a representational and legal phenomenon, as architects do, is to miss one of the most essential measures of our medium: the experiential—that which comes through the dynamic process of knowing and experienc-

*Two memorials by sculptor Andrew Leicester reveal the significance of sculpture to contemporary architects and architecture.*

ing a design's construction. In this regard, the contractually and procedurally exclusivist tradition the profession has slowly adopted over the past several centuries has not been to its creative benefit.

While artists dwell on a broad spectrum of subject matter, focusing almost exclusively on architectural themes is unusual. Also, many sculptors, like many architects, are now utilizing more traditional and accessible sym-



"Toth," Andrew Leicester's sculpture on Smelter Hill in Rapid City, South Dakota, contains a stack of timber cubes rising from a nine-square base to a single cube 40 feet above the crest of the hill. A gold cube occupies the center of the sculpture's base, focusing attention outwards to the inscriptions on its outside walls. From the second level, one can peer inside the cube to a subterranean pit containing a conical pile of red sand: a spatial definition at once elevated and protected. One then can climb the stair to the highest cube for unobstructed views or descend to the lowest level where, inside a circular

concrete dais, lies the sand pile. Water, gathered by the structure above, erodes the sand to expose gold bones buried within. The water carries its red tint through sluiceways and down the hill.

All photos: Andrew Leicester







## Leicester Sculpture

*"Prospect V-III" by sculptor Andrew Leicester, at Frostburg State College in Maryland, commemorates the lives of the region's coal miners. The sculpture contains a cluster of miniature huts about a mineshaft, with each signifying an important station of the miner's life. The smallest represents infancy and is aptly decorated with*

*butterflies that collapse into black lungs in the corners of the room. A cradle, in the form of a coal cart secured on a track, suggests the sealed fate of the miner. In the second hut, Leicester recreates the region's method of extracting coal (the pillar and room method) with a room of glossy, black tiles. The third hut represents retirement and memories in a two-story space that contains tools and photographs donated by local miners or their*

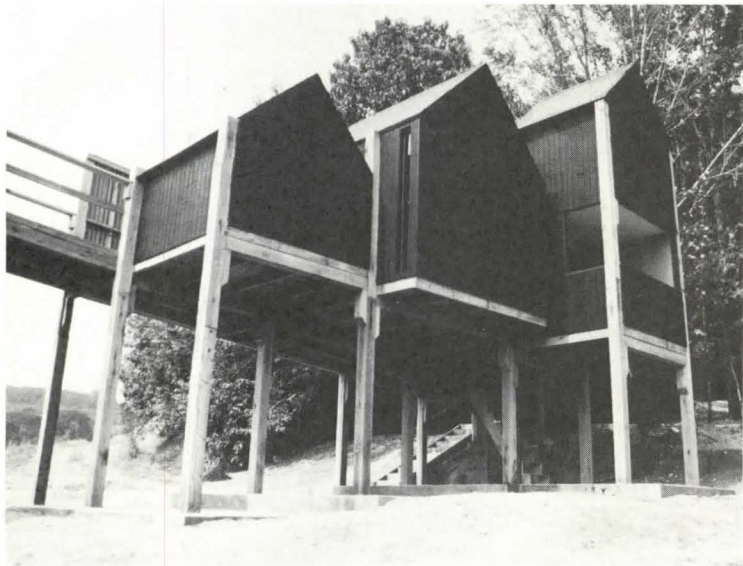
*widows. The last room, before descending into the shaft, has an octagonal rotunda with a fractured track below and ghostly uniforms above. Its cryptlike quality conveys its meaning as a room of transition, a station between earth and sky, death and life.*



bols in their work, and much can be learned from one another's successes and failures. To see a "non-architect" artist skillfully manipulate architectural forms is both compelling and instructive.

The depth and clarity of Leicester's own creative vision is central to his success. He understands and skillfully employs dialectics such as the mythical significance of the ground plane (above/below), the distinction between inside and outside (enclosure/exposure), and the communicative force of both the simple and the ambiguous (literal and direct/obtuse and multiple). He also is skillful





in his use of geometry, iconography, and color—all color, not just the soft pastels, but the hard primaries as well as black and white.

Leicester solicited community participation in the conception of these projects, and successfully translated and integrated it into the work. The community could not have conceived or executed this sculpture on its own—an interpretation and translation by an artist were necessary. But the outpouring of donated objects, stories, and labor from the mining communities is at the core of the memorials' success.

Sculptors like Leicester, who work with architectural subject matter, should be watched as closely by us as we watch ourselves. Their

works are as much about architecture as much that gets built from architectural blueprints, or perhaps more so. We are fortunate that many artists today are using architecture as subject matter. We can learn more about our own medium if we stop to study how they interpret and recreate it. ■

**GARTH ROCKCASTLE** is a principal with the Minneapolis architectural firm of Meyer, Scherer & Rockcastle, Ltd., and is an Associate Professor at the University of Minnesota School of Architecture.



# Beyond Modernism

It is, perhaps, astonishing for a 33-year-old architect, one less than ten years out of school who has yet to build her first commission, to be invited to present a retrospective of her life work. Yet the exhibition staged last spring at the Architectural Association in London and the accompanying catalog showed Zaha Hadid to be in complete command of all aspects of architectural structure, space, and stylistic expression. Hadid, better known abroad than in the States, makes an emphatic, almost heroic case for modernity—not the naïve utopianism of the

*Zaha Hadid's winning entry in Hong Kong's Peak competition brought the London-based architect international attention. Shown here is a brief portfolio of her work.*

1920s, but the more sophisticated, urbane "culture of congestion" evident in the extroverted "delirium" of OMA (Office of Metropolitan Architecture) or the obsessive, personal vision of Daniel Libeskind.

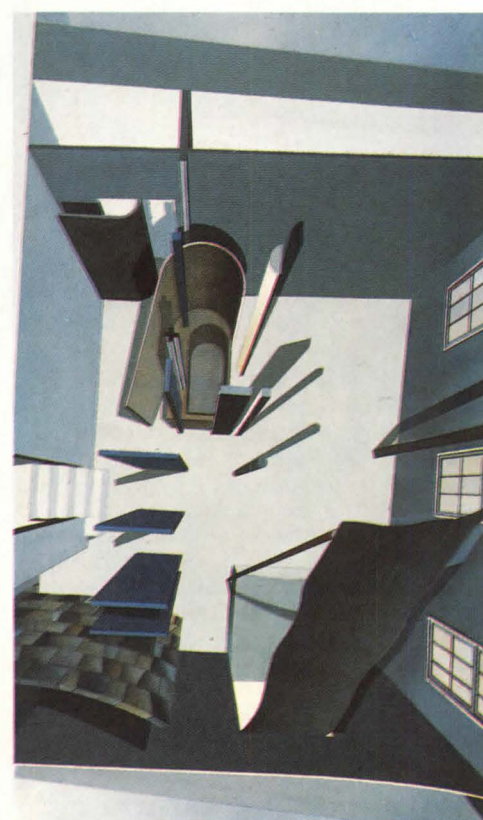
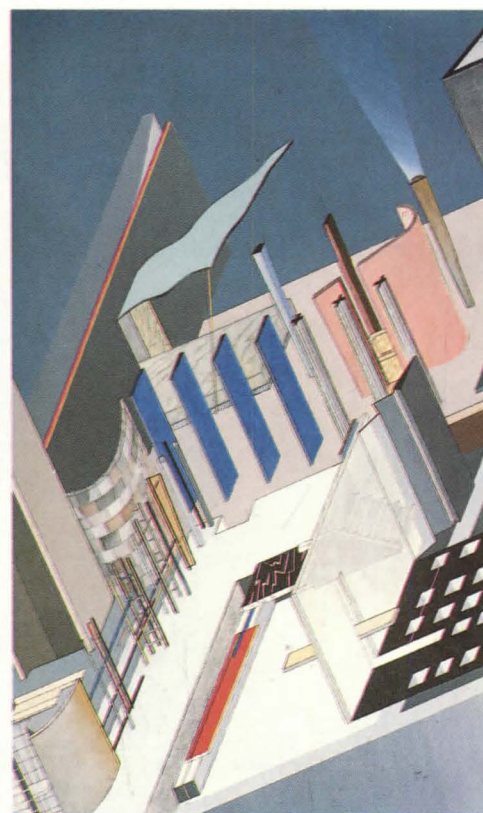
Originally from Iraq, Hadid studied mathematics at the American University of Beirut before entering the AA. A student there in the studio run by Elia Zenghelis and Rem Koolhaas, she joined their OMA upon graduation. Since setting out on her own in 1979, Hadid has moved away from the OMA aura, and her scheme for the Peak competition in Hong Kong, which took first place, is

most assuredly her own. The jury's selection of Hadid was greeted with considerable dismay and disbelief by the architectural establishment, many of whom termed Hadid's complex of luxury apartments and club unbuildable "paper architecture." Hadid answered these accusations with a characteristic challenge, replying that conventional architecture failed to push technology to its available capacity, and her structural engineers Ove Arup & Associates backed the claim completely.

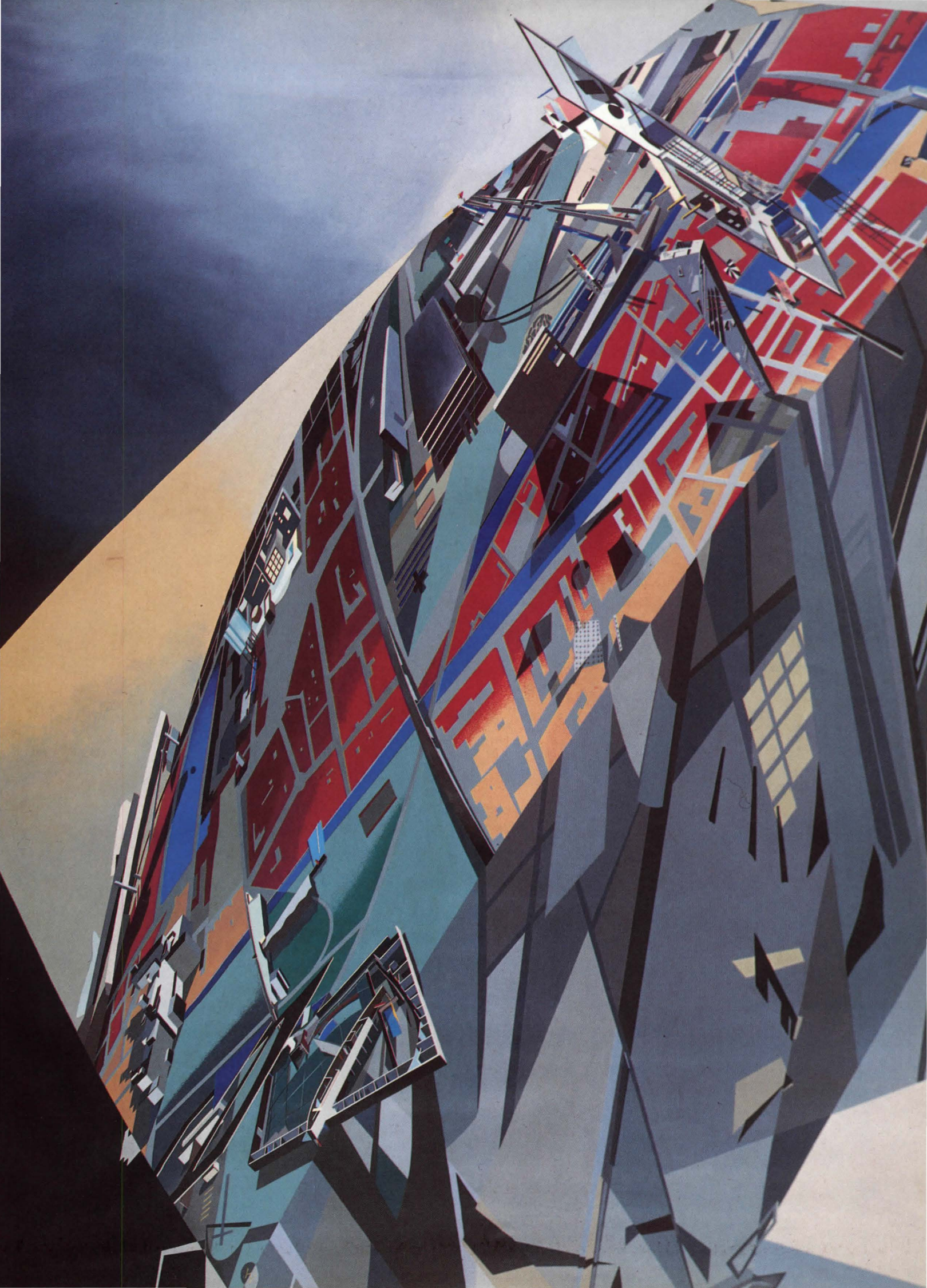
In the wake of the Peak, labels flew thick and fast; Hadid was termed a latter-day Constructivist, a Suprematist, a Futurist, and even a post-Proun, her work likened to Tatlin, El Lissitzky, and Liebeskind. Hadid herself coined the phrase "Suprematist geology" for her Peak, but her public presentations of the project—one conducted late last spring at Parsons School of Design—remain relatively free of jargon, concentrating instead on a conventional "walk" through the project via sections, elevations, and plans that reward careful study with a complete, three-dimensional image of the building.

Hadid considers teaching a crucial adjunct to her practice, and the AA studio is her laboratory. Her students, however, face the same dilemma Hadid herself must have encountered as a student of Zenghelis and Koolhaas: the difficulty of absorbing the ideas without parroting the idiom. The dilemma is ironically similar to that faced by students of Michael Graves, Peter Eisenman, or other such "stars" of the Post-Modern—and Modern—movements, who project a strong, captivating personal style. The AA's entry in an exhibition of international student work at the Columbia University School of Architecture last spring proved how seductive Hadid's style can be.

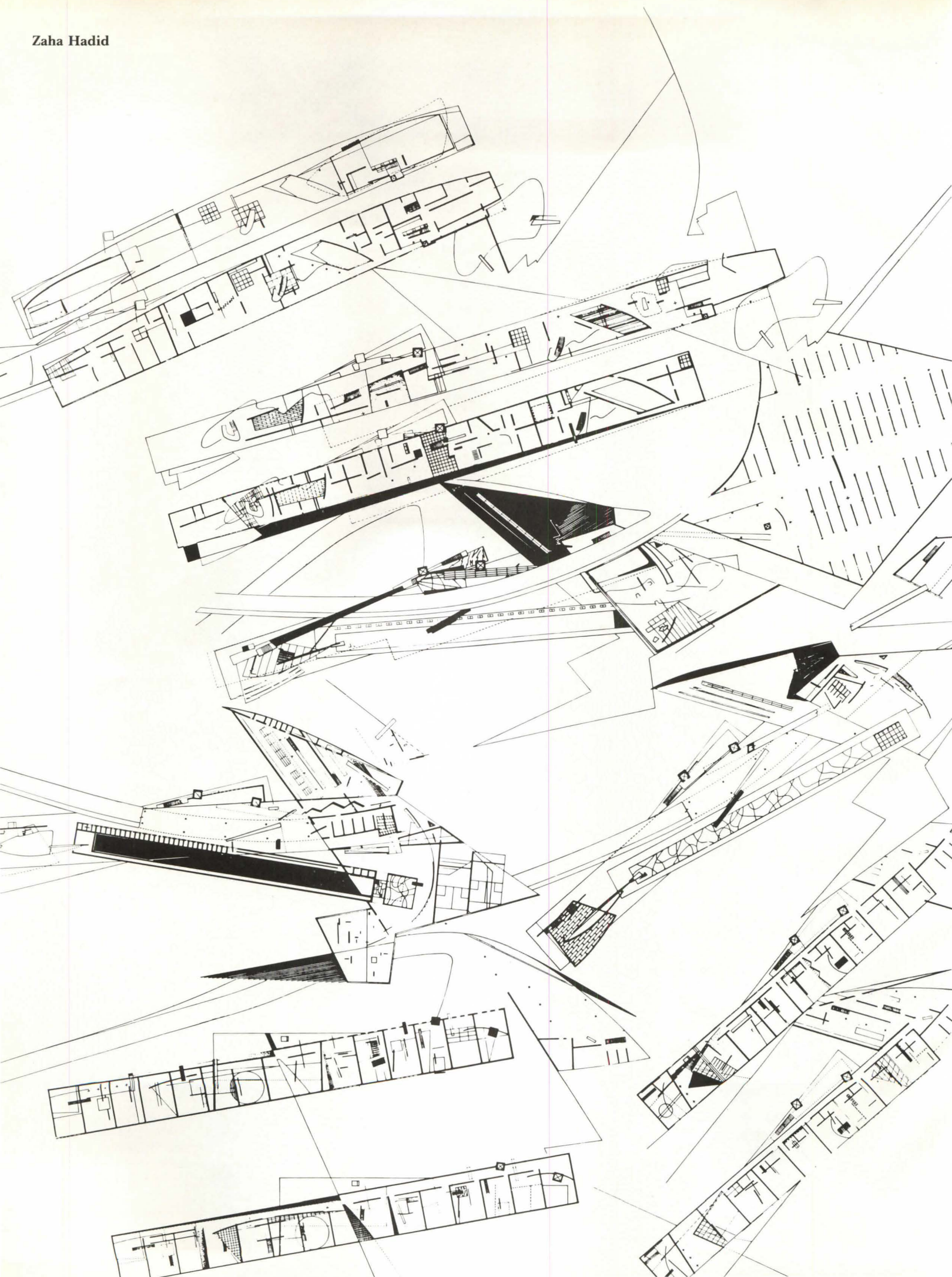
*No work so summarizes Hadid's total program for Modern architecture in the latter half of the 20th Century as the painting titled "The World" (facing page). All of Hadid's major projects are represented here, including early student work, the 1979 Irish Prime Minister's House (bottom), the Parc de la Villette (middle, top), and finally the Peak, sited at the edge of the globe (far left). Hadid's scheme for 59 Eaton Place, Belgraveia (right, top and bottom), explores the fragmentation and recomposition of interior elements—lighting, columns, shelving, and even a bed canopy—within the volume of a turn-of-the-century townhouse.*



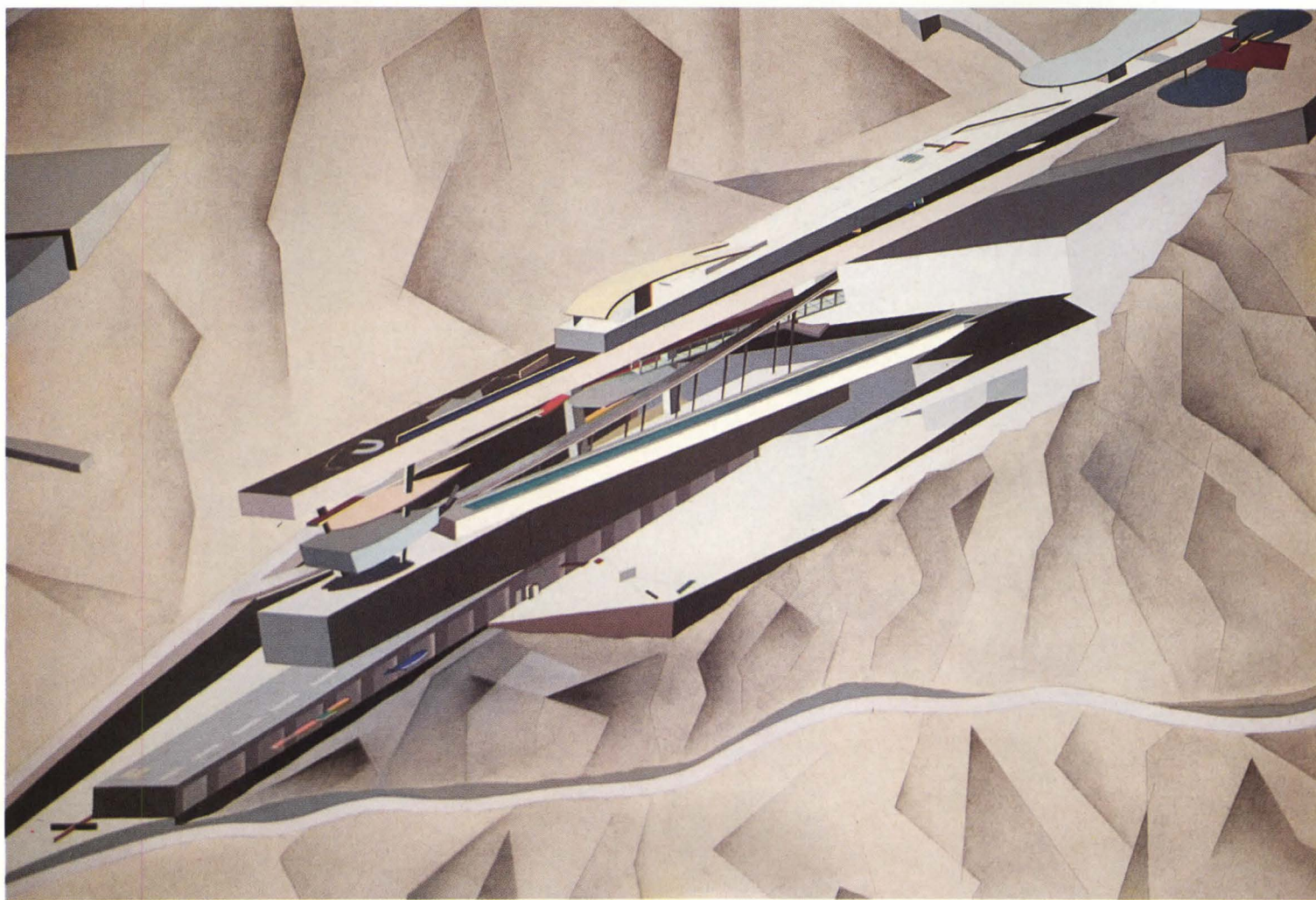












Still, Hadid and her OMA mentors are not alone in preaching a new Modernism. The Peak competition coincided with a second international competition for Paris's Parc de la Villette, won by Bernard Tschumi, also on the AA faculty, with OMA a close second (*P/A*, May 1983, p. 26). Both competitions asked not just for new solutions but for new scenarios; both Tschumi and Hadid—and to a lesser extent OMA—responded by proposing a new kind of urban experience. Theirs is a renewed, vigorous modernity, an architecture that, despite its obvious ties to the 1920s, looks not to the past but to the future. Tschumi's Park is now underway. Hadid's Peak seems stalled by the uncertainties over Hong Kong's future, but her work remains a provocative alternative and one that should be carefully examined for its relevance to architecture on this side of the Atlantic.

[DARALICE D. BOLES]

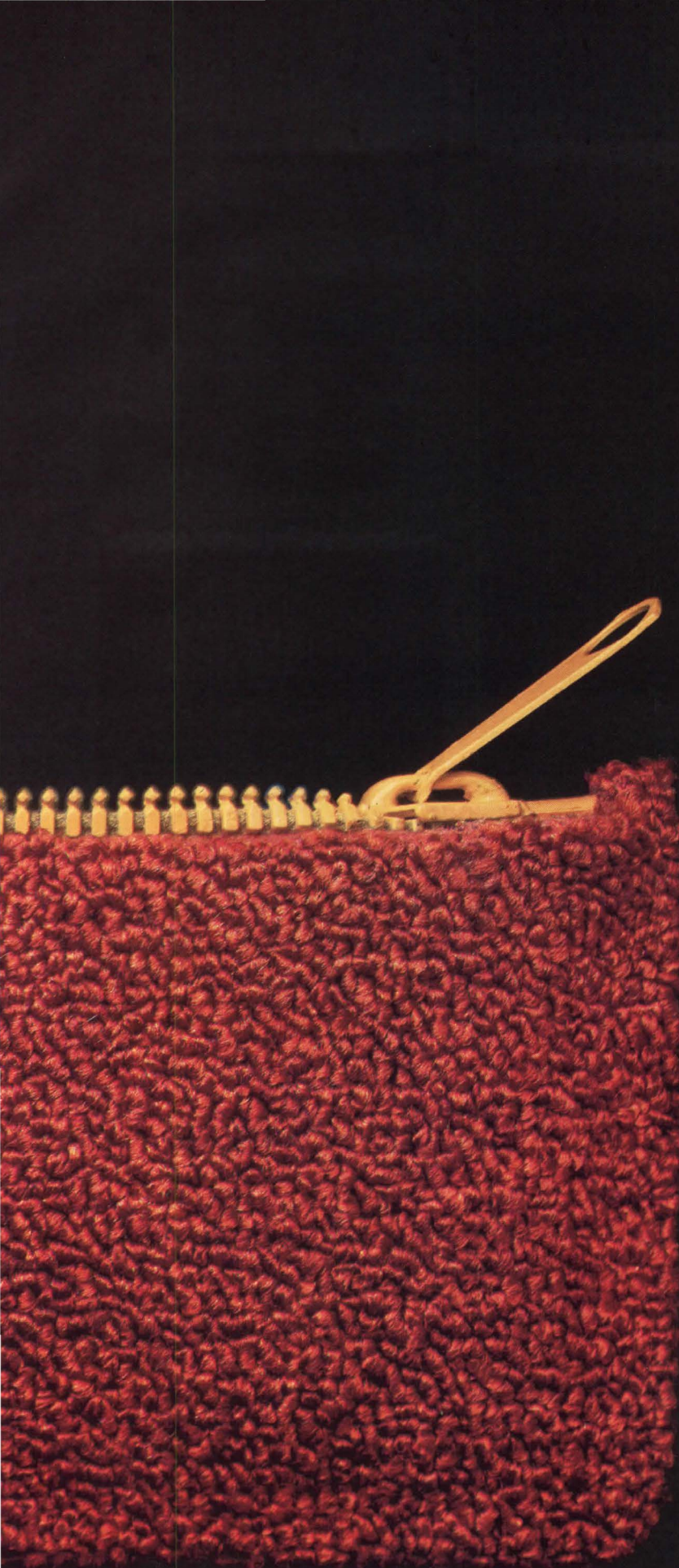
*Hadid's plans for the Peak (facing page) proved the most shocking part of her competition entry. While each element can be read as a conventional if diagrammatic floor plan, their presentation together on the page conveys the energetic dynamism shaping this horizontal skyscraper. Acrylic paintings (above) produced for the AA exhibition further elucidate the "parti." Hadid conceives of the Peak as a composition of four, stacked, architectural "beams," unevenly aligned and set into a "man-made mountain." Landscape is brutally abstracted: Hadid emphatically rejects the picturesque as "impossible" for the 20th Century.*

*Suspended in the irregular void between the two sets of paired beams, which house apartments and penthouses, is the club with its pool, library, and sports facilities. The top painting shows the building "landing" on the promontory, the bottom, as a "knife" slicing into the mountainside, set aloof from and in opposition to the crowded clutch of more conventional skyscrapers below, along the Hong Kong harborfront. Peak competition team: N. Ayoubi, J. Dunn, M. Wolfson.*









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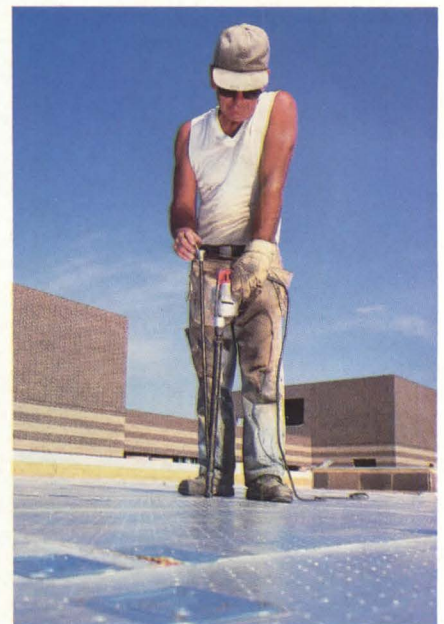
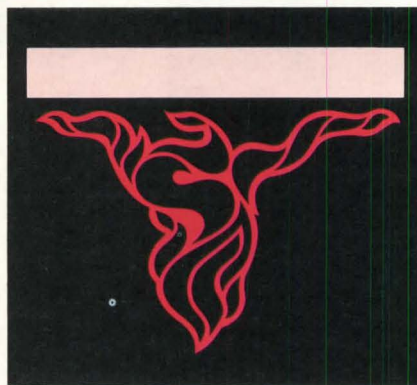
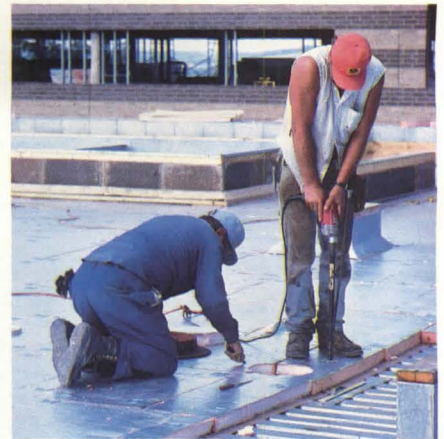
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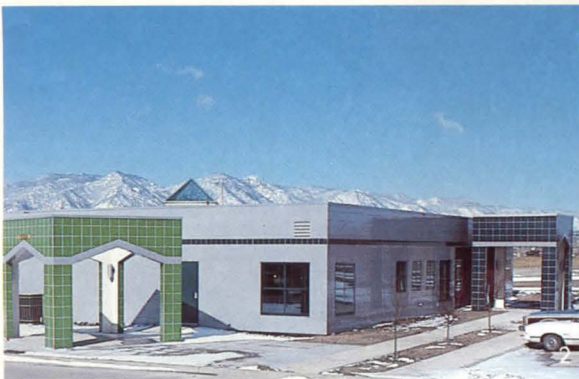
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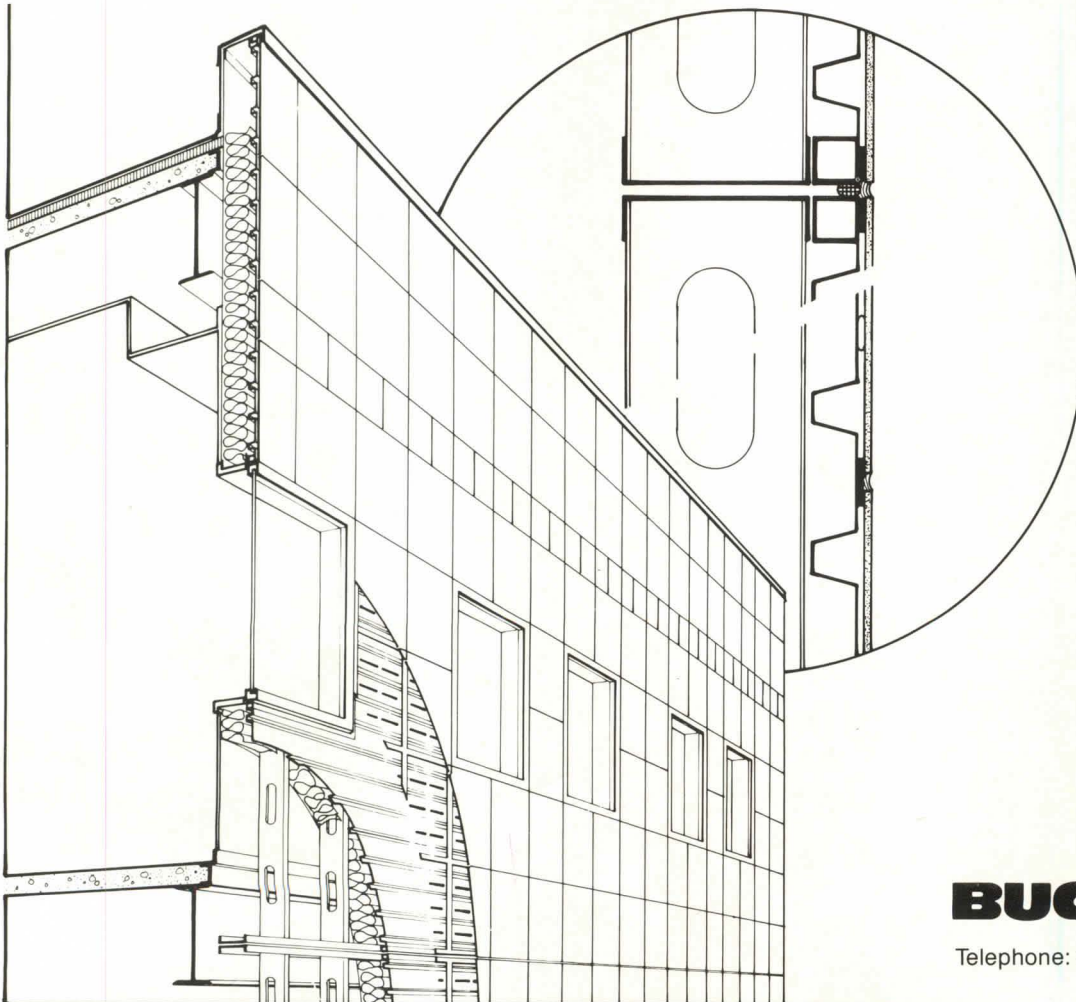
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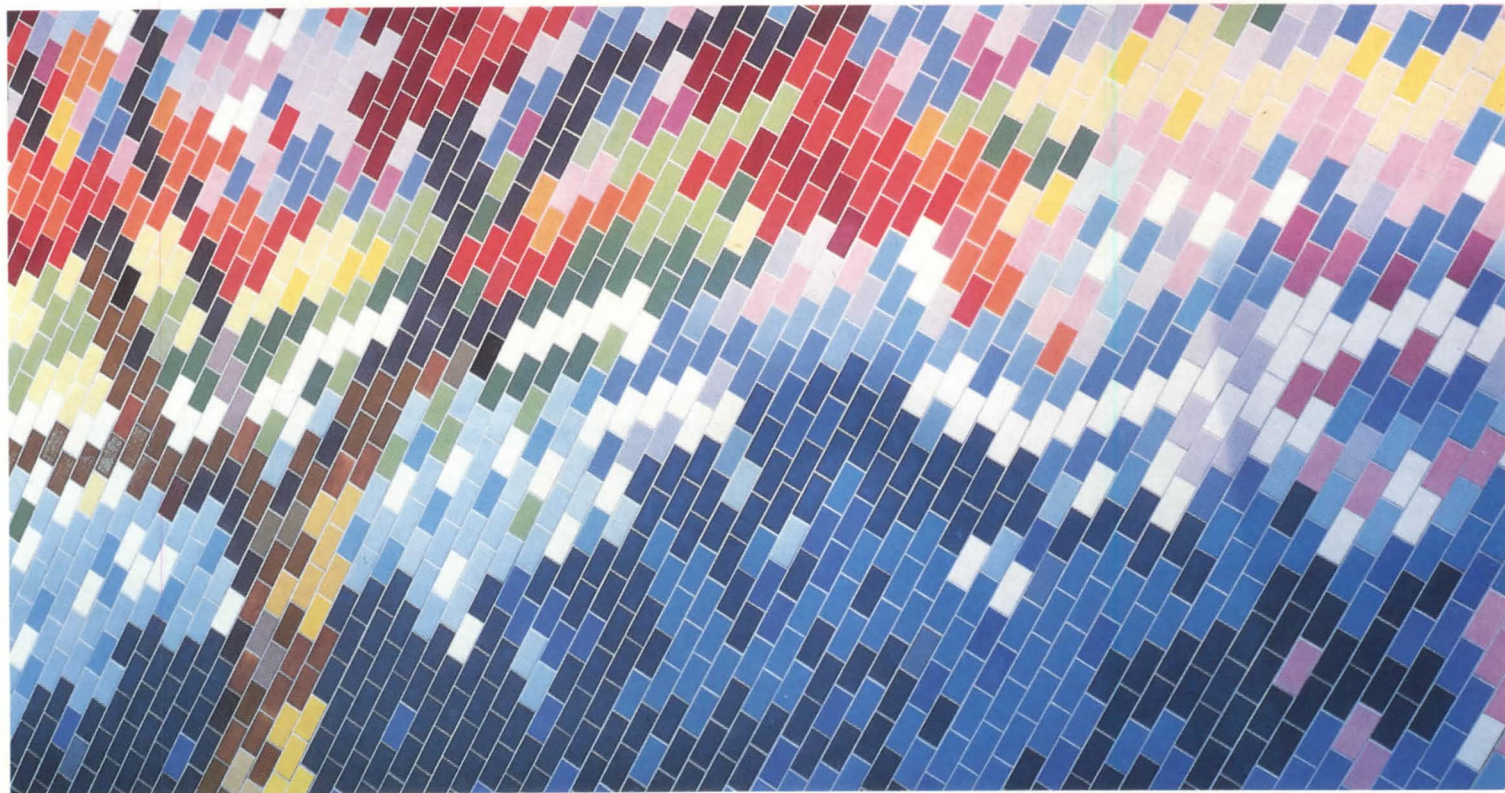
Growing foreign competition, declining market share, changing public expectations—such conditions have permanently altered the American auto and steel industries. Those same conditions have plagued the ceramic tile industry, to similar effect.

The annual per capita use of ceramic tile in this country—about 2.5 square feet—ranks among the lowest in the industrialized world, far below that of countries such as Italy, with an annual per capita consumption of about 29 square feet. Almost 50 percent of our

*Ceramic tile, because of changes in technology and taste, has become a more versatile product and one more popular in the U.S. We need to learn its proper use and installation.*

quired the use of foreign tile, but no longer. The American tile industry has responded to the changing market demands with considerable vigor.

It has formed a united marketing federation to promote the use of tile in this, the world's largest untapped market. Many companies have greatly expanded their product lines to include decorative and frost-resistant tile. And some overdue plant modernizations have begun. Those efforts already have reaped some benefit. Domestic tile usage has increased by over 18 percent since the last



Gail/Tom Crane

domestic consumption involves imported tile, with Italy, Japan, Korea, Spain, and West Germany the largest importers. The effect of so much imported tile in such a small market has been more than economic. It has encouraged a new image for ceramic tile.

We've generally thought of ceramic tile as a utilitarian material in this country, well-suited to the bathroom, kitchen, shower, and pool, but too hard and reverberant for most other spaces. In other countries, where a different view prevails, ceramic tile serves as a permanent, hygienic, and above all ornamental material, suitable for most public areas. As we've become more concerned with the life-cycle cost and with the ornamenting of buildings, our view of ceramic tile has changed. At first, that change almost re-

*The competition-winning tile mural by architect David Beck for a new Philadelphia subway station (above) uses 4" x 8" keyback tile to create an abstracted landscape. Beck used a computer at Case Western Reserve University to scan his drawing, digitize it into 4" x 8" units, attach a number to each tile color, and manipulate both the image and the numbered digits. The computer produced working drawings showing the exact placement of each numbered tile. The computer also helped in the selection of a grout color by finding the arithmetic mean of all of the tile colors—a mouse brown.*



recession, and analysts now predict that our per capita consumption could double to 5 square feet by the end of the 1980s. Ceramic tile has become a more competitively priced material as other petroleum-based surfacing materials have increased in cost. It also has become a more visible product, seen with greater frequency as exterior cladding, as both interior and exterior paving, and as a decorative wall surface.

That greater visibility comes not just from a change in taste and in the marketing of ceramic tile. It stems from several advances

in the technology of manufacturing and installing it—advances in glazing and firing techniques, in adhesives and grouts, and in prefabrication methods. There's much we have to learn about that technology.

#### Tile by fire

The simplicity of a ceramic tile belies the complexity of its production. For example, manufacturers can produce any number of tile body colors by varying the types and amounts of clays and minerals. Most, however, produce white-bodied tile, containing kaolin, and red-bodied tile, containing iron-bearing and, occasionally, carbonate clays. Those tiles differ in performance as well as in appearance. For instance, white-bodied tile tends to shrink less upon firing than red-bodied tile, making white-bodied tile more suitable for certain colors, such as white glazes that require firing at high temperatures. And red-bodied tile that has no carbonate in the clay tends to be less porous, and thus more frostproof, than red-bodied tile with carbonates.

The method used to form the tile also affects its performance. Of the two most common methods, dust-pressing uses huge presses to shape the tiles out of a relatively dry clay, while the extrusion process uses machines to cut tiles from a wetter and more malleable clay slab extruded through a die. Dust-pressing tends to produce a denser tile, with less shrinkage than extruded tile. A fairly new pressing technique extrudes a thick tile, then rolls it very thin (2.3 mm) and cuts it into large sheets (as large as 4' x 5') either before or after firing. At the other extreme, the older and more costly ram press method, where machines press wet clay into plaster-of-paris molds, is still used by a few companies that produce made-to-order tile.

Some manufacturers double-fire their tile, firing the clay, applying a surface glaze or decoration, and then running the tile a second time through the tunnel kiln. But to reduce production costs, many manufacturers now single-fire their tile, a process where glazed, unfired clay goes through a higher temperature kiln only once. Some argue that single-firing more firmly bonds glaze to the clay body; others argue that the older double-firing method produces a more impervious tile. The economics in favor of single-firing, plus new kilns that can reach temperatures as high as 2400 F, may settle the argument.

Similar disputes within the industry re-

volve around the methods of glazing the tile's front and of forming its back. The different glazing techniques affect mainly the tile's appearance. Some companies drip glaze onto the tile (in what is aptly called the waterfall method), arguing for its simplicity and the evenness of results. Other companies spray or spin glaze onto the tile, arguing for its greater control and flexibility in producing mottled surfaces or graduated colors. The best solution here may lie in the eye of the beholder. The real advances in glazing technology have come with the development of slip-resistant glazes containing abrasives that allow the use of glazed tile in areas subject to wetting, and extremely durable glazes, containing quartz and other minerals fired at high temperatures, that allow glazed tile in heavily trafficked lobbies and corridors.

The debate over the best shape for the back of the tile, while more fervent than that over glazing techniques, may have as little consequence for the tile's performance. The names describe the configurations: button-back, flat-back, key-back, ribbon-back. A major reason for a raised piece of clay on the back of the tile is to provide a space under or between tiles, during their firing, for the circulation of hot gases. Many manufacturers have capitalized on that necessity by arguing that the raised elements provide greater impact resistance and a better mechanical bond between the tile and its mortar bed, an added measure of safety should the adhesive bond between the two fail. With the greater use of tile cladding, especially on tall buildings, the use of raised-back tile seems a wise precaution. To some people, though, its use seems risky. They claim that, with the widespread use of thin mortar beds, the tile-setter may not have enough mortar on the wall to work it into the keys on the back of the tile, leading to the insufficient adhesion of the tile—and the eventual failure of the installation. For that reason, manufacturers of raised-back tile recommend that the tile-setter butter the back of the tile before setting it.

#### Translating tile

The ceramic tile industry has developed testing standards to ease the product's evaluation. Unfortunately, those standards and the terminology they use vary among countries—a problem, given the role of imported tile in the U.S.

The European tile industry divides tile according to its production method (dust-press or extrusion) and its degree of water absorp-

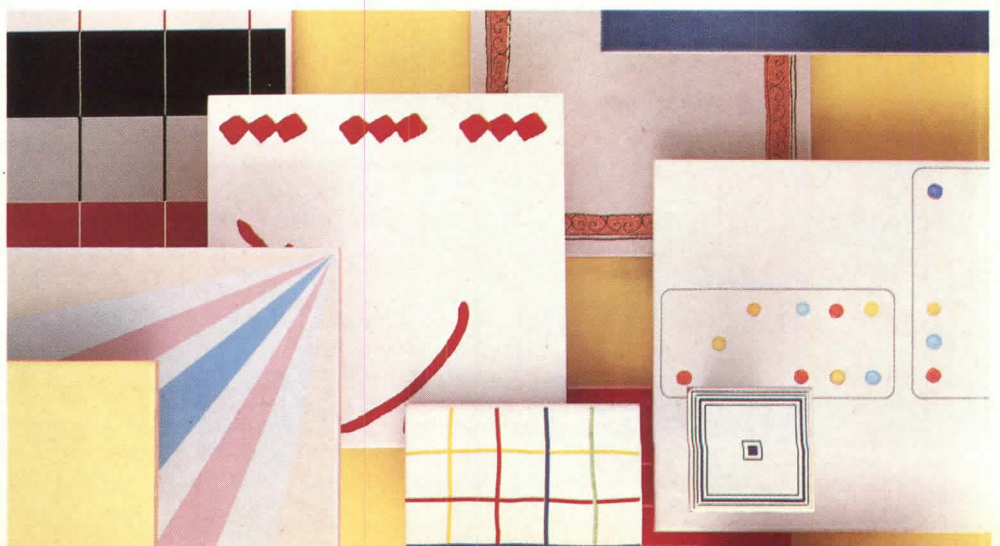


Impruneta/Elliott Fine



Floor Gres/Keith Scott Morton

*The world's largest producer of tile, Italy also excels in the quality of its decorative tile (right). Architects have begun to explore those decorative qualities. In an exhibit at New York's Italian Tile Center, architect Alan Buchsbaum used jagged terra cotta tile as window and door surrounds (top) while architect Mark Simon of Moore, Grover, Harper, in a wine-tasting room (above), used broken tile to form a frieze and dark, projecting tile to form a dado.*



Italian Tile Center



tion. It also distinguishes between glazed and unglazed tile and, within the glazed category, among the types of finishes (clear, monochrome, speckled, mottled, plain, and textured) and the types of surface sheen (bright or matte).

The U.S. industry recognizes water absorption and glazing techniques in its categorization of tile, but adds, as another criterion, the tile's size. Tile having a surface area under six square inches goes by the name of mosaic tile; above six square inches, non-mosaic tile. As if to further confuse, it calls

glazed nonmosaic tile "wall tile"; glazed and unglazed nonmosaic tile made by the extrusion method "quarry tile"; and glazed and unglazed nonmosaic tile made by dust-pressing "paver tile."

Standard tests differ considerably among Europe, Canada, and the United States. We have ASTM tests for such properties as the tile's abrasion resistance, water absorption, surface crazing, dimension and color uniformity, electrical conductivity, warpage, bond strength, breaking strength, and thermal conductivity. Europe doesn't test for



Franciscan, Dal-Tile/Mark Segal



American Olean

Harder glazes, slip-resistant surfaces, and frostproof clay bodies have encouraged the greater use of tile in public places, both indoors and out. In the lobby of the reused Torpedo Factory Building #3 by Keyes Condon Florance (above), C-shaped tile (set in wood battens and mastic adhesive) serves as column fluting and wall decoration while green, blue, and white glazed floor tile reinforces the room's spatial definition. The plaza at the Miami Dade Cultural Center by Johnson/Burgee and Connell, Metcalf & Eddy (left) uses two colors of quarry tile to create a paving pattern in keeping with the renaissance character of the center.



electrical conductivity and bond strength, but does test for the tile's scratch resistance, thermal and moisture expansion, and frost and chemical resistance. Canada, in addition to most of the U.S. tests, has a standard for slip resistance. The one thing everyone agrees on is that international standards are many years off.

Ceramic tile offers some obvious advantages over other materials. For example, tile is nonflammable, easily cleaned, nonfading, and thermally absorptive, making it a good insulator and passive solar collector. Where

able. Manufacturers not only offer more colors and a seemingly limitless variety of decorative surfaces. They seem more attuned to changes in aesthetic preferences, providing high-tech turquoise and Post-Modern peach, as well as the standard pastels and earth-tones. Not that every color is always available. For colors less in demand, many companies require a special, and sometimes sizable, order. Also, certain colors—some blacks, blues, and greens, for instance—are incompatible with vitreous, frostproof tile; the firing temperatures vary too greatly. When considering an unusual tile color or installation, it is best to consult the manufacturer early on.

### Putting tile to bed

The same could be said of even an ordinary tile installation, for there the chances of failure loom large. The reason? Less skilled tile-setters and greater building movement, due to lighter weight construction, no doubt contribute to installation failures. But it is the sheer variety of mortars, grouts, and of tile applications that causes the most trouble. Tile installations have become too complicated to leave up to the tile-setter. The architect now must design them as carefully as any other detail in the building.

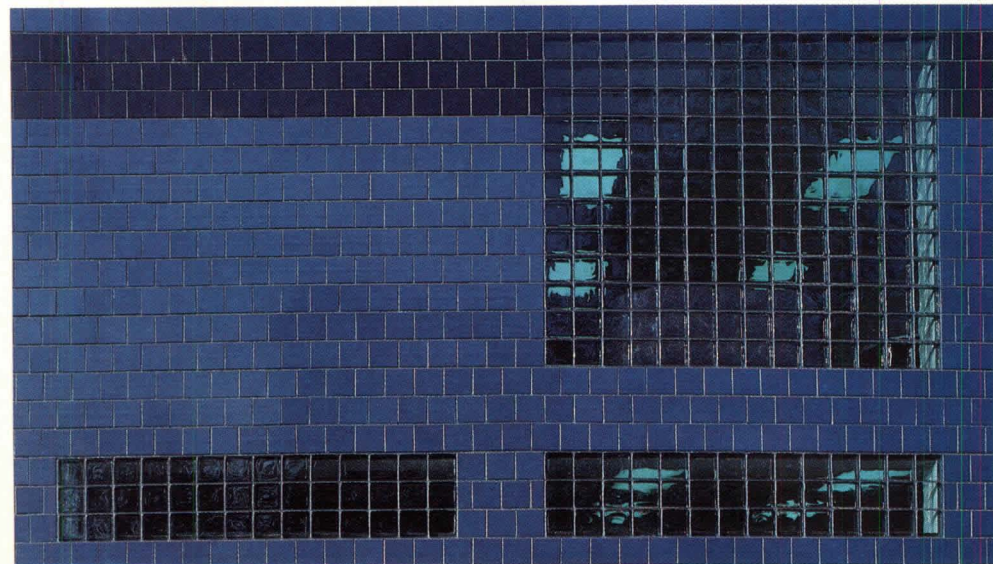
The traditional tile installation, uncomplicated and almost foolproof, sets the tile in a thick bed ( $\frac{3}{4}$  to  $1\frac{1}{4}$  inches) of Portland cement. With this thick-set method (also called a mud job), tile-setters can level uneven surfaces or, if the substrate is cracked, painted, or subject to deflections greater than  $\frac{1}{360}$  the span, build what is essentially a new slab, by placing a cleavage membrane of roofing felt or polyethylene film over the old surface and inserting wire reinforcing into the mortar bed. Few tile-setters use the thick-set method because of its weight and cost—and because of the capabilities of thin-set mortars.

Those mortars, in beds  $\frac{1}{8}$  to  $\frac{1}{4}$  inch thick, contain chemical additives that improve some property in the mortar. The most commonly used and the least expensive thin-set mortars use Portland cement as their binder. Dry-set mortar contains water-retentive additives that prevent the premature evaporation of the water from the Portland cement mix and eliminate the need to presoak the tile. Latex mortar contains an emulsion of rubber or other resin added to the Portland cement in lieu of water. The rubber coats the cement particles, ensuring the complete hydration of the cement, improving the frost and thermal shock resistance of the mortar, and imparting greater flexibility and adhesion. For greater chemical resistance and adhesion, there is modified epoxy mortar that contains Portland cement and epoxy in a water or latex emulsion.

Several mortars have no Portland cement at all. While more expensive and less often used, these do address needs not met by cementitious mortars. Epoxy mortar contains a two-part epoxy and silica filler for resistance to most acids and alkalis and for adhesion to almost any clean surface. Epoxy adhesives offer greater adhesive capabilities, but less chemical resistance than epoxy mortar. More expensive than epoxy mortar is furan mortar, offering resistance to extremely strong chemicals (such as battery acid) or extremely high temperatures (up to



Henley/Maxwell MacKenzie



Henley/Cary Fleming

Two projects by Keyes Condon Florance, the reused Torpedo Factory (top) and the Perpetual American Bank (above), explore the varied effects possible with structural glazed tile and brick. At the Torpedo Factory, masons cut the tile on site and laid it up with the new brick skin, using dark mortar to separate colors. The visual effect, like the construction method, recalls the Arts and Crafts. The blue, eight-inch-square glazed structural tile at the Perpetual American Bank creates a uniform grid that, along with the glass block, conveys its role as a facing material.

tile has a disadvantage, manufacturers have done much to overcome it. Abrasives in the tile's body or glaze or raised patterns on the tile's surface reduce its slipperiness; hotter kilns produce more impervious tile, reducing chemical and frost damage; perforated acoustical tile reduces reverberation; and antistatic tile reduces the threat of static electrical shocks in places such as operating and computer rooms.

### Beauty only skin deep

The most apparent improvement in ceramic tile has come with the dramatic increase in the range of surface designs and colors avail-



350 F), although new high-temperature epoxy mortar gives almost the same heat resistance at a lower cost. Finally, there are the mastics. While they have good bond strength and considerable flexibility at an economical price, mastics have little resistance to constant wetting, freeze-thaw cycles, or heavy traffic.

Grout does not support or adhere tile so much as complement its color and, in filling the joints between the tile, protect it from water and lateral movement. Yet despite that different function, grout follows much of the same chemistry as mortar. Portland cement grout remains the least expensive, although it requires damp curing. Dry-set grout imparts water retention; and latex-Portland cement grout, flexibility and frost and thermal shock resistance. Likewise, epoxy and furan grouts impart chemical and heat resistance; and mastic grout, flexibility, colorability, and stain resistance. Only silicone and urethane grouts do not have an equivalent mortar. Those grouts are most often used in pre-grouted tile sheets, where their considerable flexibility accommodates the bending of the sheets during transit and installation.

The decision of what mortar and grout to use depends upon more than their chemical properties. It depends, especially with thin-bed installations, on the material and condition of the substrate. Many tile installations fail because the substrate has too much deflection or a cracking or peeling surface (requiring the use of a wire-reinforced thick-set mortar bed with a cleavage sheet), has a great deal of lateral movement with materials such as plywood (requiring the use of a mastic or epoxy mortar), or has gypsum board destroyed by leaking plumbing (requiring the use of a glass mesh or glass fiber mortar unit containing a cementitious mortar and either an adhered fiberglass mesh or integral fiberglass fibers).

Further installation failures arise with the improper preparation of the substrate or mortar. When applying mortar to a smooth surface, the tile-setters should roughen that surface to ensure a good bond. Some methods include bush-hammering or sand-blasting a smooth masonry wall or using a terrazzo grinder on an existing tile floor. The tile-setters also should remove paint, dust, oil, or grease from any surface about to receive mortar; not work on too large an area at one time, so that the mortar bed doesn't skim over and not adhere to the tile; and clean the tile surface soon after grouting to prevent the use of harsh cleaning agents.

The mortar and grout also should be coordinated. Where exposed to harsh chemicals or high heat, both the grout and the mortar should have the same resistance; a chemically resistant mortar without a chemically resistant grout does little good. Even when not exposed to hostile conditions, the mortar and grout should have similar physical properties. For example, a brittle grout, such as Portland cement, might crack if used over a very flexible mortar and substrate, such as latex-modified Portland cement. Some people argue that exterior tile installations need not or, in the case of sculpted tile, cannot be grouted—that the gaps between the tiles that let water into the wall also act as weep holes letting the water out. But, at least in theory, rain water, once in the wall, can

attack an alkali mortar, freeze behind the tile, or create efflorescence. Several groutless exterior walls have stood up for more than 20 years, so the technique can work, but it demands considerable care from the architect and tile-setter.

#### A matter of timing

The installation of ceramic tile can be a time-consuming process, particularly with a thick-set mortar and the individual placement of tile. Several options exist that reduce that installation time considerably. One option in-

volves switching to a structural glazed facing tile—a product with a concrete or clay body and glazed face that varies from 2 to 12 inches in depth and from 5" x 12" to 8" x 16" in surface. Several manufacturers will score or emboss the face of the units to create the appearance of smaller ceramic tiles. Structural glazed facing tile speeds the installation, reduces both the labor and material cost by combining the structural wall and glazed surface in one unit, resists vandalism, absorbs sound with its perforated tile, and has a smoke density rating of 0. What it lacks is

### MORTAR AND GROUT GUIDE

CEMENTIOUS MATERIALS	ADVANTAGES	LIMITATIONS
<b>Commercial Portland Cement Mortar and Grout</b>	Low Cost Resists prolonged wetting Exterior use possible Good colorability (Grout)	Poor crack resistance Poor stain resistance (Grout)
<b>Sand-Portland Cement Mortar and Grout</b>	Same characteristics as above except that the grout has only a fair colorability Used with thick set installations	Minimal stain and crack resistance (Mortar and Grout)
<b>Dry Set Mortar and Grout</b>	Water retentive Eliminates soaking of tiles Resists frost damage Good colorability (Grout) Resists prolonged wetting	Less resistant to heavy traffic Poor crack resistance Poor stain resistance (Grout) This mortar, and all of the following thin sets, require a smooth substrate
<b>Latex-Portland Cement Mortar and Grout</b>	Insures complete hydration Flexible Good adhesion Resists frost damage Good impact strength Good colorability and stain resistance (Grout) Resists prolonged wetting	Requires special cleaning procedures (Grout) Not used over plywood subfloors
<b>Modified Epoxy Emulsion Mortar and Grout</b>	Greater adhesion and chemical resistance than the above Less expensive than epoxy Good colorability and stain resistance (Grout) Resistant to moderately high temperatures (up to 140° F.) Resistant to frost damage & prolonged wetting	Requires special cleaning procedures Modest crack resistance
NON-CEMENTIOUS MATERIALS	ADVANTAGES	LIMITATIONS
<b>Epoxy Mortar and Grout</b>	Chemical resistant High temperature epoxies can resist temperatures up to 350° F. Excellent stain resistance and good colorability (Grout) Good crack and wetting resistance Excellent adhesion Excellent impact resistance	Expensive Limited pot life once mixed
<b>Furan Mortar and Grout</b>	Excellent chemical and temperature resistance (up to 350° F) Excellent stain resistance (Grout) Moderate crack resistance Resistant to prolonged wetting	Expensive Black in color Used mainly in industrial applications with quarry, paver or packing house tile
<b>Mastic Mortar and Grout</b>	Relatively inexpensive Requires no mixing Somewhat flexible Good bond strength Excellent stain resistance and colorability (Grout)	Special cleaning procedures recommended Not resistant to heavy traffic Poor resistance to prolonged wetting Subject to frost damage
<b>Silicone or Urethane Grout</b>	Excellent stain resistance Resists prolonged wetting Excellent adhesion	Limited colors Not resistant to heavy traffic Not used on kitchen countertops

Guide developed from recommendations in the *Title Council of America's Handbook for Ceramic Tile Installation*, and the *Italian Tile Center's Designer's Guide*.

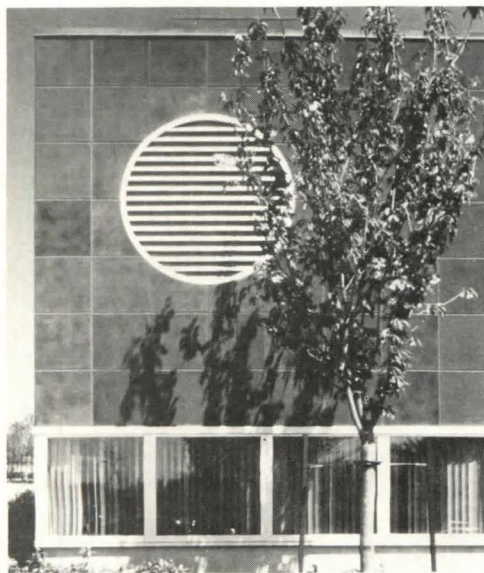


the variety of colors and surface textures possible with ceramic tile. The glazed concrete blocks on the market have a resin finish that has a higher smoke density. Their advantage lies with their lower cost in walls thicker than 4 inches.

Another way of reducing the installation time of ceramic tile is to use the familiar mosaic tile sheets (either face, back, or edge mounted) or the newer pregouted wall tile sheets now available. The latter use silicone or urethane grout and come in sheets as large as 2.14 square feet, but they can be used only

fabrication accrue to those panels: greater quality control, tighter construction scheduling, faster shipping, and easier installation, making them less expensive than limestone veneer, composite aluminum panels, and even precast concrete.

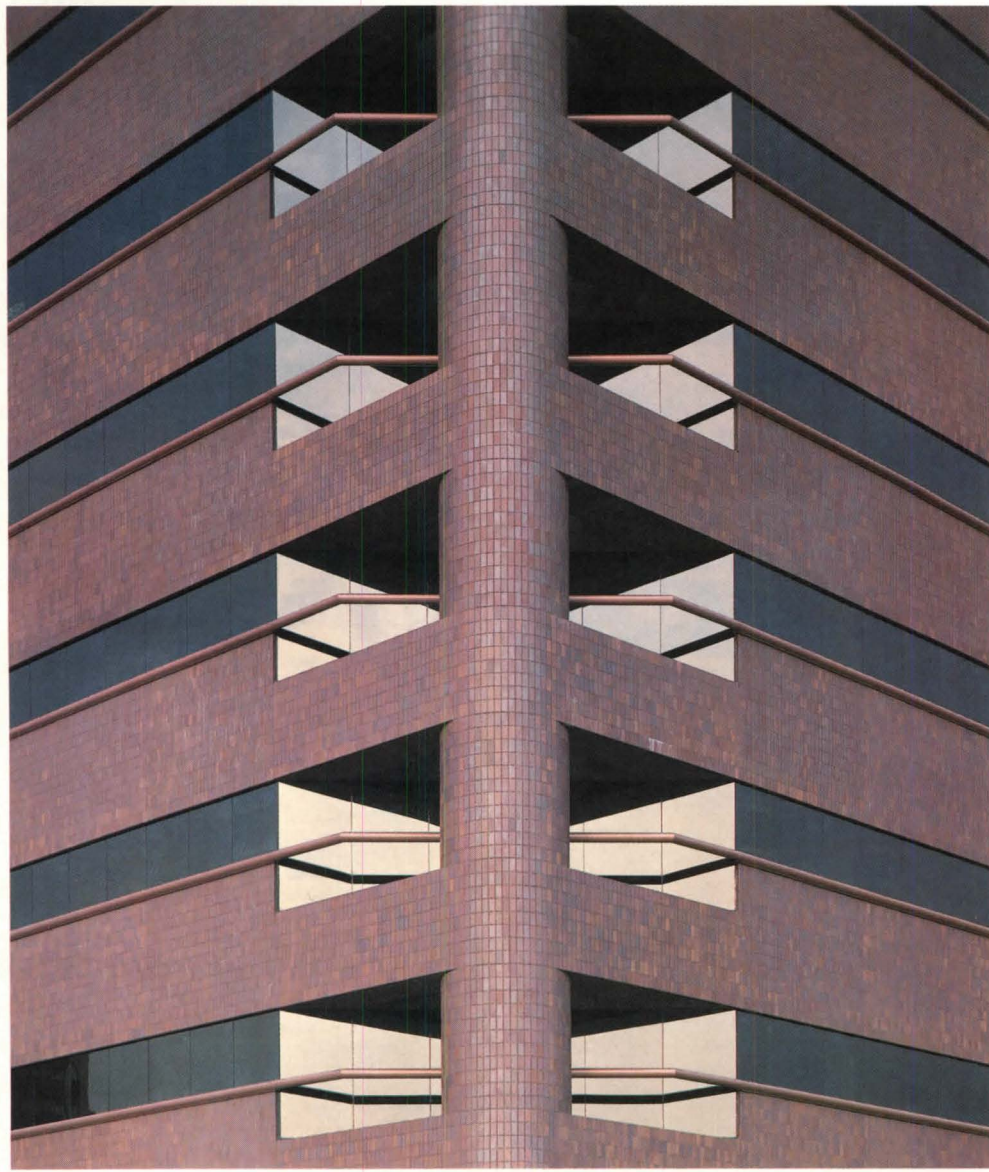
Some panel systems use glass-fiber-reinforced concrete on light-gauge steel studs as the tile substrate, although the different expansion coefficients of the tile and concrete can crack tile any larger than 100 square inches. Other systems replace the glass-fiber-reinforced concrete with a thick-set mortar



Buchthal/McOG



Gail



Gail/Jock Portle/ESTO

*The prefabrication of exterior tile panels can take many forms. Nissan's Portland Regional Office by McOG Architects (top) uses thin, two-foot-square tile attached with a silicone adhesive and grout to metal deck and steel-framed panels. The terra cotta tile panels cladding the J.M. Huber Corporate Headquarters by the Hillier Group (above right) were installed using helicopters to prevent damaging the environmentally sensitive site. The photograph (above) shows the advantages of prefabricated tile panels: high strength, light weight, large size, rapid installation, and varied aesthetic.*

on interior walls and, because of the arsenic in silicone grout, cannot be used on kitchen countertops. The large, thin ceramic tiles, of course, also speed up an installation, as do the thin ( $\frac{1}{4}$  in.) stone tiles now on the market. These promise to make tile—and stone—as easily handled and installed as gypsum board.

The greatest reduction in the time required to install tile, at least on the exterior of buildings, has come with the prefabrication of tile panels. All of the benefits of pre-

containing wire mesh reinforcement or glass mesh mortar units. (Some have questioned the durability of glass mesh mortar units in exterior applications, but no installation has been up long enough to tell.)

The most dramatic development in tile panel systems eliminates the mortar and grout altogether. The tile (that must be at least 8 inches square) is attached with a highly flexible silicone adhesive to a metal deck on a light-gauge steel stud frame. Joints between the tile have silicone caulk (preferably dark in color to prevent its showing dirt) over a bond breaker tape. Such an installation retains the best features of ceramic tile—its low maintenance and aesthetic variety—while eliminating some of the problems with set-



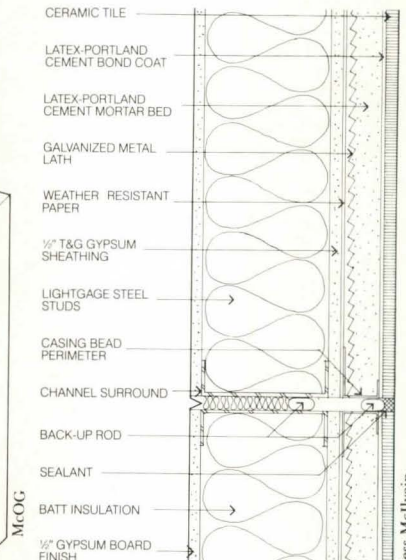
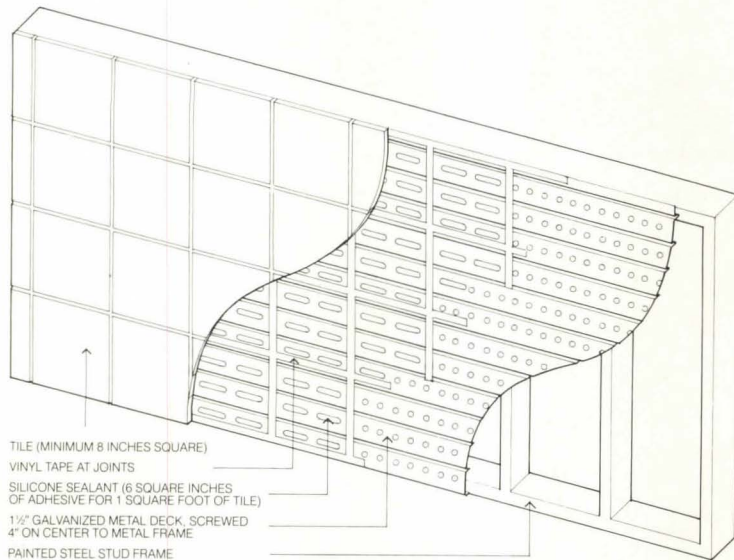
ting tile. If anything speaks to the benefits of prefabricated tile panel systems, it is the number of such systems now going up on buildings.

#### Tile tomorrow

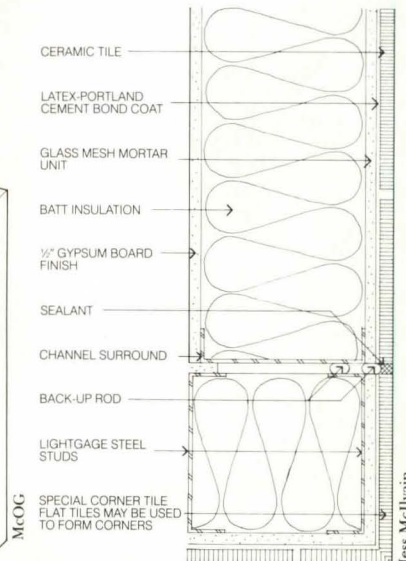
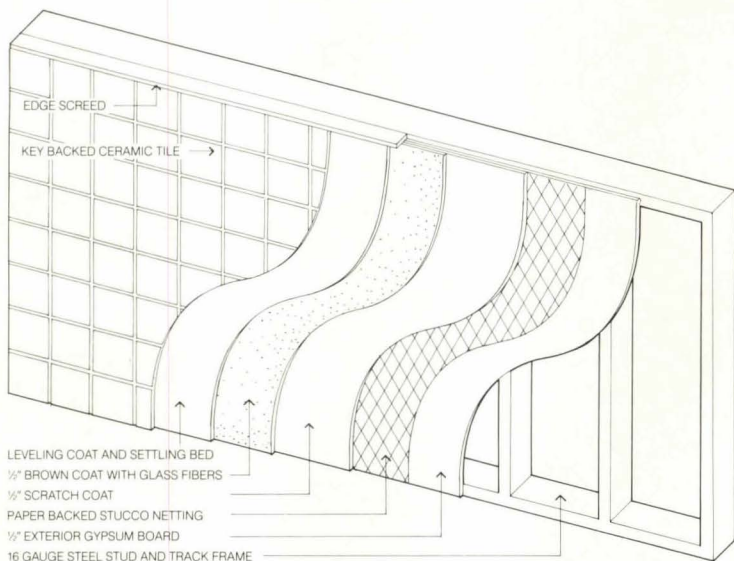
Ceramic tile may never attain the use here that it has in Europe. Nor may it ever fully replace popular interior finishes such as carpet, or exterior cladding such as brick, stone, or clapboard. That's not meant to disparage tile. It's just that Europe has quite a lead over us in its use of tile—their tile industry dates

#### Acknowledgments

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*These details show four types of tile panel systems. The system using glass mesh mortar units (below left) is the least expensive but can present problems with freeze/thaw action at the unit joints. The use of a thick-set wire-reinforced mortar bed (left) adds to the cost and weight of the panel, but can prove more resistant to freeze/thaw. The use of glass fiber reinforced mortar (below far left) lightens the installation and provides good flexural strength, although the expansion and contraction of the glass fiber mortar can crack tile larger than 100 square inches. The use of silicone adhesive and grout over metal deck (far left) eliminates traditional tile-setting techniques and, while new, shows great promise.*



back to ancient Greece and Rome; ours, to the second half of the 19th Century. What ceramic tile has attained in the U.S. is a new status as a finish material, but along with that new status have come new challenges for architects. We can no longer leave the choice of ceramic tile to the lowest paid employee or the installation details to the tile-setter. The issues are far too complex and the failures, now that tile clads entire lobby walls or skyscraper façades, too costly. If we give ceramic tile the attention it deserves, it will repay our efforts—handsomely.

[THOMAS FISHER]

Johnson, Joseph Chesney, Summitville; Ira Thomas, Kenneth Bee, Stark Ceramics; William Law, Karl Klaus, Susan Van Voorhees, American Olean; Edward Healy, Sphinx; Thomas Obermeier, McOG; William Loper, Cygnus; Frank Devlin, Thomas Vaughn, H.B. Fuller; Dale Thompson, Ro-Tile; William Amick, Dal-Tile; Francis Cox, Marble Technics; David Beck, Dorothy Kulick, David Beck Architects; Philip Syracuse, Syracuse Adhesives; James Baynham, Huntington/Pacific; Robert Vecchio, C-Cure Chemical; Mary Jane Hock, Pewabic Tile; Anna Salibello, Terra Designs, Inc.; David Hyland, IAC; Mary Lou Ference, Philip Esocoff, Keyes, Condon, Florance; Hans Pracht, Buchtal; Alan Fodor, Teare, Herman & Gibans.

#### Further information

Contact the Tile Council of America (P.O. Box 326, Princeton, N.J. 08540) and the Ceramic Tile Marketing Federation (Suite 202, 70 W. Hubbard, Chicago, Ill. 60610, 312-633-1612). The magazine *Tile and Decorative Surfaces* (17901 Ventura Blvd., Suite D, Encino, Calif. 91316, 818-344-4200) contains much helpful information, while the Italian Tile Center (499 Park Avenue, New York, N.Y. 10022) offers a designer's guide that is free to architects.

For tile products, see p. 139.



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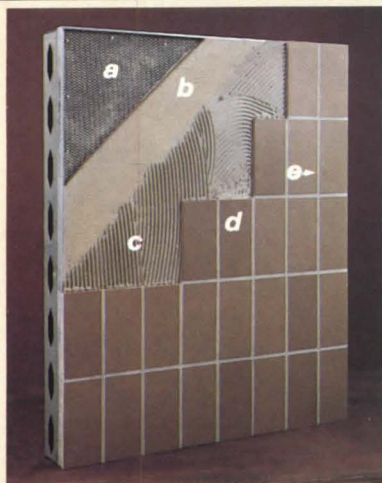
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(A) Diamond Mesh Metal Lath secured to steel studs with self tapping screws. (B) Latex modified Portland cement mortar. (C) H.B. Fuller Dry Set Mortar mixed with Acrylbond acrylic latex additive (TA 865). (D) Ceramic tile. (E) H.B. Fuller Acrylbond acrylic latex mixed with Joint Filler Floor Grout.

Photo of buildings provided by Gail Int. Corp.

## Why choose H.B. Fuller?

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Panels being installed at the Prudential Insurance Company, Philadelphia, Pa. by Duggan & Marcon using Gail Brickplate and H.B. Fuller Latex Modified Mortar. Arch: Ballinger Co., Phila. Gen. Contr.: Daniel J. Keating Co., Villanova, Pa.

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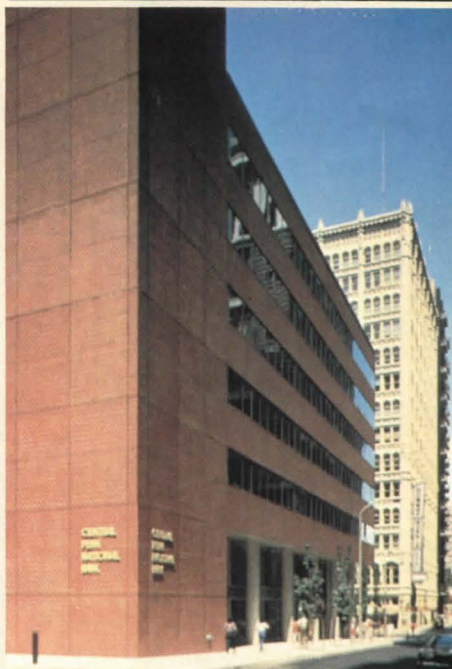
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Central Penn Bank, Philadelphia, Pa. Prefab panels of Gail Brickplate and H.B. Fuller Latex Modified Mortar prefabricated by Duggan & Marcon in Allentown, Pa. Arch: Ballinger Co., Philadelphia, Gen. Contr.: Nason & Cullen, Rosemont, Pa.

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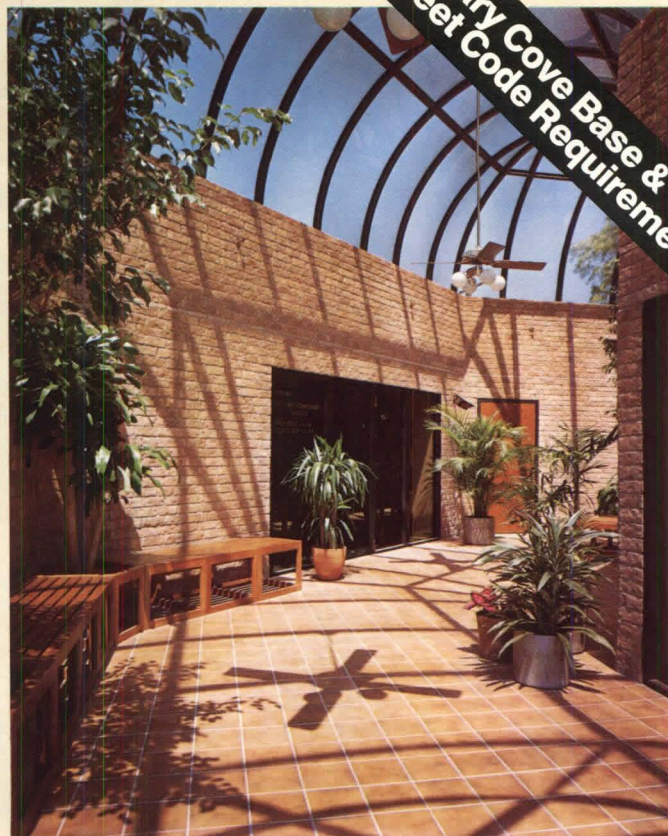
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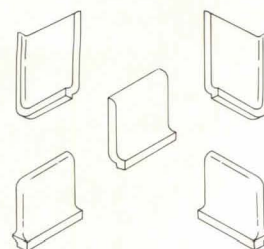
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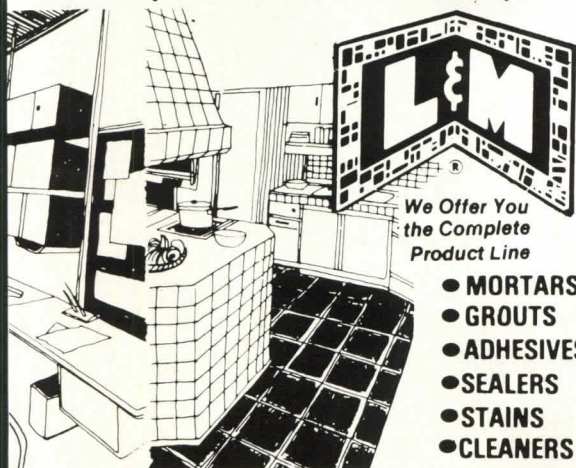
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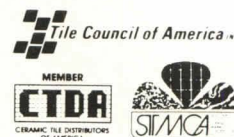
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# Books

## Behrens and the AEG

The architect as designer of domestic objects is once more in vogue. Following an anti-architect era, the general public is buying with enthusiasm and exploding dollar volume "designer" versions of necessities for everyday life. A new book, *Industriekultur*, focuses on the ultimate model of architect cum industrial designer, Peter Behrens (1869–1940).

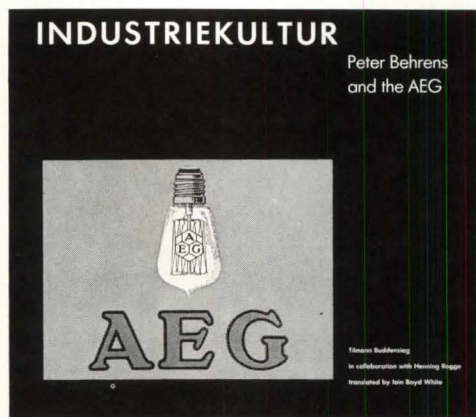
Behrens' interests spanned sociology, all scales of design, and many aspects of art. He concerned himself with the lives and living conditions of the working class, yet his approach involved the dreaded new technologies, which he felt could be used to serve human needs. Debates about the role of technology and its future in German society raged between deeply committed partisans. In opposition to the Werkbund reform movement of architects, industrialists, and craftsmen were the socialist *Volkskunst* and the radically conservative *Heimatkunst*, which viewed art and industry as antithetical. The most prominent opposition to technology in Wilhelmine Germany came from the traditional aristocracy, focused on the Grand Dukes. It seems likely that the disdain of the ruling elite for the industrial entrepreneurs helped to motivate the AEG's ambitious cultural concerns in an attempt to make entrepreneurship more palatable.

For Emil Rathenau, founder of AEG, the architectural designs Behrens created for him were an important expression of the new prominence of bourgeois industrialists—the emergence of men like himself out from under the traditional domination of the landed gentry. When his son, Walther, bought the Hohenzollern family Schloss Freienwalde as his country house, Walther viewed its advanced state of decay as a symbol of "the decline of the aristocracy, without support in the mechanistic society." (page 75) To express his family's new dominance in the society, Walther then spent vast sums on a meticulous restoration. Emil and Walther Rathenau were quite different personalities with contrasting concerns in their eras as president of the AEG. The simple, optimistic enthusiasm and energy of the father was followed by the complex and aesthetically decadent son whose assumption of power ended the special relationship of Peter Behrens and the AEG.

The AEG was established in the late 19th Century as the German Edison Works (*Deutsche Edison Gesellschaft*) because of Emil's fascination with the potential of Thomas Edison's incandescent lighting. It

soon changed its name to the AEG (*Allgemeine Elektrizitäts-Gesellschaft*) but continued to hold licenses for the German manufacture of products incorporating Edison's inventions. By the opening of the 20th Century, it was manufacturing hundreds of different products besides light bulbs, but the fame of AEG derived almost entirely from the 1907 appointment of Peter Behrens as the artistic director of the company.

While other manufacturers relied heavily on handmade historic predecessors of new electric devices, Behrens led AEG into the



realm of entirely new forms for new consumer products. Instead of hiding the electrical aspect of these items as their competitors did, Behrens chose to fully express the new technology in an aesthetic developed through a thoughtful consideration of its capabilities and intrinsic characteristics. Other companies accepted the notion that mass-produced goods were cheap and undesirable, so they tried to camouflage their products' machine origins by superficial application of ornament intended to imitate handmade crafts. Behrens sought superiority, reliability, and excellence in mass-produced items through standardization and improvements to the manufacturing process.

Soon Behrens was designing arc lamps, clocks, street lamps, humidifiers, electric kettles, dental drills, electric room heaters, light switches, turbine engines, ovens and more. To help with all these designs he hired a number of assistants: Walter Gropius, Ludwig Mies van der Rohe, Adolf Meyer, Jean Kramer, Peter Grossman, and Le Corbusier. Le Corbusier wrote a description of his teacher-employer at this time: "Behrens is an energetic, unfathomable, earnest genius,

with a profound desire to dominate, as if created for this task and this age, in harmony with the spirit of modern Germany." (page 126)

Behrens was the major predecessor of the Bauhaus, yet his philosophy was more complex and he never became a part of it. He was concerned with the problems of mass commerce, especially since all his economic assumptions implied a "trickle up" structure in which well-paid workers fueled the economy with their myriad individual choices in the marketplace. He wrote and lectured extensively about avoiding a mass culture in which the lowest quality and debased artistic standards could predominate. He felt a need for emphatic and explicit efforts if mass culture were to rise above mediocrity. The highly refined aesthetics of Behrens were far more than a concept of appropriate functionalism. He disliked a mere engineering solution which disciplined itself to absolute obedience to physical laws in solving functional relationships, resulting in a "rational" aesthetic arising entirely by chance. To Behrens this was pseudo-aesthetics and entirely inadequate, expressing, as he felt, "the prosaic hideousness, the absolute formlessness of the naked production process." (page 78) Rather, he insisted that design is not something anyone can do, but demands talent, discipline, and an acquired high level of discrimination. The designer must refine the construction process, the limitations of materials, tools, and techniques with an artistic objective, and only through this would an acceptable machine-made object result.

Everything that could be seen was subject to design consideration as part of Behrens' vast idealistic concept of mass distribution of art, using technology, artistic genius, advanced business management techniques, and effective marketing to serve a cultural mission that seems to have been only slightly subordinated to the zeal for economic success and power. Behrens was convinced that "more and better work is performed in well-lighted and friendly factory halls impeccably designed according to the basic laws of health than in constricted and smoky sheds. The spirit of the plant and the buildings communicates itself to the work. This fact is particularly important because we have to concentrate today more than ever on high-quality work if we hope to compete at all in the world market." (page 221)

Behrens' factory architecture has a classic, elegant appearance that immediately identifies it. While he is noted for strikingly modern concrete and steel factories with vast skylights and enormous panels of glass, his form vocabulary was, depending on the cir-

**Industriekultur: Peter Behrens and the AEG by Tilmann Buddensieg in collaboration with Henning Rogge, translated by Iain Boyd White. Cambridge and London, The MIT Press, 1984. 520 pp., 684 illus., \$75. Reviewed by Susan Southworth.**



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cumstances, quite rich and varied. He was an urbanist who did not need to assert his superiority by meaningless disregard for the urban texture surrounding his site. Rather, he designed beautiful and practical buildings which fit their surroundings superbly, dominating through aesthetic excellence, not through destructive chaotic rebellion against the rhythms, setbacks, height, or materials of a street or district. Although he designed numerous factories for manufacturing and assembly, these must be studied in drawings and photographs, since much was destroyed in World War II.

A significant surviving factory is the 1909 Turbine Hall at the corner of Huttenstrasse and Berlichingenstrasse in Berlin, which remains one of the most refined pieces of architecture for industrial workers. The color scheme combines delicate gray-greens of steel and glass with the stone gray of the concrete. The massive concrete corners (which playfully contradict the steel structure) as well as the glass side walls incline in as they rise to the roof, exposing ever wider fins of steel. The saddleback roof overhangs the façade by the amount of the cant. Unlike the side glass walls, the front glass panel is vertical, meeting the overhanging roof as it pulls away from the concrete corners. There is a timeless modernity about the entire building and an elegance in the way it meets the ground, set as it is on a concrete plinth making a clean joint with the paving edging the site. The details of steel and concrete remain stunning today.

The AEG industrial policy under Behrens' influence regarded all aspects of its activity the subject of design—not only the products and the factories, but the production processes, working conditions, and the general well-being of the worker, including his housing. While the Wilhemine worker did not have a vast array of choices, the assumption was that he could freely move between jobs, depending on individual preference. The AEG sought to attract and retain workers through satisfying their (believed) craving for art and gratifying needs of an essentially personal and subjective nature.

In the late 19th and early 20th Centuries, German industry found it necessary to consider worker housing as one component of a company's effort to attract and keep skilled workers. The German workers were regarded not only as capable of moving from job to job at will, but powerful through their capacity for organization and strikes. It was believed that "men who live in fresh air and well-ordered circumstances are more able to produce the high-quality work demanded of them." (page 135). By that time, both English and American models existed, most notably the first planned textile producing city in the U.S., Lowell, Mass., which was already internationally renowned for its progressive ideas in the early 19th Century. As a reaction against the deplorable industrial conditions in England, Lowell combined brick row housing and cultural programs with supervision of a high moral standard among the work force.

While there was wide interest in the architectural problems of the workers' housing, Behrens quite typically provided significant innovations and intellectual stimulation. As in Lowell, female labor was an important aspect of manufacturing, especially since women were paid less than men. In considering the circumstances of working women, Behrens experimented with communal cooking and housekeeping in some of his housing designs. He also objected to the widespread tendency to copy middle-class housing styles in smaller versions for workers. Instead, he advocated an aesthetic solution that ignored middle-class housing and focused entirely on the values and concerns of the workers in creating the architectural concept for their housing.

It was for his first workers' housing that Behrens invented the curved corner entrance that Gropius and Meyer later used in their first commission outside of Behrens' studio, the Fagus works. All of Behrens' workers' housing was organized around shared courtyards or gardens; frequently he placed shops and restaurants on the ground floor facing public streets, while creating a quieter atmosphere within the interior gardens, to which access was limited.

One of Behrens' most ambitious housing estates was a rejected alternative for Oberschoneweide incorporating a main pedestrian street from which private enclosed courtyards could be entered. Behind the housing was a large common open space to be shared by the residents. Colonnades, bal-

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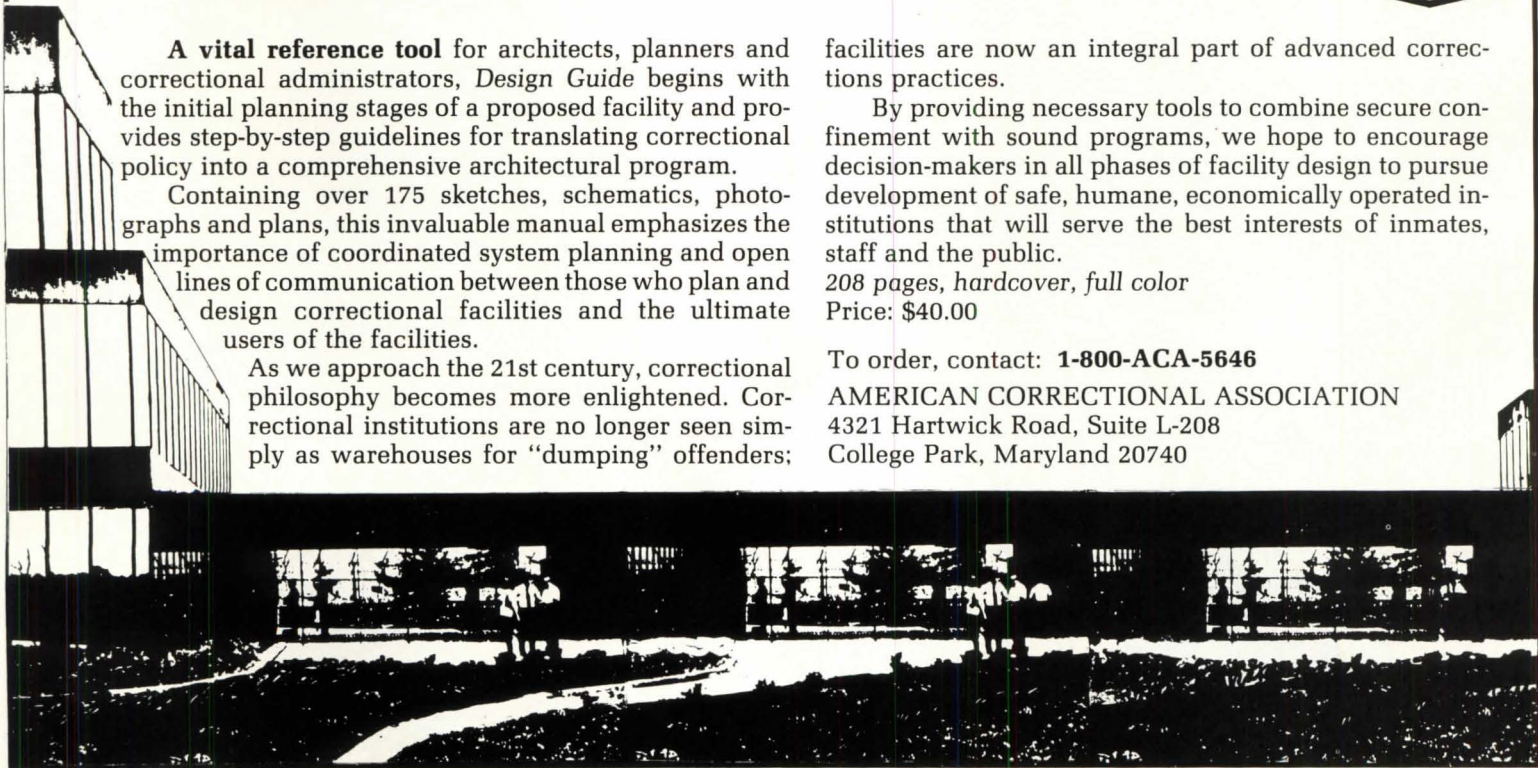
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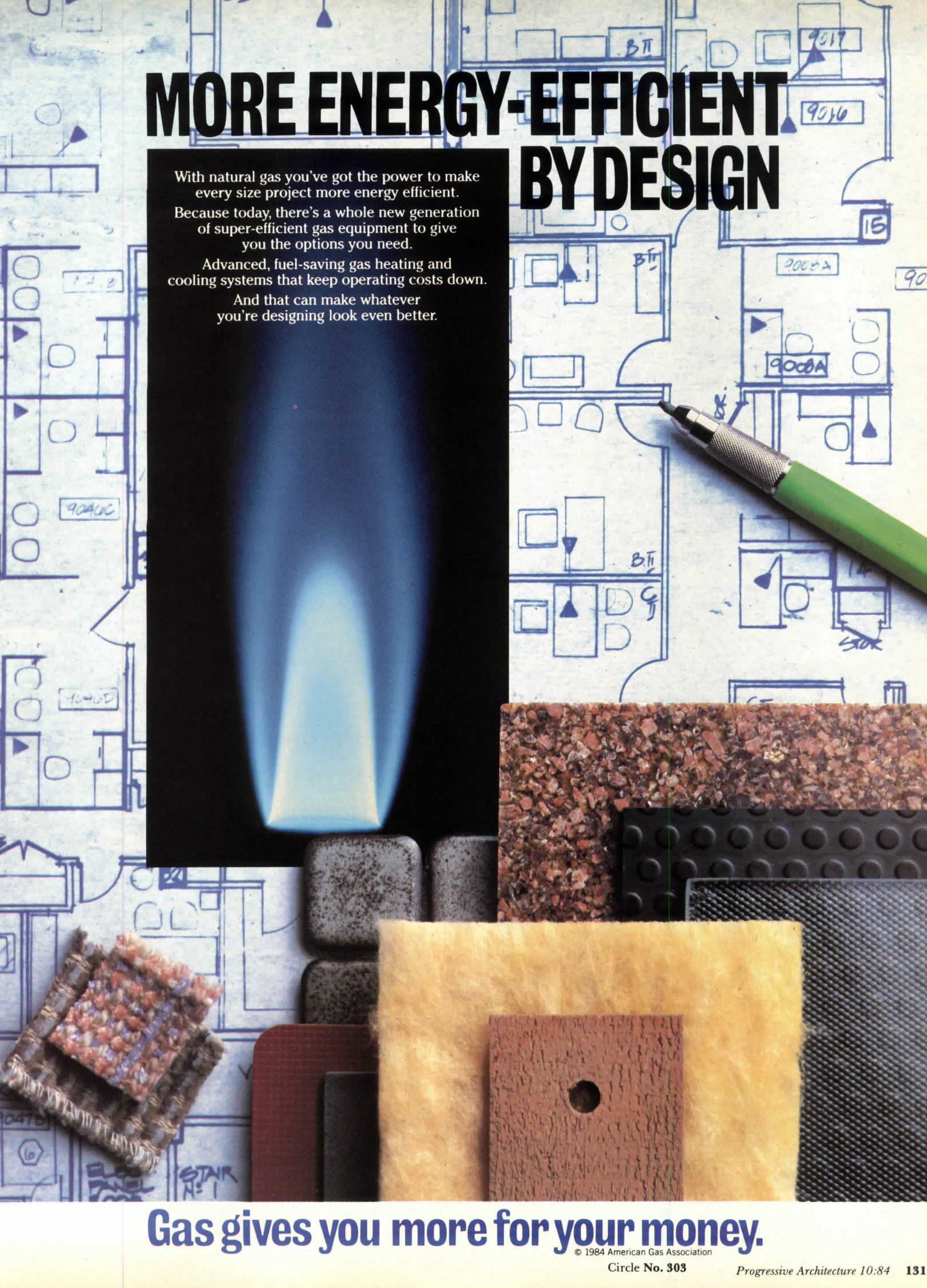
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conies, formal flower beds, and statuary contributed to an elegant street elevation. The flats were stepped with deep terraces fronting each living room to provide ample sunlight and fresh air.

Walther Rathenau was entirely unsympathetic to this design, as he was to much of Behrens' work, so a far more conventional scheme of housing was built on this site. As Emil Rathenau approached his seventy-fifth year, his son assumed greater influence over the company and his differences with Behrens became increasingly troublesome. Walther Rathenau and Peter Behrens seemed to have philosophical differences about almost everything that affected AEG policy.

Some of Behrens' most striking illustrations were advertisements developed to encourage mass consumption of his beautifully designed domestic appliances. The author describes Behrens' approach to advertising: "This technique of pitching publicity material at the highest aesthetic and intellectual level could only function when the aesthetic purism of the illustrations in the firm's redesigned brochures, catalogues, and calendars did not conflict with the actual design of the products themselves. More correctly, it could only function when the products had also been completely redesigned, thus removing an already existing conflict. Only then could the truth of Behrens' basic design hypothesis—that in the context of the AEG it was fundamentally possible to draw an analogy between the processes of artistic and technical production—prove itself." (page 33)

Thus, Behrens was anything but the precursor of the Madison Avenue ad man brought in to create a sleek corporate image or sophisticated ad campaign for products unfamiliar to him. Advertising talents today may determine everything the consumer knows about competing products, but the creators of the advertising campaigns usually have nothing to do with the creation of the product.

Walther Rathenau viewed advertising as ignoble and "the desire to exploit anything that was successful . . . as merely an attempt to improve on the banal." (page 81) He was convinced of the absolute incompatibility of business, art, and individuality, and complained of the "strident, hastily conceived," mass-produced appliances that he felt could never compare with handmade objects of the past. He even criticized the Behrens-designed roof garden on an old AEG machine factory. "Man has the feeling that he once possessed some things that were irreplaceable; he is now artfully trying to win back what has been lost by planting little sanctuaries in his mechanized world, such as roof gardens on top of factories. . . ." (page 80) At the death of Emil Rathenau in 1915, Walther had already become president of AEG. Former artistic director Behrens was no longer a part of the company.

Until recently, Americans have had too little information about the career of Peter Behrens; even this large volume presents only his work between 1907 and 1914. *Industriekultur* is particularly valuable, however, because it provides many views of Behrens'

work by his contemporaries, as well as by ours. The drawings, historic photographs, advertising illustrations, and product brochures are a rich trove of information not previously available in the U.S. ■

**SUSAN SOUTHWORTH** is a partner in the firm Michael & Susan Southworth/City Design & Architecture, Boston, and a lecturer on German visual arts for the Goethe Institute.

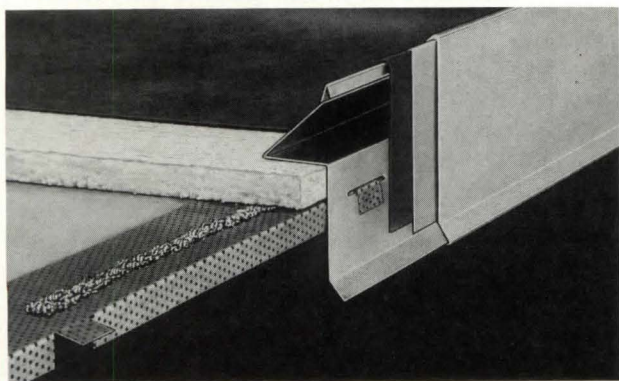
### Also pertinent . . .

**Peter Behrens: Architect and Designer 1868–1940** by Alan Windsor. New York, Whitney Library of Design, 1982. 186 pp., illustrated, \$22.50.

This book is the first in English to survey the life and creative output of that pivotal figure—Peter Behrens—who influenced the work of Walter Gropius, Mies van der Rohe, and Le Corbusier, all of whom worked in his office at one time. The volume covers Behrens' early career as a painter and designer in the Darmstadt art colony, his theatrical and exhibition work there, his entry into lettering and typography, his involvement with the AEG utilities company, his reversion to classical design, and his vexing final years in the early phase of the Third Reich. As a survey of Behrens' entire career, this book could be an invaluable adjunct to the much more detailed, but narrower in scope, *Industriekultur* reviewed above. ■

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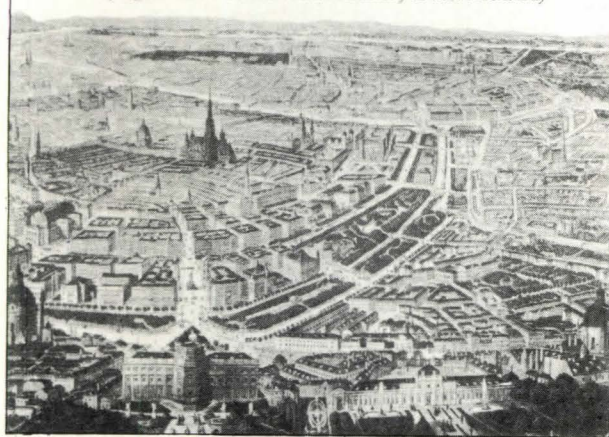
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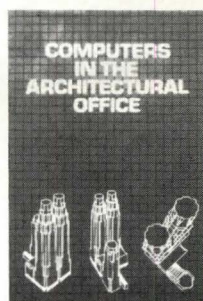
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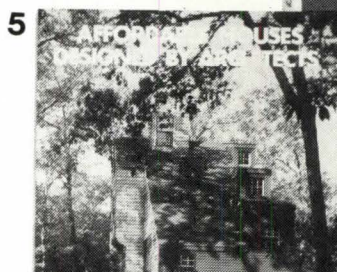
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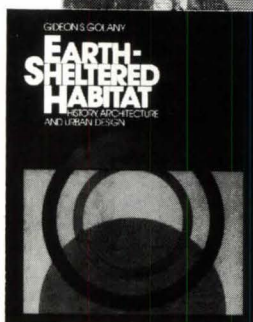
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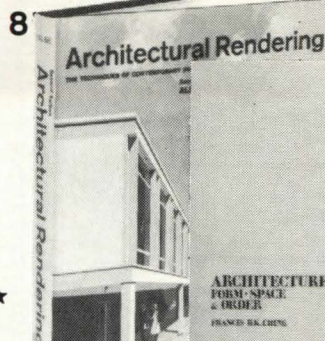
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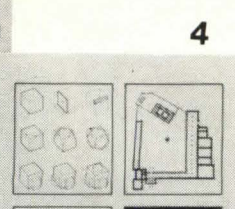
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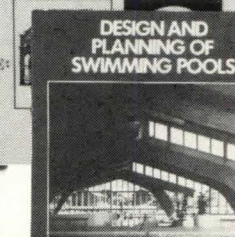
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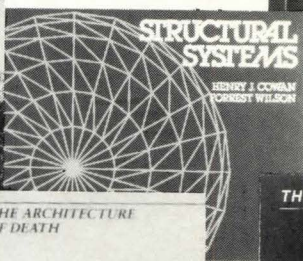
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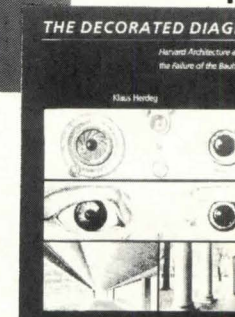


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9★

### 1 The Landscape of Man

By Geoffrey and Susan Jellicoe  
 383 pp., illus. . . . \$19.95  
 Softcover

For twenty-six different cultures the authors summarize the social and intellectual background, describing how it was expressed in terms of landscape. The history of landscape architecture and the progress of landscape design are thoroughly and intelligently discussed. History, philosophy and religion are consulted in order to explain fully "the landscape of man".

Circle B601 under Books.

## NEW★

### 2 Computers in the Architectural Office

by Natalie Langue Leighton  
 192 pp., illus. . . . \$26.50

Gives you practical, A-to-Z know-how on using computers in an architectural practice. It spells out the details for acquiring, operating and maintaining an in-house computer system as well as provides low-cost, low-risk methods for familiarizing yourself with computers before buying a system.

Circle B602 under Books.

### 3 Structural Systems

By Henry J. Cowan and  
 Forrest Wilson  
 256 pp., illus. . . . \$16.95

This is a comprehensive guide to preliminary structural design using a minimum of mathematics and numerous illustrations to describe structural forms and their mathematics. It has a strong emphasis on graphic presentation and is an instant-access reference to structural design. Full consideration is given to the internal and external forces that a building must withstand, and the interaction of structural and environmental design.

Circle B603 under Books.

### 4 Architecture: Form, Space and Order

By Francis D.K. Ching,  
 294 pp., illus. . . . \$22.50

Written to foster understanding of design concepts, this rich source of architectural prototype demonstrates how to extract the fundamental principles of form and space from the environment, whether in the architectural one views or inhabits, in architectural visualization, in drawing, or in actual design.

Circle B604 under Books.

### 5 Affordable Houses Designed by Architects

Edited by Jeremy Robinson,  
 168 pp., illus. . . . \$36.50

This lavishly illustrated volume shatters the myth that architect-designed houses are more costly than developer-built houses. The superb photographs, floor plans, drawings, and details of interiors and exteriors present a wealth of ideas on how to construct beautiful and unique houses within limited budgets.

Circle B605 under Books.

### 6 Earth-Sheltered Habitat History, Architecture and Urban Design

By Gideon S. Golany, Ph.D.  
 240 pp., illus. . . . \$14.95

This book explains the energy-saving advantages that earth enveloped shelters offer for heating or cooling, weather-proofing, comfort, benefits of lower land and maintenance cost, durability, privacy and maintenance safeguards against noise, strong wind, and pollution. It discusses all types of potential land uses belowground.

Circle B606 under Books.

### 7 Design and Planning of Swimming Pools

By John Dawes,  
 276 pp., illus. . . . \$52.50

A comprehensive manual that describes the essential characteristics and consequent design requirements of every type of pool imaginable. Also deals in great detail with more techni-

cal matters, such as structural problems and how to solve them, finishes, filtration, circulation and water treatment, heating and ventilating

Circle B607 under Books.

### 8 Architectural Rendering: The Techniques of Contemporary Presentation

By Albert O. Halse, 326 pp., illus., 2nd edition, 1972 . . . \$65.00

This completely up-dated revision of the most widely used guide to architectural rendering covers all working phases from pencil strokes to finished product — and shows how to obtain the desired mood, perspective, light and color effects, select proper equipment and work in different media.

Circle B608 under Books.

## NEW★

### 9 The Architecture of Death

By Richard A. Etlin  
 441 pp., illus. . . . \$37.50

Traces the change through six pivotal decades in the history of funerary architecture. Analyzes the intellectual and social concerns that led to the establishments of a new kind of urban institution — the municipal cemetery. The book is not only a definitive work on the design of cemeteries but is also the cultural history of an age.

Circle B609 under Books.

### 10 The Decorated Diagram, Harvard Architecture and the Failure of the Bauhaus Legacy

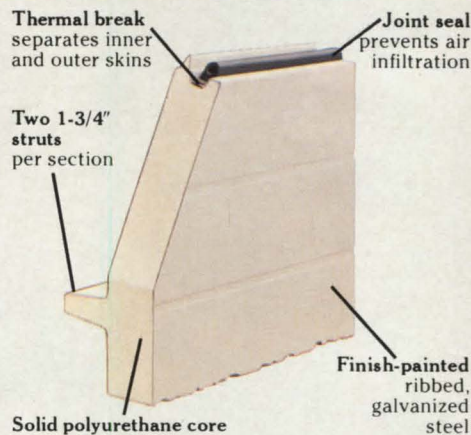
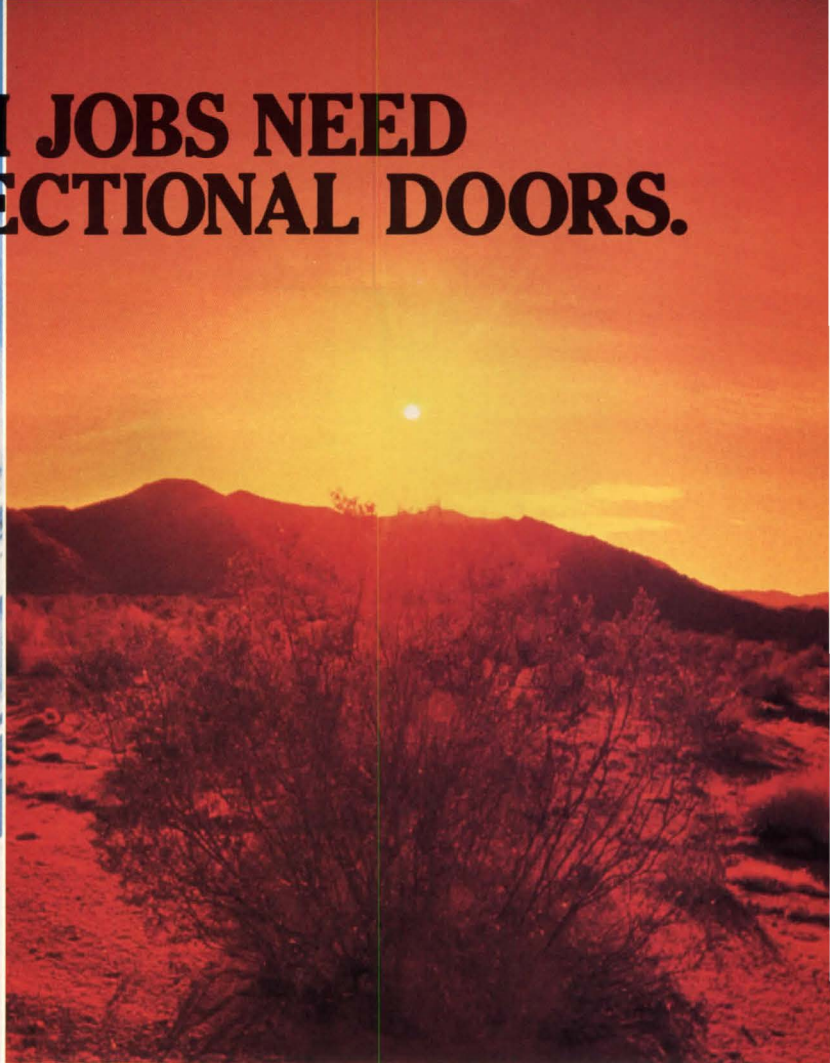
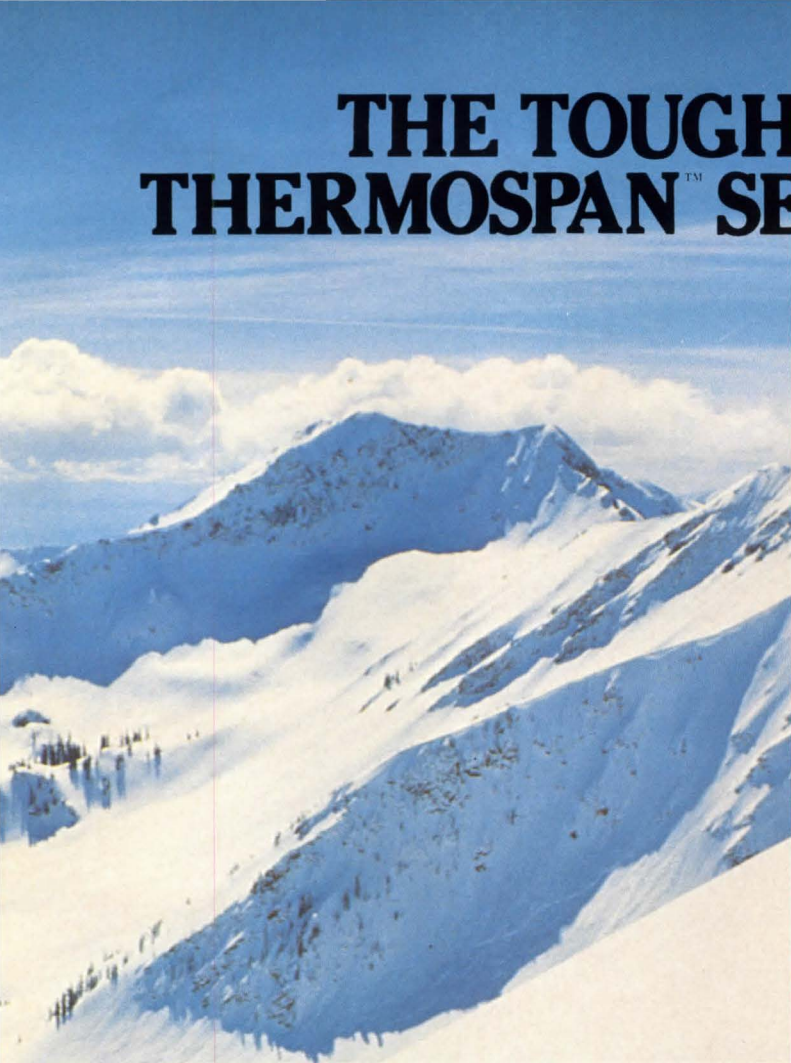
by Klaus Herdeg  
 125pp., illus. . . . \$22.50

Deals with Gropius's pervasive influence from the late 1930s to the early 1950s as head of the Harvard Graduate School of Design. Criticism of the school and the curriculum under Gropius and his formal analysis of the work of its most illustrious graduates. Shows that they have all failed to move beyond Gropius's indoctrination and the Bauhaus legacy.

Circle B610 under Books



# THE TOUGH JOBS NEED THERMOSPAN™ SECTIONAL DOORS.

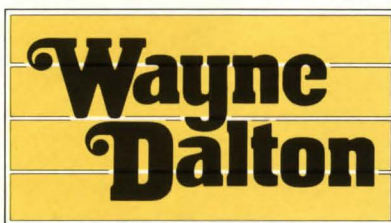


## The right system for size, stamina and thermal efficiency!

When outdoor temperatures change, no building owner wants to waste a bit of the costly energy it takes to heat or cool a huge warehouse like the one shown above. Thermospan overhead sectional doors close down on potential energy loss—and high costs—all year 'round.

### Look at total costs first!

Insulation characteristics of Thermospan, as outstanding as they are (tested installed "U"-value: 0.11), tell only part of the story. Installed pricing, maintenance and product life all must be considered. Thermospan is competitively priced, has a tough pre-painted exterior, low maintenance, and offers a long, virtually trouble-free life. With the added advantage of significant energy savings, it's the obvious choice for cost-conscious construction specifiers!



### How Wayne-Dalton does it.

Basically, each Thermospan door is an homogenous sandwich of steel/polyurethane/steel. Sturdy steel struts are roll-formed into the back surface for added strength.

Polyurethane insulation adheres firmly to both inner and outer skins. The thermal break prevents condensation and frost on inside surfaces to prove its thermal efficiency; and heavy-duty galvanized hardware also adds to the long service life. The result is a cost-efficient, effective barrier to heat and/or cooling loss for doors up to 40 feet wide.

### Get the total insulation story!

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# Classic Elegance

Georgia Marble® imparts a feeling of permanence along with the prestige and classic elegance of beautiful marble.

As a flooring, no material can match Georgia Marble. Its unique crystalline structure gives the marble great strength and a very low moisture absorption rate. This means that Georgia Marble will last the life of a building and require a minimum of upkeep in the years to come.

Another important feature of Georgia Marble is color. The subtle gray to black veining of the marble makes it a perfect medium for any color scheme imaginable. This is especially important because it allows for any future design changes of the interior decor.

**georgia marble** company  
structural division nelson, georgia 30151 (404) 735-2591  
a jim walter company

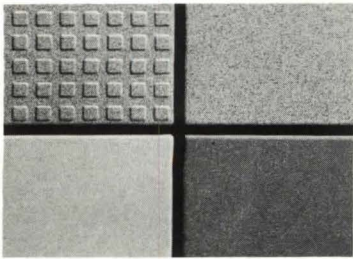
Building: First International Plaza, San Antonio, TX.  
Architect: Skidmore, Owings & Merrill, NY.  
Stone Contractor: Skinner Marble & Granite Co., Inc., Dallas, TX.

Circle No. 344 on Reader Service Card



# P/A Products and literature

*Products and literature this month relate to the Technics article about Ceramic Tile that begins on page 113, followed by items of general interest.*



**Antislip floor tile** protects against slipping in all directions. The approximately eight-inch-square glazed tile is available in white, light blue, and brown. Among applications for which it is suitable are hospitals, nursing homes, laboratories, bakeries, restaurant kitchens, and residences. Sphinx Tiles USA.

Circle 105 on reader service card

**Pavers for public areas** having heavy traffic are offered in a range of subtle grays and earth-tones. Sizes include 6" x 6", 4" x 8", 8" x 8", and 9" x 12" as well as hexagonal and circular tiles, all with slip-resistant textures and patterns. Forms & Surfaces.

Circle 100 on reader service card

**Crème de la Crème™ tile** for bathroom, sauna, fireplace, and kitchen, is available in eight colors named for popular ice cream flavors. Tiles are 6" x 6" and 6" x 3" with necessary trim pieces. Surface is smooth to the touch and has a semimatte glaze. Huntington/Pacific Ceramics.

Circle 102 on reader service card

**Armstone™ floor tile** and wall panels for contract interiors are formed from over 90 percent marble. The 12" x 12" floor tiles and up to 4' x 4' wall panels are available in 18 natural colors, with either polished or matte finish. Tiles are 3/8" and 3/4" thick and are suitable for new construction or remodeling. The company is an affiliate of Armstrong World Industries, Lone Star Industries, and Shell Oil Company. ArmStar.

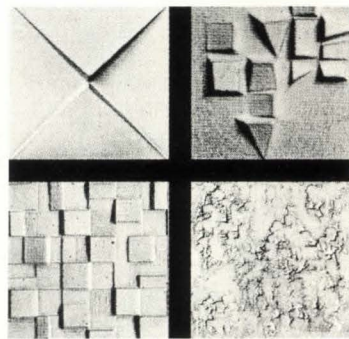
Circle 103 on reader service card

**Permétage™ marble** for flooring and walls is a composite of 96 percent marble and high-technology resins that is denser and less porous than unprotected marble. Available in several patterns and colors, Permétage resists common stains and is easy to maintain. Tiles are nominal 12" x 12", 3/8-inch thick, with custom sizes available on special order. PermaGrain Products.

Circle 104 on reader service card

**Cottoimpruneta® tile**, manufactured in Italy from clay found in a hill in Florence, has a natural red color. It is resistant to frost, wear, salt air, and acids, making it suitable for interior or exterior use. The tiles come in a variety of shapes and sizes that create interesting floor patterns, as well as trim pieces. Impruneta.

Circle 106 on reader service card



**Custom architectural ceramics** are available for floors and walls, including wall murals. Low-relief designs are pressed into floor tiles that can be selected from a wide range of colors and degree of gloss. Walls for interior or exterior applications are made to order in a variety of sizes and colors and high or low relief. Custom designs can be developed for specific projects. Design-Technics.

Circle 107 on reader service card

**Sinterglass porcelain mosaic tiles** from Italy are extremely hard, frostproof, waterproof, and resistant to thermal shock,

chemicals, and color fading. Of the three finishes—lux, mat, and sil—mat is especially resistant to hard wear and is nonslip, even when wet. There are round tiles approximately 0.7" and 1.6" in diameter; square tiles approximately 0.7", 1.6", and 2", all in several colors. Sinterglass.

Circle 108 on reader service card



**'Rose' embossed ceramic tile** is from the "Mother of Pearl" series having an iridescent surface. The 8" x 8" tiles, available in taupe or off-white, are suitable for walls and bathroom floors. There are also corresponding solids. Edilcuoghi.

Circle 109 on reader service card

**Pool coping** provides a smooth, double round edging for swimming pools. Units are 2 1/4" x 3 3/8" x 9" and come in colors to match or complement the company's brick pavers and thin tile. Other uses are stair nosing and decorative features on windows and fireplace mantels and hearths. Endicott Clay Products.

Circle 110 on reader service card

**Latapanel™ backer board** for ceramic tile floors, walls, or countertops will not rot, deteriorate, or break down when exposed to moisture. It is available in 3' x 5', 4' x 5', and 4' x 8' panels, 7/16" thick. Asbestos-free Latapanel Portland cement building boards can also be used for general building applications where fire-rated panels are required. The company also makes a full line of mortars, adhesives, and grouts. Laticrete International, Inc.

Circle 111 on reader service card

**Rustic glazed tiles** suitable for commercial floors, available in five sizes from 4" x 4" to 8" x 8", are single-fired and frostproof. They are available with regular surface or wirecut for increased slip resistance. Besides standard colors, glazed colors to match almost any tile or sanitaryware color can be custom produced. American Ceramics, Inc.

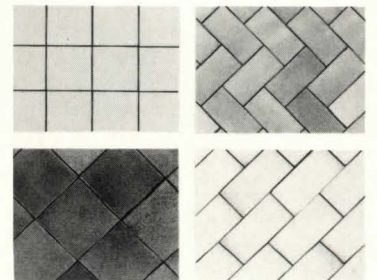
Circle 112 on reader service card

**GeoMagnum Series 400** precast marble agglomerate tile closely resembles natural agglomerates. The manufacturing process assures cohesion and resistance to stains and scratches as well as unusual strength, according to the manufacturer. Tiles are 15 3/4" x 15 3/4" x 5/8" thick. There are eight colors and patterns. Dynasty Corp.

Circle 113 on reader service card

**Selbaset 15 is a latex additive** for thin-set mortars used in setting interior and exterior ceramic, quarry, and mosaic tiles, and other masonry. It improves mortar adhesion and resistance to chemicals, freeze-thaw cycles, thermal shock, and vibration. Selby Battersby & Co.

Circle 114 on reader service card



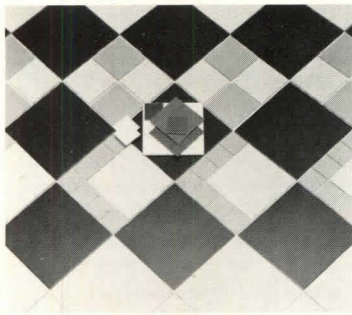
**Extruded ceramic tiles** in five moderately priced new series can be used for commercial and residential installations. They offer high durability, resistance to acids and alkalis, and low water absorption. There are 18 earthtone colors, from light gray and warm beiges to terra cotta red. Villeroy & Boch.

Circle 115 on reader service card



**Acrylic latex-modified mortars** and grouts offer improved bond strength in the installation of tiles, pavers, marble, and slate. They help to prevent premature moisture evaporation, allowing proper cure time. The additives increase resilience to help absorb shock and improve resistance to freeze-thaw cycles. H.B. Fuller Company, Construction and Consumer Products Div.

Circle 116 on reader service card



**Modular single-fired ceramic tiles** are available in 12 colors. Sizes are 4" x 4", 8" x 8", 12" x 12", and a new, large size, 16½" x 16½". The sizes and colors can be used in conventional ways or can be combined to create a variety of patterns. Hastings Tile & Il Bagno Collection.

Circle 117 on reader service card

**Durock™ tile backer board** is a ceramic tile backing and underlayment for interior walls and floors, countertops, tub and shower areas. It can be applied over wood or steel frames. The board is formed of aggregated Portland cement slurry reinforced with woven glass fiber mesh. It is available in 3' x 4', 3' x 5', and 3' x 6' boards. United States Gypsum.

Circle 118 on reader service card

**Tile Tite** is a single-component liquid-applied elastomeric waterproof tile-setting adhesive for thin-set installations over clean concrete, exterior grade plywood, existing ceramic tile, terrazzo, and other clean, dimensionally stable surfaces. It can be used on horizontal and vertical surfaces such as exterior cladding of tile, marble, travertine, granite, slate, and limestone; and residential, commercial, and institutional kitchens, bathrooms, lavatories, showers, and entrance foyers. Applied Polymers of America, Inc.

Circle 119 on reader service card

**'Designer's Guide to Italian Ceramic Tiles & Their Installation'** offers 64 pages of tile information with full-color illustrations. It defines the various kinds of tile and explains

their physical and mechanical characteristics. It provides step-by-step methods of installation, lists materials required, and ends with maintenance recommendations. A glossary of terms is included. For a copy of the manual, write on professional letterhead to Italian Tile Center, 499 Park Ave., New York, N.Y. 10022.

**Structural glazed facing tile** for interior applications has an integral baked-in ceramic face that resists stains, marks, and chemicals. The tiles have energy-storing capability and resist fire. The tiles are described and illustrated in a 12-page brochure that shows typical wall sections, shapes, and sizes available, and includes a color chart. Also shown is structural glazed facing brick for exterior and interior use. Stark Ceramics, Inc.

Circle 200 on reader service card

**The Piemme 1984 tile collection**, both single-fired and double-fired, is shown in color and described in a 20-page brochure. Solid colors, subtle patterns, borders, geometrics, and florals, in pastels and deep tones, are illustrated. Size and weight specifications and technical data are included. Piemme of the Americas, Ltd.

Circle 201 on reader service card



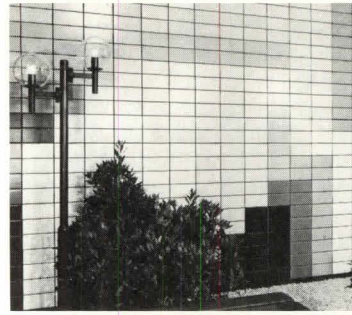
**Terrestrial ceramic tile** is color coordinated to match both plumbing fixtures and kitchen appliances. For example, sterling matches GE's silver and American Standard's sterling silver; sand matches Whirlpool's toast and Kohler's Mexican sand. Terrestrial is made in four basic background color blends, each with three associated accent tiles for random or geometric patterns. Wenczel Tile Company.

Circle 120 on reader service card

**Grani Flex and Marble Mosaic** tiles consist of marble chips in a flexible thermoset matrix. Grani Flex, with the look of granite,

uses ⅛" chips. Marble Mosaic, looking like natural marble, uses ¼" chips. Both are nonporous, waterproof, colorfast, and resistant to most solvents, and each is available in 24 standard colors. Tiles are 11⅞" square, ⅜" thick, with abrasive wear resistance said to be 3–6 times greater than concrete and cement terrazzo, 5–7 times greater than vinyl. Fritz Chemical Co.

Circle 121 on reader service card



**Combi-Color Collection** of Brickplate™ offers great flexibility in combining colors of unglazed, glossy, matte, and brilliant finishes. There are 62 colors, all available in sizes from 2½" x 10" to 8" x 8". Applications range from residential and light commercial for glazed tiles to the heavily trafficked commercial areas for unglazed tile. Brickplate is suitable for exterior cladding, since it is frostproof, nonfading, impervious to acid rain and other pollutants, and has low absorption. Gail Architectural Ceramics.

Circle 122 on reader service card

**Pearl Grey Marble** is offered in three surface treatments: Polished, the classic finish; Exterior Hone, slightly subdued; and Textured, which shows veining and brings out the crystalline sparkle. The marble does not absorb moisture and has great strength. Georgia Marble Company, Structural Div.

Circle 123 on reader service card

**Hitor-II epoxy mortar** can be used for ceramic tile installations that are exposed to high temperatures and food acids found in food processing plants, restaurants, bakeries, and commercial kitchens. The two-part epoxy system can withstand temperatures up to 350 F and can be used on horizontal and vertical surfaces. It cleans up with water within 90 minutes of application and can be subjected to light use after 20 to 24 hours of cure at room temperature. Tile Council of America.

Circle 124 on reader service card

**Le Tessere** is a 4" x 4" tile especially for kitchen walls and backsplashes. The tiles are frostproof and impact resistant. There are eight solid colors, four slightly mottled muted colors, six special colors called *I Cascinali*, and three earthtones called *I Rustici*. Marazzi USA, Inc.

Circle 125 on reader service card

**Primavera decorative ceramic tile** by Incepta has a textured background of subtle dots overlaid with an Art Deco floral pattern. It comes in 14 pastels that coordinate with the colors of American sanitary fixtures. Intercontinental Ceramics Co.

Circle 126 on reader service card

**'Normandie' unglazed ceramic tile** for interior residential or light commercial use is made in two colors, bronze and rouge, in a variety of tones. Each is available in four shapes: four-inch square, three-inch hexagon, four-inch picket, and four-inch parallelogram. Metropolitan Ceramics, Inc.

Circle 127 on reader service card



**Idaho Quartzite natural stone tile** can be used in heavy traffic areas indoors and outdoors. It provides the durability of marble and granite at a fraction of the cost. The nonporous, nonskid tile comes in light or medium silver and gold. It can be used in plazas, pool decks, golf courses, transit stations, offices, and residences. Idaho Quartzite Corp.

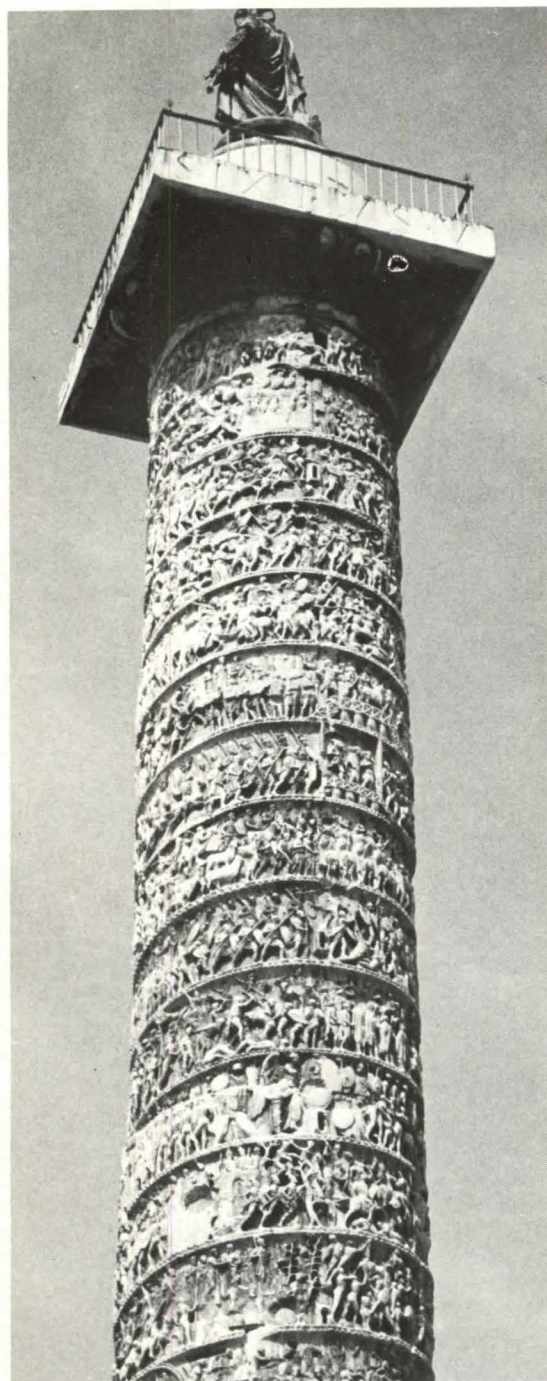
Circle 128 on reader service card

**The 1984 Handbook for Ceramic Tile Installation** is a 32-page manual of ceramic tile installation specifications and includes 61 changes from the 1983 edition. The manual covers tile installation in areas such as interior and exterior floors and walls, bathrooms, swimming pools, ceilings, stairs, countertops, and renovations. Tile Council of America, Inc.

Circle 202 on reader service card

[Continued on page 144]





Trajan's Column, Rome, A.D. 113.

**Restoration of world landmarks** will be the focus of a series of articles in the November P/A. Of the many renowned structures now being restored all over the world, P/A has chosen to cover a few that illustrate the design and technical dilemmas encountered in all preservation efforts. We will include articles on the Eiffel Tower in Paris, Trajan's Column and the Arch of Constantine in Rome, the Ca' d'Oro in Venice, and Louis Sullivan's revered Guaranty Building in Buffalo. A feature on 1930s Modern architecture in Tel Aviv will document an important but little known heritage.

**Technics: Paint** will be the subject of an up-to-date review of possibilities and essential advice on surface preparation.

**P/A in December** will concentrate on the final work of the late Louis Kahn and works by others that show his influence. A Technics article will take up metal cladding.

# PA in November: Restoration

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## P/A Products and literature

**KB Durament grouts** for ceramic or quarry tile installation offer color durability, high compressive strength, and low shrinkage. They are easy to apply and cure rapidly. There are 25 colors, including nine new designer colors. The company also produces KB Durafast mortar, which makes it possible to grout tile an hour after installation and have the floor ready for traffic in four hours. C.E. Kaiser Company.

Circle 129 on reader service card

**Pavers, mosaics, quarry, and wall tiles** are offered in an eight-page, full-color catalog. Quarry tile is suitable for residential and commercial floors and walls. Hoganas unglazed pavers are skid-resistant, frostproof, and resistant to abrasion and acids. Regal and Continental, glazed tiles, each available in 14 colors, can be used for kitchens and bathrooms. Mosaics can be used for interior or exterior walls and floors. Each group has matching trim pieces. Quamagra Tile, Inc.

Circle 203 on reader service card

**Ceramic tile brochure** illustrates several types of floor and wall tiles, including decorative tiles, for heavy-duty to light-duty use. The 32-page color brochure also lists and provides specifications for setting and grouting products. Charts show colors and trim pieces available. Custom designs and custom colors can be produced. Summitville Tiles.

Circle 204 on reader service card

**Wall tiles** shown in an eight-page catalog include: INAS-120 for interior commercial and residential use, 4" x 4", available in 48 bright colors; Spectral, also for interior walls, 4" x 4", in 38 soft colors; and Imperial for interior or exterior walls, 3" x 3", in 15 colors. Imperial comes in sheets made up of 16 tiles (approximately one square foot). Trim pieces are available for all lines. Specifications are included. Kowa Texas, Inc.

Circle 205 on reader service card

**Single-fired vitreous ceramic tile** with a hard finish, low moisture absorption, frostproof body, and durability is suitable for interior and exterior applications subject to heavy traffic. It is available in natural and earth-tone colors which are illustrated in a 12-page color brochure in typical settings. Product features are listed and short-form specifications are included. International American Ceramics, Inc.

Circle 206 on reader service card



**The GL Marble catalog** is designed as a working tool for architects and specifiers. The 15-page catalog details fabrication and installation processes of the marble that is 1/4" thick and available in large sizes and shows colors and patterns. Marble Technics Ltd.

Circle 207 on reader service card

**Prefabricated Brickplate® panels** for high-rise exteriors are installed over gypsum board framed with lightweight steel studs. Advantages of using panel fabrication, details, and performance data are provided in an eight-page brochure. Gail International Corp.

Circle 208 on reader service card

**Ceramic tile catalog** includes grades suitable for heavy duty, such as in malls and on building exteriors, and light duty, such as in residential kitchens and baths and office interiors. The tiles, which are glazed, salt glazed, or unglazed, are shown in color, with coordinated decorative tile designs illustrated in black and white. Charts of test data, drawings of special shapes available, and specifications are included. Korzilius, Inc.

Circle 209 on reader service card

**'Marble—the natural element'** is a full-color, six-page folder that illustrates outstanding examples of recent marble installations. There are four exteriors, five interiors, and four specialty installations. The folder is available, along with a list of Institute members, from the Marble Institute of America.

Circle 210 on reader service card

**Dry-set mortars**, mixtures of Portland cement, sand, and additives for water retention, are used as a bond coat for setting tile. They are available as concentrate, unsanded mortar, and presanded mortar. A four-page brochure discusses the types of mortar and provides technical data about each. C-Cure Chemical Company, Inc.

Circle 211 on reader service card

[Continued on page 149]



# "Environmentally Safe" Homasote 4-Way® Floor Decking

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- Joist spacing: 24" o.c.  
Thickness: 1-3/4"  
Insulation: R/4.5  
Joist spacing: 16" o.c.  
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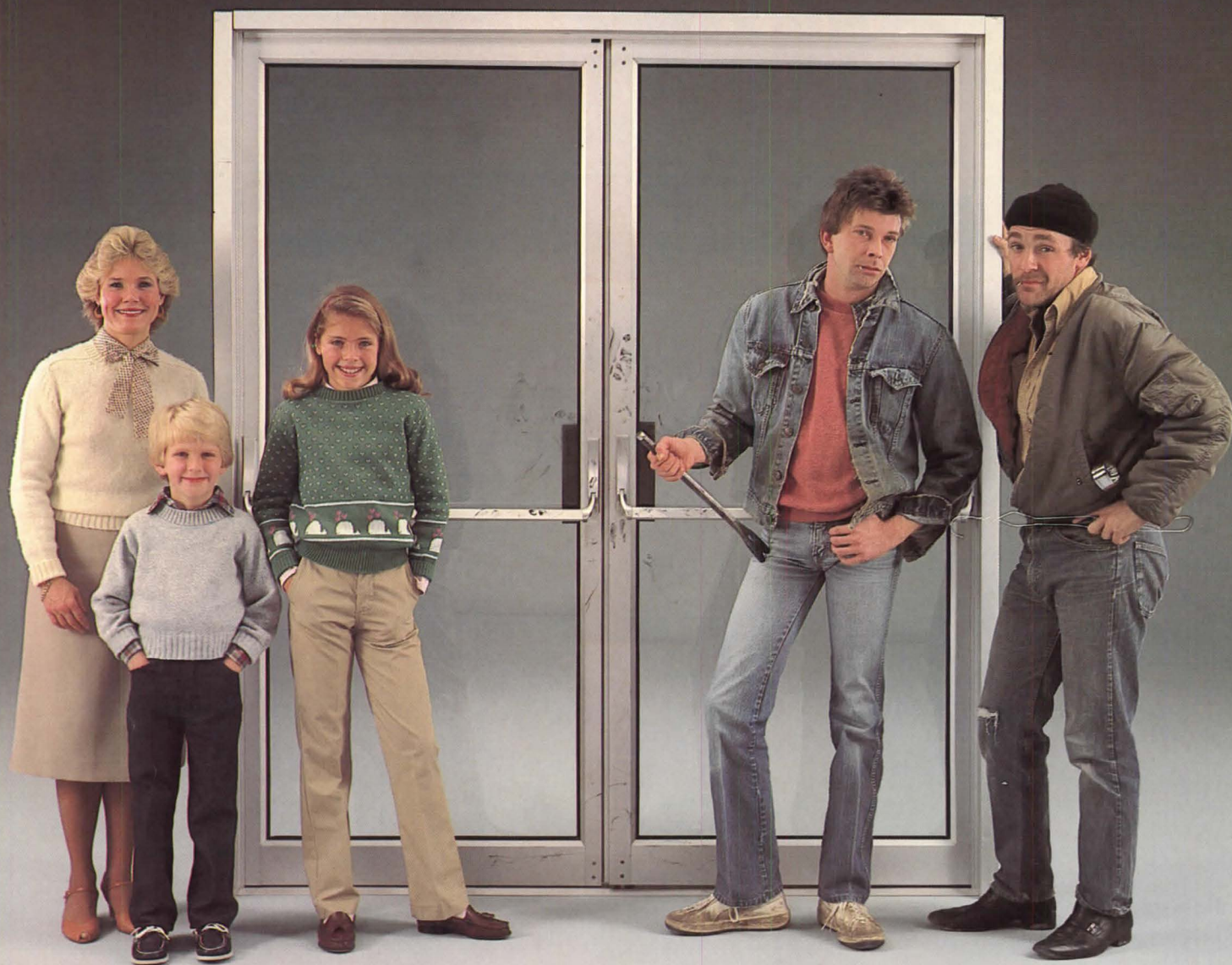


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**The good, the bad, and the ugly.**





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and blocking of the entrance, something that happens all too often in the interest of security of conventional panic exit device doors.

And speaking of security, Kawneer Panic Guard ingeniously defeats the intrusion of wires or coat hangers. The patented astragal bar design blocks insertion of devices to release the exit mechanism while continuous stops at the jamb and threshold prevent foreign object entry at these points. The recessed lock cylinder, which is also protected by the pull handles, prevents lock removal by tongs, pipe wrenches, or other burglary tools. And, Kawneer Sealair® weathering in the frame and an exclusive adjustable weathering between the door leafs help make the entrance secure against the elements, too.

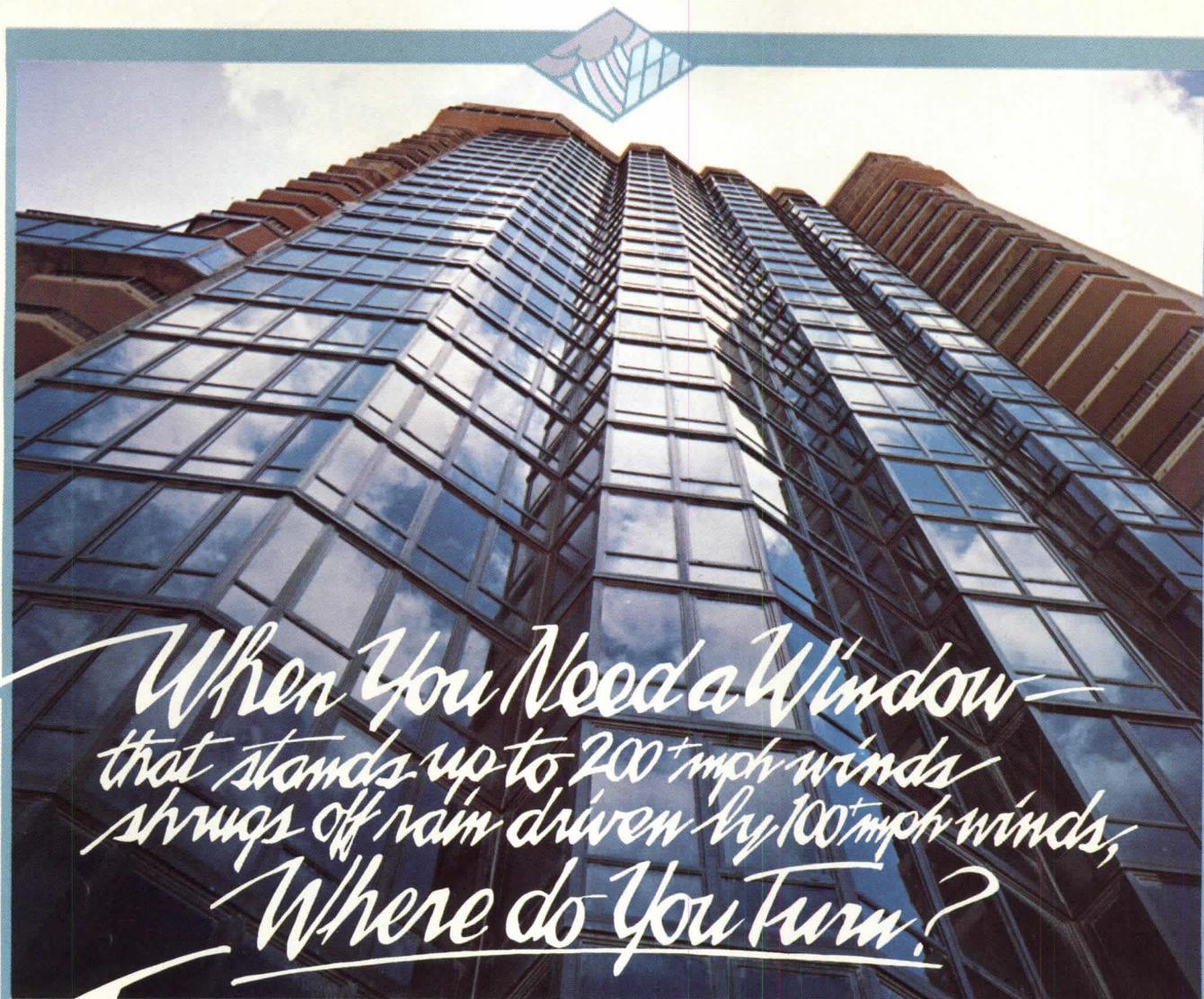
The aesthetic appeal of Paneline virtually speaks for itself. The contemporary styling complements any entrance and optional matching panels can be specified for vestibule doors along with fixed rails for sidelights and centerlites.

Kawneer Entrances with Panic Guard and Paneline. They are proof that you can have the good without having to accept the bad and the ugly, too.

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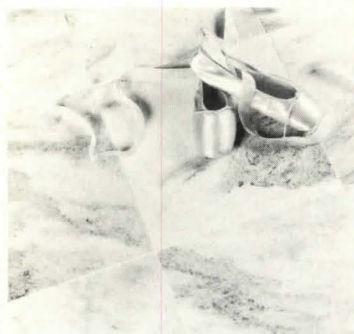
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**Marble tile** portfolio consists of ten full-color illustrations of marble tile varieties. A technical brochure included with the portfolio provides detailed information about tile specifications, finishes, care and cleaning, and installation. Vermont Marble Company.

Circle 213 on reader service card

**Floor, wall, and trim tiles** are offered in a 1984 catalog featuring several traditional lines. Production information is included, along with recommended uses, technical data, specifications, and color charts. Color photos show tiles in a variety of commercial and residential settings. Florida Tile Div., Sikes Corp.

Circle 212 on reader service card

**Tile brochure** 'Color the World Around You' provides information about Keraion, Keraion panels, unglazed, rustic monochrome, barefoot, and Kerillion tiles. Properties and colors for each are provided, along with illustrations of installations. Technical support section discusses suitable applications for each tile group and provides installation guidelines. Buchtal.

Circle 214 on reader service card

**Antifracture membrane** for tile eliminates surface cracking. The membrane consists of an elastomeric material laminated to a latex-impregnated fiber sheet. Installed between the concrete flooring and ceramic tile, terrazzo, or marble, it bridges cracks and prevents bounce and reverberation. It is available in 75-lb rolls that are 36 inches wide, 50 feet long. Terraflow Systems, Inc.

Circle 130 on reader service card

**Tile grouts, mortars, latex additives, adhesives, and stains** are described in an eight-page color brochure. Typical physical properties, colors, coverage, and chemical resistance where applicable are provided with each product. Specifications are included. UPCO Div., Emhart.

Circle 215 on reader service card

**Wall and floor tiles** for indoor and outdoor use are illustrated in color in a 16-page brochure. A chart indicates characteristics of each type, including finish, water absorption, breaking strength, resistance to frost and thermal shock, and performance rating. There are also trim and angle charts and a section on grouts and adhesives, as well as suggested specifications. Monarch Tile Manufacturing, Inc.

Circle 216 on reader service card

**Ceramic tile products** shown in a 48-page catalog include heavy-duty pavers, glazed and unglazed floor tiles, exterior and interior glazed tiles, trim pieces, and accessories. There are groups suitable for pools, exterior cladding, bathrooms, kitchens, and paving, all in several colors. Also shown are Spanish designs in intricate patterns. Dal-Tile Corp.

Circle 217 on reader service card

**Tiles and allied products** offered in a 40-page catalog include glazed floor and wall tiles, mosaics, and quarry tiles, as well as adhesives, grouts, and mortars. New products are Lock-Bak for exterior vertical surfaces and Transit-Tile with raised disks for safety along the edges of subway platforms, especially for the visually impaired. A section discusses the use of tile in passive solar floors and walls. Illustrations, descriptions and specifications are included. American Olean Tile.

Circle 218 on reader service card

**Adhesives selection and installation guide** covers ceramic floor and wall tile adhesives, grouts, mortars, and additives. Information about coverage, appropriate use, advantages, and colors where applicable is provided, along with specifications. The Syracuse Adhesives Company.

Circle 219 on reader service card

**Loucourt flooring** of heavy-duty sheet vinyl is suitable for basketball courts and other indoor sports and activity rooms. It complies with NCAA basketball bounce specifications and has greater sound absorption and slip resistance than hardwood floors. The waterproof top surface is abrasion resistant, the middle layer is resilient, and the reinforced backing adds stability and bonding strength. Thickness is either 100 or 187.5 mils, and standard rolls are 6 feet wide and 50 or 60 feet long. Lonsal, Inc.

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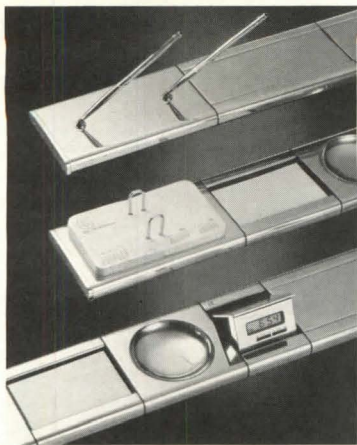
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**The Radius Two collection** of desk and office accessories, designed by William Sklaroff, now includes round and square ash trays, bookends, vases, planters, and floor ash urns, as well as desk consoles. Materials available are mirror aluminum, mirror brass, mirror bronze, statuary bronze, and mirror black anodized. Smith Metal Arts Company, Inc.

Circle 132 on reader service card

**Colorline® Seamless Wall** provides a smooth, uninterrupted

wall treatment that is fully demountable for rearrangement. It integrates with the Colorline demountable partition system, offering easy access to wall cavities and raceways. Unistrut Interior Building Systems/GTE.

Circle 133 on reader service card

**Paving bricks** for pedestrian walks and light traffic are offered in several shapes and sizes to create a variety of patterns. The bricks meet severe freeze/thaw test requirements of ASTM C67-80a. Earthtone colors include reds, flashed reds, browns, pinks, and tans. Glen-Gery Corporation.

Circle 134 on reader service card

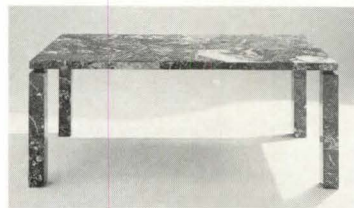
**The universal panel**, part of the company's RJ Office System and the Progressions Open Plan System, can be upholstered in any of several textiles, including polyester, flannel, tweed, silk, and Irish woolens. Panel trim is solid oak. Rose Johnson, Inc.

Circle 135 on reader service card

**Portfolio** shows contract installations of carpets of Anso® IV fibers. The full-color, 12-page

brochure identifies the project, designer, and carpet mill for each installation. Interiors include hotels, restaurants, theaters, offices, banks, retail stores, showrooms, and hospitals. The carpets have permanent built-in resistance to soil, stain, static, crushing, and odors. Allied Fibers Technical Center.

Circle 220 on reader service card

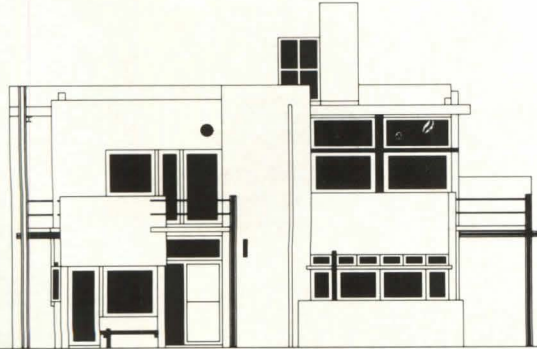


**Xileme, Sire Messere, and Pragma** furniture collections, described and illustrated in a 20-page color brochure, include desks, seating, tables, and storage pieces. Desks and storage units are offered in several styles in a choice of woods. Tables are wood or marble, and there are upholstered executive office chairs and conference/side chairs. Origlia USA, Inc.

Circle 221 on reader service card

**IDEC Comprehensive Bibliography for Interior Design**, 1984 edition, contains more than 3000 titles relating to interior design. It includes annuals, directories, bibliographies, literary guides, biographical works, histories, and American and foreign periodicals. It is in computerized format for easy updating and is supplied with a three-ring binder for Interior Design Educators Council members and design professionals. The library edition is hard-bound. Prices are \$25 for IDEC members; \$35 for design professionals; and \$45 for hard-bound copy. Checks should be made payable to IDEC Bibliography and sent to: IDEC Bibliography, Betty McKee Treanor, 10806 B, Pinehurst Dr., Austin, Texas 78747.

**Task seating**, designed in wood by Robert Schier, comes with or without arms and with high or low backs. Back and seat move independently for greater comfort. A four-page color brochure illustrates back and base options. Finishes include natural oak, English oak, walnut, mahogany,



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**CONTENTS**

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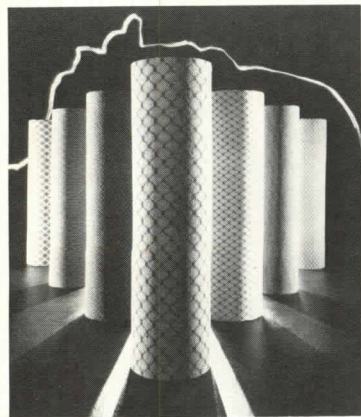
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and ebony. Upholstery material can be selected from the company's fabrics or COM. Gregson Furniture Industries.

Circle 222 on reader service card



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Circle 136 on reader service card

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Circle 137 on reader service card

**Diplomat™ digital plotter materials** consist of vellums and bonds available in several punched and nonpunched roll widths and cut sheet sizes. There are 2-, 3-, and 4-mil-thick flat vellums, matte on one or both sides; 5- or 7-mil-thick superflat PermaScale films; and vellums in 16- and 18-pound weights. They can be provided with custom printed title blocks and borders on sheets from 8½" x 11" to 60" x 144". Dietzgen Corp.

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Circle 139 on reader service card

**'Selecting the Proper Flushing System'** compares Sloan's flushometer with tank-type flushing. Advantages listed include housekeeping ease, space saving, reduced operating noise, reduced maintenance, and lowered water use. A case

study of a 12-story, 192-unit hotel/motel is included. Sloan Valve Co.

Circle 223 on reader service card

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Circle 140 on reader service card

**Multi-A-Cell® wire management system** is described in a 12-page color brochure. A single under-floor duct houses power, phone, and electronic cables in individual compartments. Wire service receptacles are in a below-floor box accessible under a flush-to-the-floor hinged lid, covered in the area's flooring material. Wiring changes can be made easily to suit office alterations. Midland-Ross Corp., Electrical Products Division.

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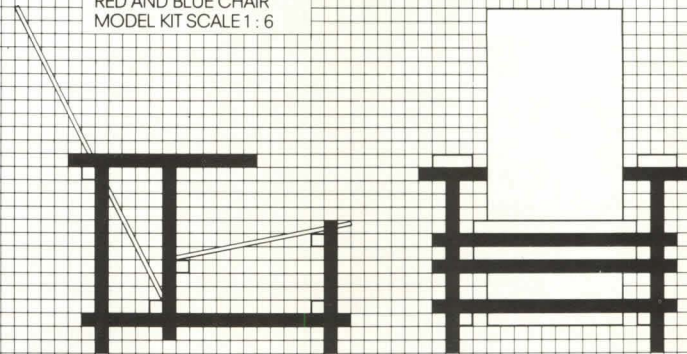
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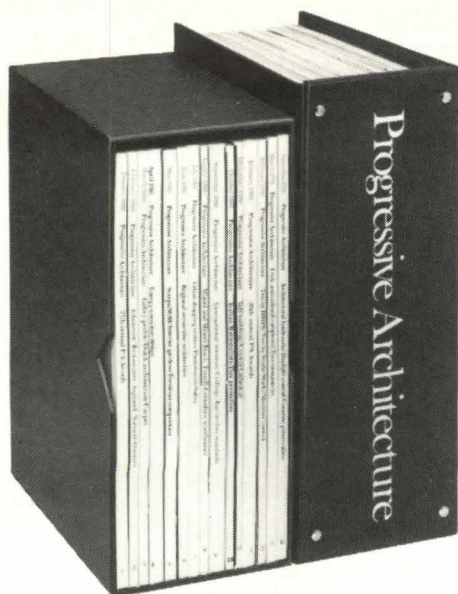


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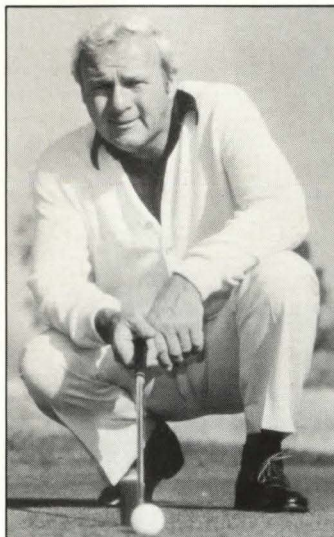
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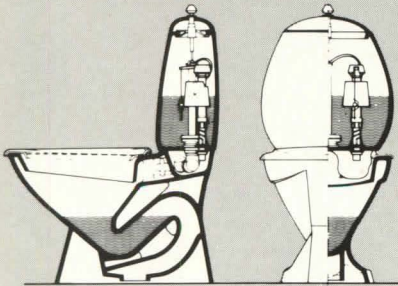
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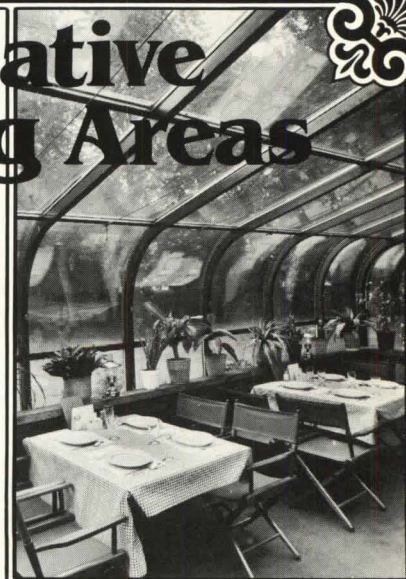
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# P/A Advertisers' index

Alenco Windows/Redman Building Products, Inc. ....	148
All-Steel, Inc. ....	58, 59
American Correctional Association .	130
American Gas Association ....	131
American Olean Tile ....	105-108
American Plywood Association ....	21
Andersen Corp. ....	42, 43
Applied Polymers of America, Inc. .	124
Architectural Computer Software .	132
Architectural Data Corp. ....	34
Armco Building Systems, Inc. ....	46
Armstrong World Industries . C2, 1, 11	
Assa, Inc. ....	66
Aztech International, Ltd. ....	46
BellSouth National Publishing ....	48
Boussac of France ....	36, 37
Buchtal ....	110, 111
California Redwood Association ....	52
Canon USA, Inc. ....	65
Ceramic Tile Marketing Federation ....	112
Colton-Wartsila, Inc. ....	156
Columbia Lighting, Inc. ....	60
Columbus Coated Fabrics ....	31
Conwed Corp. ....	149
Custom Building Products ....	120
Da-Lite Screen Co., Inc. ....	144
Dorma Door Controls, Inc. ....	54
duPont Co.—Antron ....	102, 103
duPont Co.—Architectural Drafting Films ....	C3
duPont Co.—Corian ....	8, 9
duPont Co.—Tyvek ....	10
Endura, Div. of the Biltrite Corp. ....	14
Euro Brands ....	150, 151
Fixtures Furniture ....	155
Ford Motor Glass Div. ....	134, 135
Forms & Surfaces ....	6
Four Seasons Solar Products Corp. .	156
Fuller, H.B., Co. ....	121
Gail Architectural Ceramics ....	123
G.E. Plastics LEXAN SHEET ....	17, 18, 19, 20
Georgia Marble Co. ....	138
Gilmer Potteries, Inc. ....	124
Helios Industries, Inc. ....	133
Hickman, W.P., Co. ....	132
Homasote Co. ....	145
Huntington/Pacific Ceramics, Inc. .	109
Innocrete Systems, Inc. ....	22
Insoport Industries ....	29
International American Ceramics, Inc. ....	27
Italian Tile Center ....	38
Kawneer Architectural Products ....	146, 147
KDI Paragon, Inc. ....	154
Kimberly Clark Technical Papers ...	49
Koppers Co., Inc. ....	104
Jack Lenor Larsen ....	62, 63
L&M Surco ....	124
Manville Roofing Systems Div. ...	32, 33
Marazzi USA ....	122
Marvin Windows ....	12, 13
Herman Miller, Inc. .	51, 53, 55, 56, 57
MM Systems ....	28
Monsanto Polymer Products Co. .	4, 5
Musson, R. C., Rubber ....	150
North American Philips Lighting ...	44
Pantone, Inc. ....	143
Paul Associates ....	35
Porcher ....	40
Progressive Architecture Bookstore ....	136
Progressive Architecture Furniture Competition ....	15, 16
Protective Treatments, Inc. ....	64
Sadlebrook ....	152, 153
Sherwin-Williams ....	157
Steelcase, Inc. ....	126, 127
Stevens, J.P., & Co., Inc. ....	47
Structural Stoneware ....	124
Summitville Tiles, Inc. ....	41
Tarkett, Inc. ....	129
Temcor ....	30
TransCeramica, Ltd. ....	2
TVA ....	140A, B
U.S. Gypsum ....	125
U.S. Intec, Inc. ....	50
Wayne-Dalton Corp. ....	137
Wiley, John, & Sons, Inc. ....	151
Wilson, Ralph, Plastics Co. ....	C4

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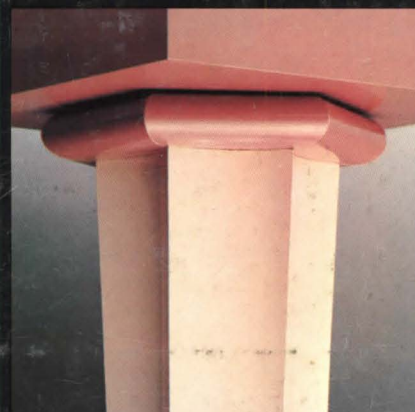
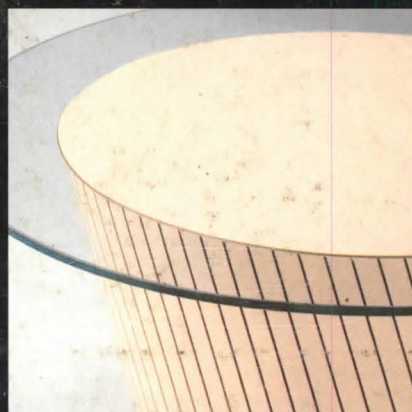
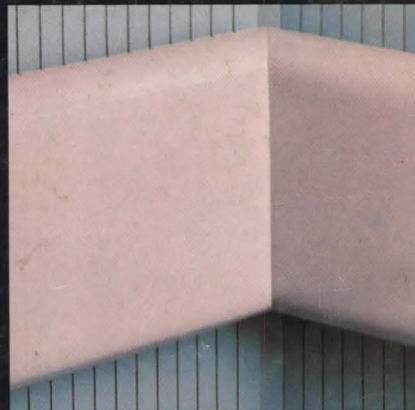
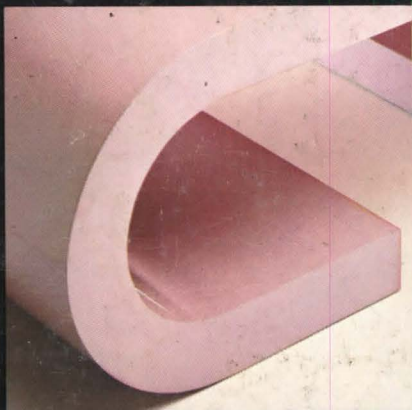
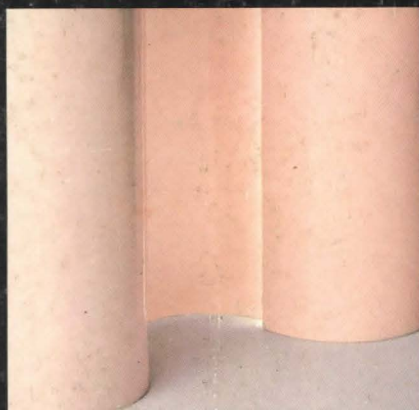
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